Office-Holding Premia and Representative Democracy*

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Abstract

I show that in a representative democracy, the predominance of high earners in the legislature may imply that not a single lawmaker supports the redistribution policy lower-income citizens prefer. The predominance of high earners cannot arise if legislators from a lower-income background support more redistribution—they have to join high earners in opposing it. I present the underlying logic using office-holding premia. High earners can only predominate the legislature if high premia induce legislators from a lower-income background to oppose more redistribution once in office. The office-holding premium required for the predominance of high earners to arise increases with income inequality.

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1 Introduction

High earners and affluent citizens predominate the legislatures in many representative democracies (e.g., Carnes 2012; Gagliarducci et al. 2010; Peichl et al. 2013; Dal Bó et al. 2017). Following the 2016 elections, of the members of the 115th United States Congress, over 95% held at least a bachelor's degree, over 60% held degrees beyond that, over 40% held a law degree, and about 40% and 38%, respectively, have declared law or business as one of their professions (Manning 2018). Of the overall US population aged 25 and over in 2016, only about 30% held at least a bachelor's degree and less than 20% worked in broadly defined management, business, financial operations, and legal occupations.[1] By some estimates, the median net worth among members of Congress in 2013 was over one million US dollars—more than 18 times that year's median net worth among US households of under $60,000.[2]

A natural question that arises from these observations is what role the policy preferences of lower-income citizens play in the policy-making process. Political scientists are divided on this question. Some argue that lower-income citizens' policy preferences are underrepresented (e.g., Gilens 2005, 2009; Carnes 2012; Peters and Ensink 2015) while others disagree (e.g., Soroka and Wlezien 2008; Ura and Ellis 2008; Kelly and Enns 2010; Branham et al. 2017).

This question is timely. Many important policy issues have a more or less explicit inherent redistributional component. Some issues concern redistribution directly, like the progressivity of taxation or welfare spending. Other issues concern redistribution less explicitly, like the overarching policy areas of education, health care, social insurance, and pensions (e.g., Besley and Coate 1991; Boadway and Marchand 1995). In the United States, lower-income citizens—those with less-than-average income—constitute a majority, as median income is less than mean income (also see Piketty et al. 2018). In the majority of congressional districts, the majority belongs to this group of lower-income citizens as well.[3] They tend to prefer more redistribution than high earners (e.g., Corneo and Grüner 2002; Durante et al. 2014). Yet, laws are passed that are expected to reduce redistribution, like the December 2017 tax reform.[4]

[1] Education: United States Census Bureau, 2012–2016 American Community Survey 5-year estimates, downloaded from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1501&src=pt on 9/25/2018. Occupations: United States Bureau of Labor Statistics, Current Population Survey, at https://www.bls.gov/cps/aa2016/cpsaat11b.htm, accessed on 9/25/2018.

[2] Center for Responsive Politics, accessed at https://www.opensecrets.org/news/2015/01/one-member-of-congress-18-american-households-lawmakers-personal-finances-far-from-average/ on 9/24/2018.

[3] In over 89% of all congressional districts for the 115th United States Congress, the median household income is less than the mean household income in the United States overall. The district median household income is less than the district mean household income in all congressional districts. In all states, the median household income is less than both the mean household income in the state and in the United States overall. Data: United States Census Bureau, 2012–2016 American Community Survey 5-year estimates, in 2016 inflation-adjusted US dollars, retrieved from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_DP03&src=pt on 4/20/2018.

[4] 115th Congress, Public Law 97: https://www.congress.gov/bill/115th-congress/house-bill/1/text; Congressional Budget Office, estimates of distributional effects: https://www.cbo.gov/publication/53429.

This paper contributes to the discussion about what role the policy preferences of lower-income citizens play in the policy-making process in representative democracies. I show that the situation might be quite different from what the ongoing debate among political scientists suggests. The predominance of high earners in the legislature may well imply that not a single lawmaker supports the redistribution policies preferred by lower-income citizens, whose redistribution preferences thus play no role in the policy-making process.

Assuming that lower-income citizens are not prevented from running for office by some implicit or explicit institutional barrier, the logic is rather general. First, two facts mentioned above are that lower-income citizens and high earners differ in their support for more redistribution and that the majority of electoral districts has a majority of lower-income citizens. Second, it has been shown that legislators tend to vote according to their personal policy preferences (e.g., Levitt 1996; Lee et al. 2004; Matsusaka 2017). Therefore, to the extent that redistribution is an important policy issue, candidates from a lower-income background win the votes of lower-income citizens as long as they still support more redistribution once they hold office. That is, because lower-income citizens have a majority in the majority of electoral districts, candidates from a lower-income background win the seat in the majority of districts, and high earners do not predominate in the legislature. It follows that for the predominance of high earners among lawmakers to arise, once in office, legislators from a lower-income background have to join those from a high-income background in opposing more redistribution. Hence, irrespective of their income background, all legislators oppose more redistribution, which is the policy preferred by lower-income citizens.

I make this logic rigorous in an environment that incorporates another observation. Empirical evidence suggests that in many democratic societies, holding office offers a premium over the market income individuals can expect (e.g., Gagliarducci et al. 2010; Eggers and Hainmueller 2009; Peichl et al. 2013; Kotakorpi et al. 2017). This premium derives from relatively high legislator salaries and opportunities to generate outside, and possibly future post-legislature,[5] income from, e.g., businesses, consultancy, board memberships, speeches, and books. Its size depends on the laws and ethics rules in place, and their enforcement, and may affect the redistribution policies legislators support once they hold office.[6]

As an example, a few numbers from the United States are suggestive. In 2016, the salary of a generic member of the United States Congress was $174,000, which was more than four times the median earnings of under $40,000 in the US population aged 25 and over.[7] That is, winning a seat in Congress would have more than quadrupled the median earner's income.

[5] See, e.g., Diermeier et al. (2005); Mattozzi and Merlo (2008); Eggers and Hainmueller (2009); Parker and Parker (2009); Palmer and Schneer (2016).

[6] As an example, see Djankov et al. (2010) on financial and business disclosure rules.

[7] Brudnick (2016) and United States Census Bureau, 2012–2016 American Community Survey 5-year estimates, downloaded from https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1501&src=pt on 9/25/2018.

In addition, the 2016 outside earned income limit was \$27,495 (Brudnick 2016). Outside unearned income from, e.g., investments—which might in part be made out of the relatively high congressional salaries[8]—is unrestricted. In 2015, the latest year with available data, the highest estimated outside income reported for a member of Congress was over \$650,000.[9]

In the environment I describe in Section 3, individuals are heterogenous in income and reside in one of a finite number of electoral districts. Both in society and in the majority of electoral districts, lower-income citizens constitute a majority. They support more redistribution while high earners oppose it. The redistribution policy is chosen by a legislature consisting of representatives of the districts. Each district's representative is determined in an election among two candidates selected by two parties from all citizens residing in the district. The election winner holds office, pockets a premium over their market income to the extent the political institutions allow, and votes for their preferred redistribution policy. A high-average-ability legislature may or may not generate additional benefits to all citizens.

I then show in Section 4 that the observed predominance of high earners in the legislature may well imply that not a single lawmaker supports more redistribution. If office-holding premia are low, then legislators from a lower-income background support more redistribution once in office. That is, lower-income candidates gather the votes of lower-income citizens and thus win the seat in the majority of electoral districts. Thus, high earners do not predominate in the legislature. Therefore, the predominance of high earners requires high office-holding premia. The premia must be high enough to induce legislators from a lower-income background to fall in line with those from a high-income background and oppose more redistribution. It follows that not a single legislator supports the policy preferred by lower-income citizens, whose policy preferences thus play no role in the policy-making process.

To be clear, the lack of support for the policies preferred by lower-income citizens does not arise by assumption. I do not assume that office-holding premia or legislator salaries are so high that legislators from all backgrounds oppose more redistribution once in office. While the environment incorporates office-holding premia, in principle, these premia could be very low, or even zero. I use the empirical observation that high earners predominate in the legislature to discipline the model and to identify the relevant subset of the parameter space. In that relevant subset, office-holding premia are high enough to induce legislators from all backgrounds to oppose redistribution once in office. The underlying logic carries over to a number of extensions. In particular, in Sections 4.6–4.9, I allow for a sense of group identity, reelection concerns, a second policy dimension that is independent of income, and a role for campaign finance and special interests, respectively.

[8]According to Manning (2018), at the beginning of the 115th Congress, members had on average served in Congress for about 10 years already, allowing for investments made out of the high congressional salaries.

[9]Center for Responsive Politics, accessed at `https://www.opensecrets.org/personal-finances/top-outside-income?filter=C&year=2015` on 9/13/2018.

I first discuss the paper's relation to the literature in Section 2. I then present the model in Section 3 and describe its equilibrium predictions and their implications in Section 4. I then discuss a number of modeling choices and interpretations in Section 5, before I conclude.

2 Related Literature

This paper focuses on the question of what role the policy preferences of lower-income citizens play in the policy-making process. I address this question by studying the redistribution policies legislators support. I consider an environment based on a citizen-candidate structure (Osborne and Slivinski 1996; Besley and Coate 1997) with a policy issue stylized as redistribution (e.g., Meltzer and Richard 1981) and an income premium associated with holding office. This environment highlights a reality in many democratic societies—office-holding premia—that may affect the extent to which policy outcomes correspond to citizen preferences. As a consequence, a lack of congruence does not require, e.g., issue bundling, influence by special-interest groups, asymmetric information, or costly voting (e.g., Besley and Coate 2008; Lohmann 1998; Campbell 1999). I use this model to link the predominance of high earners among lawmakers to the redistribution policy they support once they hold office.

In the model, legislators are selected endogenously, relating the paper to a large literature on the selection of politicians. For example, Carrillo and Mariotti (2001), Galasso and Nannicini (2011), and Mattozzi and Merlo (2015) study the selection of political candidates by parties; Caselli and Morelli (2004), Messner and Polborn (2004), and Poutvaara and Takalo (2007) study the role of politician pay in determining the selection of political candidates in a citizen-candidate environment (Osborne and Slivinski 1996; Besley and Coate 1997). However, all of these papers focus on candidate or politician quality, ability, or valence. None of them can speak to the predominance of high earners in legislatures. By contrast, this paper can speak to the predominance of high earners in legislatures. Its focus is not on the quality of legislators but on the redistribution policies they support once in office.

Levy (2005) studies the combination of redistribution through transfers to all poor and transfers to only the young poor via the public provision of education; Fernández and Levy (2008) study the combination of general redistribution and transfers targeted to specific interest groups that could be associated with, e.g., certain religions or certain localities. In both these papers, each group in society is assumed to be represented by a politician. Parties consisting of a subset of these representatives are formed endogenously and propose credible platforms. All citizens vote over those platforms and the winning parties' platform is implemented, determining the political outcome. While both papers can describe the composition of the party that wins the political competition, neither paper considers a legislature with representatives elected to represent electoral districts. Therefore, these studies cannot speak to the composition of the legislature in terms of the income backgrounds of its members. That is, they cannot ask what the predominance of high earners in the legislature implies for the redistribution policies that legislators support.

Chari et al. (1997), Harstad (2010), and Christiansen (2013), who is building on Volden and Wiseman (2007), and others study the role of strategic delegation in determining district representatives when the legislature decides over the provision of local public goods, global public goods, or both. However, their focus is on differences in preferences for public spending, and there is no income dimension. Thus, again, these studies cannot speak to the composition of the legislature in terms of its members' income backgrounds or the implications of the predominance of high earners for the redistribution policies that legislators support.

This paper most closely complements work by Huber and Ting (2013) and Mattozzi and Snowberg (2018). Both emphasize the role of legislators in bargaining over the allocation of available resources among individual districts when redistribution plays a role. On the one hand, Huber and Ting (2013) aim to explain crossover voting in the sense that poor voters sometimes vote for right-wing parties and rich voters sometimes vote for left-wing parties. Candidates are exogenous and have an exogenous policy platform on redistribution and pork. The resulting legislators belong to parties with an ideology regarding pork and redistribution, not to income groups. Crossover voting arises from the need to elect a member of the winning party to secure access to pork because the majority party controls its distribution. Given the assumptions the authors make about the party ideologies and how they map into the availability of pork, poor voters have a stronger incentive to crossover vote for the right-wing party, which thus has an advantage. The legislature composition in terms of party affiliation together with the parties' ideologies determine the policies that legislators support in office. However, party affiliation is not the same as income background, and party majorities are not as stable as the predominance of high earners.

On the other hand, Mattozzi and Snowberg (2018) argue that there is little evidence for the economic mechanism at work in Huber and Ting (2013). They assume instead that the more successful individuals are in the private sector, the better they are at securing resources for their district in the legislative process. If this skill is important, then all districts elect high-income individuals, who oppose redistribution, over candidates from a lower-income background. Therefore, in both Huber and Ting (2013) and Mattozzi and Snowberg (2018), to the extent that candidates have high- and low-income backgrounds either by assumption or by interpretation of their party affiliation, voters prefer high earners over lower-income citizens. However, this prediction is inconsistent with evidence provided by Carnes and Lupu (2016), who find that given the choice, voters do not reject lower-income candidates. The results in Section 4 are consistent with this finding. The logic I present suggests that all legislators oppose redistribution once in office, irrespective of their party affiliation or income background. Thus, voters are indifferent among candidates from different income backgrounds so that the predominance of high earners can readily arise.

3 The Model

There is a unit measure continuum of risk neutral individuals and two political parties indexed by $P \in \{A, B\}$. Each individual belongs to one of two mutually exclusive groups. A measure $\mu_l > 0$ of individuals belongs to the low-income group l with income or earnings potential $w_l > 0$ while a measure $\mu_h > 0$ of individuals belongs to the high-income group h with finite income or earnings potential $w_h > w_l$, where $\mu_l + \mu_h = 1$. The average income in society is $\bar{w} = \mu_l w_l + \mu_h w_h$. In line with empirical observations in, e.g., the United States, median income is less than mean income, i.e., $\mu_l > \mu_h$.

Each individual resides in exactly one of an odd finite number $d > 1$ of pairwise disjoint electoral districts, with an equal measure $1/d$ of individuals each, and indexed by $j \in D = \{1, \ldots, d\}$. In each district j, the measure of individuals belonging to income group i is $\mu_i^j > 0$, where $\mu_l^j + \mu_h^j = 1/d$ for all $j \in D$, and $\sum_j \mu_i^j = \mu_i$ for all $i \in \{l, h\}$. There are districts with a majority of individuals from the low-income group l, collected in $D_l = \{j \in D : \mu_l^j > \mu_h^j\}$. There may be districts with a majority of individuals from the high-income group h, collected in $D_h = \{j \in D : \mu_l^j < \mu_h^j\}$. In every district, one group is a strict majority: $D = D_l \cup D_h$. In line with empirical observations in, e.g., the United States (see Footnote 3), the majority of districts has a majority of individuals from the low-income group l, i.e., $|D_l| > |D_h|$.

There is a legislature with d members that chooses policies in a plurality vote. Each legislator represents a single electoral district, and each electoral district is represented by a single legislator. For every district, each party selects one candidate from the population residing in the district in order to maximize their expected number of seats in the legislature. (I discuss alternative party objectives in Section 5.2.) Candidate selections are simultaneous and independent across districts. Every individual in society can be selected to be a candidate in a district if and only if they are a resident of that district, and running is costless. Every district's representative is determined in a plurality vote election in that district. Individuals are eligible to vote in a district election if and only if they are a resident of that district.

Legislators' income while in office offers a premium over the market income they could expect in the private sector. This premium is represented by a factor $\gamma \geq 1$, implying an in-office income γw_i for legislators from group i. The implication $\gamma w_h > \gamma w_l > 0$ captures the idea that on average, the skills and abilities required and fostered in activities with higher market-income potential are more transferable to, e.g., politicians' opportunities to generate outside income. Thus, given the same constraints, these skills and abilities allow for a higher income while in office.

Society has to decide whether or not it wants to implement redistribution. All income is taxed proportionally at rate $t \in \{0, 1\}$, including that of the d legislators, and every individual receives a lump sum transfer $\tau \geq 0$, including legislators. The budget is required to balance. As there are only d legislators, budget balance can be written as $\tau(\mu_l + \mu_h) = t(\mu_l w_l + \mu_h w_h)$, or more compactly, $\tau = t\bar{w}$. That is, a tax rate t directly determines a transfer $\tau = t\bar{w}$. A pair (t, τ) can thus be written as $(t, \tau) = (t, t\bar{w}) = t(1, \bar{w})$. The policy choice can be summarized by $t = 1$ representing redistribution, and $t = 0$ representing no redistribution.[10]

The background of the majority of the legislators may determine how effective the legislative process and the implementation of policies are. The more effective these procedures are, the more smoothly government services or public goods already in place are provided to citizens, which generates additional benefits. In particular, additional benefits $\eta \geq 0$ accrue to all citizens, including legislators, if and only if the majority of the legislators is from group h. However, these additional benefits from a high-average-ability legislature cannot fully compensate lower-income individuals for too little redistribution, i.e., $\eta < \bar{w} - w_l$. If $\eta > 0$, then to the extent that a high-income background is associated with high ability and that therefore the fraction of high-ability individuals among legislators may affect citizens' payoffs, this specification is similar to the one in Caselli and Morelli (2004). If $\eta = 0$, then the legislative technology is fixed and does not require any special skill or ability. One can think of it as consisting of aides, advisors, and specialists.

Candidates for office cannot commit to a policy platform. Legislators vote as if their vote was decisive in the legislature. At the district level, voters vote as if their vote was decisive in determining the district's representative, and as if that representative's vote and characteristics were decisive in determining the outcome in the legislature. In all elections and individual voting decisions, ties are broken by equal-probability random draws.

The environment and the structure of the game are common knowledge. The equilibrium concept is pure-strategy Nash equilibrium. I say that an income group is predominant in the legislature if the majority of legislators has a background that indicates membership in it.

Definition 1. *A group predominates in the legislature if the majority of legislators is from it.*

4 Analysis

In this section I analyze the environment just described. Conforming with the context of this paper I often refer to legislators voting in favor and against redistribution in the legislature as *supporting* and *opposing* redistribution, respectively. Although the game is sequential in nature, as all voting is mechanical, the only relevant actions are parties' candidate selections. Thus, pure-strategy Nash equilibrium is the appropriate equilibrium concept.

In Section 4.1, I first describe individuals' payoffs and characterize both legislators' mechanical voting behavior and majorities in society. I then describe parties' strategies and payoffs and define an equilibrium. In the following two Sections 4.2 and 4.3, I characterize

[10] In a tax policy space $[0, 1]$, the ideal point of every individual in any role would be either 0 or 1. As long as an equilibrium of the voting game in the legislature in which the majority does not implement their shared ideal point is considered unreasonable and somehow ruled out, the restriction to $\{0, 1\}$ is inconsequential.

the equilibrium. I distinguish between two cases: (i) low office-holding premia, $\gamma w_l < \bar{w}$; and (ii) high office-holding premia, $\gamma w_l \geq \bar{w}$. In Section 4.4, I show that the predominance of high earners in the legislature implies that not a single lawmaker supports the redistribution policy preferred by lower-income citizens. In Section 4.5, I study the interaction of office-holding premia with inequality in determining whether or not some lawmakers support redistribution. In Sections 4.6–4.9, I extend the environment to allow for a sense of group identity, reelection concerns, a second policy dimension, and a role for campaign finance and special interests, respectively, and show that the logic carries over. Appendix A collects omitted proofs.

4.1 Strategies, Payoffs, Majorities, and Equilibrium

If a majority of legislators supports redistribution, then the legislature chooses $t = 1$ and after-tax incomes are equal across individuals. If a majority of legislators opposes redistribution, then the legislature chooses $t = 0$ and individuals' after-tax incomes are equal to their before-tax incomes. The payoff of individuals from group i who are not in office is their after-tax income $(1-t)w_i + \tau = (1-t)w_i + t\bar{w} \in \{w_i, \bar{w}\}$. Similarly, the payoff of a legislator from group i is their after-tax income $(1-t)\gamma w_i + \tau = (1-t)\gamma w_i + t\bar{w} \in \{\gamma w_i, \bar{w}\}$. If the majority of the legislators has a high-income background, then $\eta \geq 0$ is added to these payoffs. Let $\chi \in \{0, 1\}$ indicate the background of the majority of legislators, where $\chi = 1$ indicates a high-income background while $\chi = 0$ indicates a low-income background. Then, the payoffs of voters from group i who do not hold office are

$$(1) \qquad \phi_i(t) = \begin{cases} \bar{w} + \chi\eta & \text{if } t = 1, \\ w_i + \chi\eta & \text{if } t = 0. \end{cases}$$

Similarly, the payoffs of legislators from group i are

$$(2) \qquad \psi_i(t) = \begin{cases} \bar{w} + \chi\eta & \text{if } t = 1, \\ \gamma w_i + \chi\eta & \text{if } t = 0. \end{cases}$$

As $\gamma \geq 1$, irrespective of the policy t enacted, legislators have at least as high an after-tax income as the other members of their group. Thus, an individual selected by a party would not want to decline to be a candidate if they had that option.

A legislator votes for the policy t that would maximize their payoff if their vote was pivotal for the policy outcome. The policy stance and mechanical voting behavior of a legislator from group i thus derives directly from a comparison of the first and second entries in (2).

Lemma 1. *A legislator from group i supports (opposes) redistribution if $\gamma w_i < \bar{w}$ ($\gamma w_i \geq \bar{w}$).*

That is, legislators from the high-income group h always oppose redistribution because

$\gamma \geq 1$ and $w_h > \bar{w}$ together imply that $\gamma w_h > \bar{w}$. Whether legislators from the low-income group l support or oppose redistribution depends on the size of the office-holding premium γ, because $\bar{w} > w_l$.

The policy preferences of a voter from group i similarly follow from a comparison of the first and second entries in (1): from $\bar{w} - w_l > \eta \geq 0$ follows first that $\bar{w} + \eta \geq \bar{w} > w_l + \eta \geq w_l$ and second, as $\mu_l > \mu_h$ implies that $w_h - \bar{w} > \bar{w} - w_l > \eta$, that $w_h + \eta \geq w_h > \bar{w} + \eta \geq \bar{w}$.[11]

Lemma 2. *Low-(high-)income voters prefer redistribution (no redistribution).*

Lemma 2 only characterizes voters' policy preferences. Voters' mechanical voting behavior follows from the available candidates and their policy stances, which in turn may depend on the office-holding premium γ. Low-income individuals prefer redistribution while high-income individuals prefer no redistribution. Given that $\mu_l > \mu_h$ and $|D_l| > |D_h|$, both in society and in the majority of districts, the majority of individuals belongs to the low-income group and prefers redistribution.

Observation 1. *In society and in the majority of districts, the majority prefers redistribution.*

The parties can select candidates from any income group in each district. Let $s_{P,j} \in \{l, h\}$ indicate the income group from which party $P \in \{A, B\}$ selects its candidate in district $j \in D$. A strategy s_P for party $P \in \{A, B\}$ then is a collection of candidate selections for all districts,

$$s_P = (s_{P,1}, \ldots, s_{P,d}) \in \mathcal{S} \equiv \{l, h\}^d.$$

Letting $-P \in \{A, B\} \backslash \{P\}$, given a profile $(s_{P,j}, s_{-P,j})$ of district-j candidate selections for both parties, $\pi_j(s_{P,j}, s_{-P,j})$ denotes the probability of party $P \in \{A, B\}$ winning the seat in district $j \in D$. Naturally, $\pi_j(s_{-P,j}, s_{P,j}) = 1 - \pi_j(s_{P,j}, s_{-P,j})$. These probabilities are specified below as they are determined by voters' voting behavior, which depends on what policies candidates support once in office, which in turn depends on the office-holding premium. Party P's objective is to maximize its expected number of seats in the legislature,

$$V(s_P, s_{-P}) = \sum_{j \in D} \pi_j(s_{P,j}, s_{-P,j}).$$

Definition 2. *A strategy profile (s_A^*, s_B^*) is an equilibrium if and only if for all $P \in \{A, B\}$,*

$$V(s_P^*, s_{-P}^*) \geq V(s_P, s_{-P}^*) \quad \forall s_P \in \mathcal{S}.$$

That is, given the other party's candidate selections in all districts, neither party can benefit from changing their candidate selection in some district.

[11] As $\mu_l > \mu_h$, $w_h - \bar{w} = w_h - \mu_l w_l - \mu_h w_h = \mu_l(w_h - w_l) > \mu_h(w_h - w_l) = \mu_h w_h - (1 - \mu_l) w_l = \bar{w} - w_l$.

4.2 Low Office-Holding Premia

Suppose that the political institutions determining the premium for holding office are fairly restrictive, so that $\gamma w_l < \bar{w}$. That is, the income a legislator from the low-income group can generate while in office is low enough for them to support redistribution (Lemma 1). A range of values for the institutional parameter γ strictly greater than one, i.e., with a strictly positive income premium for holding office, is entirely consistent with this inequality. As legislators from the high-income group always oppose redistribution, all legislators from any group support the policy preferred by individuals in that group (Lemma 2).

If both candidates in a district $j \in D$ are from the same income group, then all voters in the district are indifferent among them and thus randomize. Each candidate is expected to receive the same share of votes, in which case a fair coin decides the election. That is, $\pi_j(y, y) = 1/2$ for all $y \in \{l, h\}$.

Suppose that the two candidates in district j are from different income groups. Once in office, the candidate from the low-income group supports redistribution while the candidate from the high-income group opposes redistribution. As voters mechanically vote as if their vote was decisive in determining the district's representative, and as if that representative's vote and characteristics were decisive in determining the outcome in the legislature, they compare the payoff $\bar{w}$ to the payoff $w_i + \eta$. The former is the payoff associated with a majority of legislators from a lower-income background leading the legislature to choose redistribution. The latter is the payoff associated with a majority of legislators from a high-income background leading the legislature to choose no redistribution while additional benefits accrue to all citizens. As $\bar{w} > w_l + \eta$ and $w_h + \eta > \bar{w}$, it follows that voters from any group vote for the candidate from the same group. Let $i_j^* \in \{l, h\}$ indicate the majority group in district j; and let $-i_j^* \in \{l, h\} \backslash \{i_j^*\}$ indicate the minority group in district j. Then, the probability of party P winning the seat in district j is

$$\pi_j(s_{P,j}, s_{-P,j}) = \begin{cases} 0 & \text{if } (s_{P,j}, s_{-P,j}) = (-i_j^*, i_j^*) \\ \frac{1}{2} & \text{if } (s_{P,j}, s_{-P,j}) \in \{(i_j^*, i_j^*), (-i_j^*, -i_j^*)\}, \\ 1 & \text{if } (s_{P,j}, s_{-P,j}) = (i_j^*, -i_j^*). \end{cases} \quad (3)$$

That is, the probability of party P winning the seat in district j is one if party P selects a candidate from the majority group in district j while party $-P$ does not; zero if party $-P$ selects a candidate from the majority group in district j while party P does not; and one-half if both parties select candidates from the same group, in which case a fair coin toss is expected to decide the election. Proposition 1 characterizes the unique equilibrium.

Proposition 1. *If $\gamma w_l < \bar{w}$, then there is a unique equilibrium and all candidates are from their district's majority group.*

As all candidates are from the majority group in their district, it follows that all legislators are from the majority group in the district they represent. As the majority of districts has a low-income majority, the majority of legislators has a low-income background and therefore high earners do not predominate in the legislature. I collect this implication in a corollary.

Corollary 1. *If $\gamma w_l < \bar{w}$, then high earners do not predominate the legislature in equilibrium.*

As office-holding premia are low, $\gamma w_l < \bar{w}$, by Lemma 1, legislators from a low-income background support redistribution while legislators from a high-income background oppose redistribution. As legislators are from the majority group in the district they represent, they support the policy that the majority of individuals residing in their district prefers (Lemma 2). In this sense, a district's majority finds representation through the elected official. As the majority of the legislators supports and thus votes in favor of redistribution, the policy chosen by the legislature is redistribution. In this sense, the majority of individuals in society, and in the majority of districts, finds representation in the legislative outcome (Observation 1). That is, low office-holding premia, $\gamma w_l < \bar{w}$, ensure that the majority of legislators support the policy preferred by the majority of citizens.

Candidates for office from a lower-income background support redistribution once they are in office while candidates for office from a high-income background oppose redistribution once they are in office. In the majority of districts, therefore, a candidate from a low-income background would win the election against a candidate from a high-income background, because their majority of lower-income voters prefers redistribution. A party that wants to have a shot at winning the seat in a district in which the majority of voters has a lower-income background thus has to select a candidate from the same lower-income background. Hence, the majority of districts is represented by a legislator with a lower-income background.

In summary, high earners cannot predominate the legislature if office-holding premia are low enough for legislators from a lower-income background to support redistribution.

4.3 High Office-Holding Premia

Now suppose that holding office offers a rather high premium over the market income individuals can expect from their productive activity when not in office. That is, suppose that lower-income individuals can generate income while in office that is above the average income in society, $\gamma w_l \geq \bar{w}$. Then, legislators from the low-income group oppose redistribution once in office (Lemma 1), and thus do not support the policy preferred by the low-income group anymore (Lemma 2). As legislators from the high-income group always oppose redistribution, all legislators oppose redistribution, irrespective of their income background.

Given that legislators from all backgrounds vote for the same policy, if there is no benefit from having a high-average-ability legislature, i.e., if $\eta = 0$, then all voters are indifferent among candidates from all backgrounds. They thus randomize, irrespective of what group the candidates in their district are from, and each candidate is expected to receive the same share of votes, in which case a fair coin decides the election. Thus, if $\eta = 0$, then the probability of party P winning the seat in district j is

$$\pi_j(s_{P,j}, s_{-P,j}) = \frac{1}{2} \quad \forall (s_{P,j}, s_{-P,j}) \in \{l, h\}^2. \tag{4}$$

If there is a benefit from having a high-average-ability legislature, i.e., if $\eta > 0$, then all voters would prefer the majority of legislators to have a high-income background because $w_i + \eta > w_i$. As all voters vote as if their vote was decisive in determining the district's representative, and as if that representative's vote and characteristics were decisive in determining the outcome in the legislature, they vote for a candidate with a high-income background, if there is one. Thus, if $\eta > 0$, then the probability of party P winning the seat in district j is

$$\pi_j(s_{P,j}, s_{-P,j}) = \begin{cases} 0 & \text{if } (s_{P,j}, s_{-P,j}) = (l, h) \\ \frac{1}{2} & \text{if } (s_{P,j}, s_{-P,j}) \in \{(l, l), (h, h)\}, \\ 1 & \text{if } (s_{P,j}, s_{-P,j}) = (h, l). \end{cases} \tag{5}$$

That is, the probability of party P winning the seat in district j is one if party P selects a candidate from the high-income group in district j while party $-P$ does not; zero if party $-P$ selects a candidate from the high-income group in district j while party P does not; and one-half if both parties select candidates from the same group, in which case a fair coin toss is expected to decide the election. Proposition 2 characterizes all equilibria.

Proposition 2. *If $\gamma w_l \geq \bar{w}$, then every profile of candidates is an equilibrium if $\eta = 0$ while there is a unique equilibrium and all candidates are from the high-income group if $\eta > 0$.*

If every profile of candidate selections is an equilibrium, then, in particular, every profile of candidate selections with two candidates from the high-income group in the majority of districts—or in all of them—is an equilibrium in the case of $\eta = 0$. In such an equilibrium, then, the majority of legislators is from the high-income group. In the case of $\eta > 0$, as all candidates are from the high-income group, all legislators are from the high-income group. Thus, irrespective of η, predominance of high earners in the legislature is an equilibrium outcome. I collect this implication in a corollary.

Corollary 2. *If $\gamma w_l \geq \bar{w}$, then high earners predominate the legislature in some equilibrium if $\eta = 0$ while they predominate the legislature in the unique equilibrium if $\eta > 0$.*

As the premium for holding office is high, $\gamma w_l \geq \bar{w}$, by Lemma 1, once in office, legislators from all backgrounds oppose redistribution. The political institutions grant high enough premia for holding office to lead low-income individuals who become legislators to oppose the policies preferred by the low-income group (Lemma 2). It follows that the policy chosen by the legislature is no redistribution, irrespective of the legislature's composition in terms of the income-group background of its members. The policy outcome represents the redistribution preferences of a possibly small minority in society, not those of the possibly large majority. A colorful interpretation of these implications is that if holding office is lucrative enough, then legislators ignore the policy preferences of lower-income citizens, despite them constituting a majority. Legislators from a lower-income background forget where they came from.

If there is no additional benefit from having a high-average-ability legislature, i.e., if $\eta = 0$, then in all districts, all voters are indifferent among all candidates, irrespective of which group they come from. Thus, a candidate with a high-income background may in fact win the election in a district with a majority of lower-income individuals. A party that wants to have a shot at winning the seat in a district in which the majority of voters has a lower-income background does not have to select a candidate from the same lower-income background anymore. Any profile of candidates from any group selected by the parties has both parties win each district's seat with probability one-half. No deviation increases that probability of winning the seat in some district. Hence, both parties may select candidates from the high-income group in the majority of districts—or even in all of them. Thus, the majority of districts can be represented by a legislator with a high-income background. At the same time, voters are indifferent among candidates from high- and low-income backgrounds, which is consistent with the findings of Carnes and Lupu (2016).

However, if there is an additional benefit from having a majority of legislators from a high-income background, i.e., if $\eta > 0$, then in all districts, all voters vote for candidates from a high-income background, if there is one. Voters' indifference among candidates from different groups in the redistribution dimension opens up a role for a candidate's potential to contribute to generating additional benefits in the legislature. Thus, a candidate with a high-income background can in fact win the election in every district, even in those districts with a majority of lower-income individuals. A party that wants to have a shot at winning the seat in any district has to select a candidate with a high-income background. Hence, both parties select candidates from the high-income group in each district. Thus, the majority of districts is represented by a legislator with a high-income background.

In summary, high earners can predominate the legislature if office-holding premia are high enough for legislators from a lower-income background to oppose redistribution once in office.

4.4 The Predominance of High Earners

Following the insights from Sections 4.2 and 4.3, this section links the observed predominance of high earners among lawmakers to the redistribution policy lawmakers support. Recall that an income group predominates in the legislature if the majority of legislators has a background that indicates membership in it. Then, the predominance of high earners in the legislature implies that not a single legislator supports the policy preferred by lower-income citizens.

Proposition 3. *In equilibrium, if high earners predominate in the legislature, then not a single legislator supports redistribution.*

This result follows directly from combining the insights from Corollaries 1 and 2. Suppose that in some equilibrium, the outcome is that high earners predominate in the legislature. Then, it must be the case that $\gamma w_l \geq \bar{w}$ because by Corollary 1, if $\gamma w_l < \bar{w}$, then high earners do not predominate in the legislature. By contrast, if $\gamma w_l \geq \bar{w}$, then by Corollary 2, there is in fact an equilibrium in which high earners predominate in the legislature. It then follows from Lemma 1, that all legislators oppose redistribution, irrespective of their income-background. That is, not a single legislator supports redistribution, which by Lemma 2 is the policy preferred by lower-income citizens.

The logic is that as long as the potential additional benefits from a high-average-ability legislature do not fully compensate lower-income voters for too little redistribution, candidates from a lower-income background win the votes of lower-income citizens as long as they still support more redistribution once they hold office. Thus, because lower-income citizens have a majority in the majority of electoral districts, candidates from a lower-income background win the seat in the majority of districts. That is, high earners cannot possibly predominate in the legislature. It follows that for the predominance of high earners among lawmakers to arise in equilibrium, once in office, legislators from a lower-income background have to oppose more redistribution. That is, while office-holding premia over the market income an individual can expect could in principle be very low—or even zero, they must be high enough to induce legislators from a lower-income background to oppose redistribution once they hold office. Therefore, if high earners predominate in the legislature, then all legislators oppose more redistribution, irrespective of their income background. Hence, not a single legislator supports the redistribution policy preferred by lower-income citizens.

If society wishes to ensure that some lawmakers support the redistribution policies preferred by lower-income citizens, then it could target the premium for holding office. Lowering legislator salaries or tightening the restrictions on, e.g., outside income decreases the premium holding office offers over the market income individuals can expect. A large enough change in this dimension of the political institutions might move society to an equilibrium in which legislators from a lower-income background do not forget where they came from.

4.5 The Role of Inequality

The income distribution in this environment can be summarized by the tuple (μ_l, w_l, μ_h, w_h), where $\mu_l > 0$, $\mu_h = 1 - \mu_l > 0$, and $0 < w_l < w_h < \infty$, implying that $0 < w_l < \bar{w} < w_h < \infty$. One way of thinking about income inequality in this environment is to fix the group sizes μ_l, μ_h, and average income $\bar{w}$ and only focus on the difference $(w_h - w_l)$. A greater difference $(w_h - w_l)$ represents a mean-preserving spread of the income distribution and maps directly into higher income inequality as measured by the coefficient of variation of income, $(\sqrt{\mu_l \mu_h}/\bar{w})(w_h - w_l)$.[12] Given μ_l, μ_h, and $\bar{w}$, an income distribution $(\mu_l, w_l', \mu_h, w_h')$ is more unequal than another income distribution (μ_l, w_l, μ_h, w_h), where $\mu_l w_l + \mu_h w_h = \bar{w} = \mu_l w_l' + \mu_h w_h'$, if and only if $w_l > w_l'$ and $w_h < w_h'$.

Adopting this metric of income inequality, higher inequality implies that a higher office-holding premium is required for the predominance of high earners in the legislature to arise.

Proposition 4. *The more unequal the income distribution is, the higher is the office-holding premium required for the predominance of high earners in the legislature to arise.*

The predominance of high earners in the legislature requires that $\gamma w_l \geq \bar{\gamma} w_l = \bar{w}$ (Corollaries 1 and 2). For high earners to predominate the legislature in a more unequal society, the same requirement has to be satisfied for a smaller $w_l' < w_l$, requiring a higher $\bar{\gamma}' > \bar{\gamma}$. If the income distribution is more unequal, then redistribution appears more beneficial to legislators from a lower-income background, who thus require a higher office-holding premium to oppose redistribution once in office. That is, given an office-holding premium, high enough income inequality may prevent high earners from predominating the legislature, which thus chooses redistribution. The following result is another consequence of these insights.

Proposition 5. *For every income distribution, there is a high enough finite office-holding premium such that high earners can predominate in the legislature.*

That is, for every income distribution and thus for every level of income inequality, a high enough office-holding premium allows for the empirically relevant case of high earners predominating the legislature to arise. However, as long as high earners predominate in the legislature, the extent of inequality does not affect the redistribution policy it chooses. This prediction is in line with some empirical evidence (e.g., Perotti 1996; Rodríguez 1999).

4.6 Extension 1: A Role for a Sense of Group Identity

A number of concerns lawmakers might have could affect the policies they support in office. For example, a sense of (income) group identity could be strong enough to induce legislators to further their (income) groups' political interests, even if doing so requires giving up a higher income while in office. In this section, I extend the model to allow for such a sense of group identity to study the role it might play.[13]

[12] Letting σ_w^2 be the variance of income w, the coefficient of variation of income is $cv_w = \sqrt{\sigma_w^2}/\bar{w}$. Using $\bar{w} = \mu_l w_l + \mu_h w_h$ and $\mu_l + \mu_h = 1$, $\sigma_w^2 = \mu_l (w_l - \bar{w})^2 + \mu_h (w_h - \bar{w})^2 = \mu_l w_l^2 - 2\mu_l w_l \bar{w} + (\mu_l + \mu_h)\bar{w}^2 + \mu_h w_h^2 - 2\mu_h w_h \bar{w} = \mu_l w_l^2 (1 - \mu_l) - 2\mu_l \mu_h w_l w_h + \mu_h w_h^2 (1 - \mu_h) = \mu_l \mu_h (w_h - w_l)^2$ so that $cv_w = (\sqrt{\mu_l \mu_h}/\bar{w})(w_h - w_l)$.

[13] See, e.g., Lind (2007), Shayo (2009), and Klor and Shayo (2010) on the role of group identity in determining voters' redistribution preferences.

4.6.1 Changes to the Environment

Suppose that individuals identify with their original income group enough to incur a utility cost $\kappa > 0$ if they hold office and have a higher after-tax income than the other members of their group while their group's preferred policy is not enacted.[14] That is, legislators "feel bad" if they cannot further their original income group's interest while they themselves do better than everyone else in it. To ensure that an individual selected by a party would not want to decline to be a candidate if they had that option, I assume that $\gamma > 1$ and $\hat{\gamma} \equiv \gamma - \hat{\kappa} \geq 1$, where $\hat{\kappa} \equiv \kappa / w_l$. The assumption that $\gamma > 1$ implies that there is a premium associated with holding office, but it does not imply that this premium is high, i.e., $\gamma w_l < \bar{w}$ may well hold.

4.6.2 Implications for Strategies and Payoffs

The payoffs of voters are unaffected altogether and still given by (1). Thus, Lemma 2 still applies so that voters from the low-income group prefer redistribution while voters from the high-income group prefer no redistribution.

Suppose that redistribution is implemented. Then, legislators from group l do not incur the utility cost because redistribution is their original income group's preferred policy. Legislators from group h do not incur the utility cost either because they have the same after-tax income $\bar{w}$ as all other members of their original income group.

Suppose that no redistribution is implemented. Then, legislators from group l incur the utility cost because their original income group's preferred policy is not implemented while they have a higher after-tax income than all other members of their group because $\gamma > 1$ so that $\gamma w_l > w_l$. Legislators from group h do not incur the utility cost because no redistribution is their original income group's preferred policy. Therefore, letting $\gamma w_l + \chi\eta - \kappa = \gamma w_l + \chi\eta - \hat{\kappa} w_l = \hat{\gamma} w_l + \chi\eta$, the payoffs of legislators from groups l and h are

$$\hat{\psi}_l(t) = \begin{cases} \bar{w} + \chi\eta & \text{if } t = 1, \\ \hat{\gamma} w_l + \chi\eta & \text{if } t = 0, \end{cases} \tag{6}$$

and

$$\hat{\psi}_h(t) = \begin{cases} \bar{w} + \chi\eta & \text{if } t = 1, \\ \gamma w_h + \chi\eta & \text{if } t = 0, \end{cases} \tag{7}$$

respectively. As all legislators vote as if their vote was decisive, comparing the first and second entries of (7), legislators from the high-income group h always oppose redistribution

[14] The qualification that legislators have to have a higher after-tax income than the other members of their original group ensures that a high-income individual selected by a party would not want to decline to be a candidate if they had that option in the case when the legislature chooses redistribution.

because $\gamma > 1$ and $w_h > \bar{w}$ together imply that $\gamma w_h > \bar{w}$. Similarly, comparing the first and second entries of (6), whether legislators from the low-income group l support or oppose redistribution depends on the size of the "net" office-holding premium $\hat{\gamma}$. They support (oppose) redistribution if $\hat{\gamma} w_l < \bar{w}$ ($\hat{\gamma} w_l \geq \bar{w}$). That is, if $\hat{\gamma} w_l < \bar{w}$ while $\gamma w_l \geq \bar{w}$, then the voting behavior of legislators from a lower-income background is shaped by their sense of group identity because the office-holding premium is not high enough to overcome it.

Parties' strategies and payoffs are unaffected, and so is the definition of equilibrium.

4.6.3 Predictions

First, suppose that $\hat{\gamma} w_l < \bar{w}$. That is, legislators from the low-income group support redistribution. As legislators from the high-income group oppose redistribution, all legislators from any group support the policy preferred by individuals in that group. By the same logic as in Section 4.2, the probability of party P winning the seat in district j is given by (3).

Second, suppose that $\hat{\gamma} w_l \geq \bar{w}$. Then, legislators from the low-income group oppose redistribution once in office. The office-holding premium is high enough to overcome their sense of group identity. As legislators from the high-income group always oppose redistribution, all legislators oppose redistribution, irrespective of their income background. By the same logic as in Section 4.3, the probability of party P winning the seat in district j is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$.

The following result shows that the conclusions drawn from Propositions 1–3 still hold.

Proposition 6. *Replacing γ by $\hat{\gamma}$, Propositions 1–2, Corollaries 1–2, and Proposition 3 hold.*

Thus, from the adjusted Corollary 1 follows that if group identity shapes legislators' voting behavior ($\hat{\gamma} w_l < \bar{w}$ while $\gamma w_l \geq \bar{w}$), then the observed predominance of high earners in the legislature is impossible. As before, candidates from a lower-income background win the seat in the majority of districts as long as they support redistribution once in office. Therefore, if high earners predominate in the legislature, then not a single legislator supports redistribution.

4.7 Extension 2: A Role for Reelection Concerns

Similar to a sense of group identity, the desire to be reelected by their district might convince legislators to support the policies preferred by the majority of their constituents. Here, I extend the model to allow for reelection concerns to study the role they might play.[15]

4.7.1 Changes to the Environment

Suppose that legislators from group i incur a cost $\kappa_i = \tilde{\kappa} w_i > 0$ for some constant $\tilde{\kappa} > 0$ if they hold office and have a higher after-tax income than the majority in the district they

[15]For analyses of the role of reelection in its own right, see, e.g., Duggan (2000); Van Weelden (2013).

represent while the preferred policy of that majority is not enacted.[16] That is, legislators incur a cost if they benefit from holding office but do not deliver their constituents preferred policies. One can think of this cost as capturing a desire to be reelected by their district. The assumption that $\kappa_h > \kappa_l$ captures the idea that legislators from a high-income background lose a higher payoff associated with holding office if they are not reelected, which is consistent with the assumption that $\gamma w_h > \gamma w_l$. As with group identity in Section 4.6, to ensure that an individual selected by a party would not want to decline to be a candidate if they had that option, I assume that $\gamma > 1$ and $\tilde{\gamma} \equiv \gamma - \tilde{\kappa} \geq 1$.[17] Again, the assumption that $\gamma > 1$ implies that there is a premium associated with holding office, but it does not imply that this premium is high, i.e., $\gamma w_l < \bar{w}$ may well hold.

4.7.2 Implications for Strategies and Payoffs

As with group identity in Section 4.6, the payoffs of voters are unaffected altogether and still given by (1). Thus, Lemma 2 still applies so that voters from the low-income group prefer redistribution while voters from the high-income group prefer no redistribution.

Suppose that redistribution is implemented. Then, legislators representing a district with a majority of low-income individuals do not incur the cost because redistribution is the preferred policy of the majority of their constituents, i.e., they have delivered. Legislators representing a district with a majority of high-income individuals do not incur the cost either because they have the same after-tax income $\bar{w}$ as the residents in the district (and in all other districts).

Suppose that no redistribution is implemented. Then, legislators representing a district with a majority of low-income individuals do incur the cost because they did not deliver the preferred policy of the majority of their constituents while having a higher after-tax income than that same majority, as $\gamma w_h > \gamma w_l > w_l$ due to $\gamma > 1$. By contrast, legislators representing a district with a majority of high-income individuals do not incur the cost because no redistribution is the preferred policy of the majority of their constituents, i.e., they delivered.

Thus, letting $\gamma w_i + \chi\eta - \kappa_i = \gamma w_i + \chi\eta - \tilde{\kappa} w_i = \tilde{\gamma} w_i + \chi\eta$, the payoff of a legislator from

[16] The qualification that legislators have to have a higher after-tax income than the majority in the district they represent ensures that an individual selected by a party in a district with a high-income majority would not want to decline to be a candidate if they had that option in the case when the legislature chooses redistribution.

[17] This assumption implies that reelection concerns cannot induce legislators from a high-income background to support more redistribution. This implication does not seem absurd. For example, the United States Congress, the majority of the members of which has a high-income background, recently passed laws that are expected to reduce redistribution, such as, e.g., the 115th Congress' Public Law 97 (see Footnote 4).

group i representing district j is

$$\tilde{\psi}_i(t,j) = \begin{cases} \bar{w} + \chi\eta & \text{if } t = 1, j \in D_l, \\ \bar{w} + \chi\eta & \text{if } t = 1, j \in D_h, \\ \tilde{\gamma} w_i + \chi\eta & \text{if } t = 0, j \in D_l, \\ \gamma w_i + \chi\eta & \text{if } t = 0, j \in D_h. \end{cases} \tag{8}$$

As all legislators vote as if their vote was decisive, comparing the third and fourth entries with the first and second entries of (8), respectively, legislators from the high-income group h always oppose redistribution because $\gamma > \tilde{\gamma} \geq 1$ and $w_h > \bar{w}$ together imply that $\gamma w_h > \tilde{\gamma} w_h > \bar{w}$. By the same comparison, whether legislators from the low-income group l support or oppose redistribution depends on the size of the "net" office-holding premium, i.e., on $\tilde{\gamma}$ if they represent a district with a majority of low-income individuals, or on γ if they represent a district with a majority of high-income individuals. In the former case, they support (oppose) redistribution if $\tilde{\gamma} w_l < \bar{w}$ ($\tilde{\gamma} w_l \geq \bar{w}$). In the latter case, they support (oppose) redistribution if $\gamma w_l < \bar{w}$ ($\gamma w_l \geq \bar{w}$). That is, if $\tilde{\gamma} w_l < \bar{w}$ while $\gamma w_l \geq \bar{w}$, then the voting behavior of legislators from a lower-income background who represent a district with a low-income majority is shaped by their reelection concerns because the office-holding premium is not high enough to overcome them.

Parties' strategies and payoffs are unaffected, and so is the definition of equilibrium.

4.7.3 Predictions

There are three cases: *1.* $\tilde{\gamma} w_l < \gamma w_l < \bar{w}$; *2.* $\bar{w} \leq \tilde{\gamma} w_l < \gamma w_l$; *3.* $\tilde{\gamma} w_l < \bar{w} \leq \gamma w_l$.

First, suppose that $\tilde{\gamma} w_l < \gamma w_l < \bar{w}$. That is, legislators from the low-income group support redistribution, irrespective of which district they represent. As legislators from the high-income group always oppose redistribution, all legislators from any group support the policy preferred by individuals in that group. By the same logic as in Section 4.2, the probability of party P winning the seat in district j is given by (3).

Second, suppose that $\gamma w_l > \tilde{\gamma} w_l \geq \bar{w}$. Then, legislators from the low-income group oppose redistribution once in office, irrespective of which district they represent. As legislators from the high-income group always oppose redistribution, all legislators oppose redistribution, irrespective of their income background and what district they represent. By the same logic as in Section 4.3, the probability of party P winning the seat in district j is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$.

Finally, suppose that $\tilde{\gamma} w_l < \bar{w} \leq \gamma w_l$. In this case, the voting behavior of legislators from a lower-income background depends on which income group has a majority in the district they represent. If they represent a district with a low-income majority, i.e., $j \in D_l$, then reelection concerns shape their voting behavior: even though $\gamma w_l \geq \bar{w}$, they support redistribution once in office because $\tilde{\gamma} w_l < \bar{w}$. As legislators from the high-income group always oppose redistribution, a legislator from any group representing this district supports the policy preferred by individuals in their group. Similar to the logic in Section 4.2, it then follows that in a district with a low-income majority, voters from any group vote for a candidate from their group, if there is one, and randomize if both candidates are from the same group. That is, the probability of party P winning the seat in district $j \in D_l$ is given by (3).

If legislators from a lower-income background represent a district with a high-income majority, i.e., $j \in D_h$, then they oppose redistribution once in office because $\gamma w_l \geq \bar{w}$. As legislators from the high-income group always oppose redistribution, any legislator representing this district opposes redistribution, irrespective of their income background. Similar to the logic in Section 4.3, in this district, voters randomize irrespective of what groups the candidates are from and the election is expected to be decided by a fair coin if $\eta = 0$ while they vote for a candidate from the high-income group, if there is one, and randomize if both candidates are from the same group if $\eta > 0$. That is, the probability of party P winning the seat in district $j \in D_h$ is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$.

The following result shows that the conclusions drawn from Propositions 1–3 still hold.

Proposition 7. *There are three cases:*

1. *If $\tilde{\gamma} w_l < \gamma w_l < \bar{w}$, then there is a unique equilibrium and all candidates are from their district's majority group.*

2. *If $\gamma w_l > \tilde{\gamma} w_l \geq \bar{w}$, then every profile of candidates is an equilibrium if $\eta = 0$ while there is a unique equilibrium and all candidates are from the high-income group if $\eta > 0$.*

3. *If $\tilde{\gamma} w_l < \bar{w} \leq \gamma w_l$, then an equilibrium exists and in every equilibrium, in every district with a low-income majority, both candidates are from the low-income group.*

In equilibrium, if high earners predominate in the legislature, then not a single legislator supports redistribution.

Thus, from *Case 3* follows that if reelection concerns shape legislators' voting behavior ($\tilde{\gamma} w_l < \bar{w} \leq \gamma w_l$), then the observed predominance of high earners in the legislature is impossible. As before, candidates from a lower-income background win the seat in the majority of districts as long as they support redistribution once in office. Therefore, if high earners predominate in the legislature, then not a single legislator supports redistribution.

4.8 Extension 3: A Role for a Second Policy Dimension

In this section, I extend the environment by adding a second policy dimension, the preferences over which are a source of heterogeneity among citizens that is independent of income.

4.8.1 Changes to the Environment

Suppose that there is an additional policy dimension that I refer to as regulation and that the legislature decides over in a separate plurality vote. A fraction $\lambda_1 > 0$ of the individuals in society, in each district, in each income group, and in each income group in each district prefers regulation to be enacted. If regulation is enacted, then individuals in this group experience an additional utility benefit $\theta > 0$. The remaining fraction $\lambda_0 = 1 - \lambda_1 > 0$, $\lambda_0 < \lambda_1$, of the individuals in society, in each district, in each income group, and in each income group in each district prefers regulation not be enacted. Individuals in this group experience an additional utility benefit $\theta > 0$ if regulation is not enacted. Thus, in every district j, there are four types of citizens: $\lambda_1 \mu_l^j > 0$ citizens of type $(l, 1)$ who have low income and prefer regulation; $\lambda_0 \mu_l^j > 0$ citizens of type $(l, 0)$ who have low income and prefer no regulation; $\lambda_1 \mu_h^j > 0$ citizens of type $(h, 1)$ who have high income and prefer regulation; and $\lambda_0 \mu_h^j > 0$ citizens of type $(h, 0)$ who have high income and prefer no regulation, where $\lambda_1 \mu_l^j + \lambda_0 \mu_l^j + \lambda_1 \mu_h^j + \lambda_0 \mu_h^j = 1/d$. Finally, the benefits from issues unrelated to redistribution cannot fully compensate lower-income individuals for too little redistribution, i.e., $\eta + \theta < \bar{w} - w_l$.[18]

4.8.2 Implications for Strategies and Payoffs

Let $\delta \in \{0, 1\}$ indicate whether or not regulation is enacted, where $\delta = 1$ means that it is enacted while $\delta = 0$ means that it is not enacted. The payoffs of voters of type $(i, 1)$ are

$$\breve{\phi}_{i,1}(t) = \begin{cases} \bar{w} + \chi\eta + \delta\theta & \text{if } t = 1, \\ w_i + \chi\eta + \delta\theta & \text{if } t = 0, \end{cases} \tag{9}$$

while those of voters of type $(i, 0)$ are

$$\breve{\phi}_{i,0}(t) = \begin{cases} \bar{w} + \chi\eta + (1 - \delta)\theta & \text{if } t = 1, \\ w_i + \chi\eta + (1 - \delta)\theta & \text{if } t = 0. \end{cases} \tag{10}$$

The payoffs of legislators of type $(i, 1)$ are

$$\breve{\psi}_{i,1}(t) = \begin{cases} \bar{w} + \chi\eta + \delta\theta & \text{if } t = 1, \\ \gamma w_i + \chi\eta + \delta\theta & \text{if } t = 0, \end{cases} \tag{11}$$

[18] Roemer (1998) studies political competition between two parties that represent constituents with preferences over taxation and a second policy dimension, where wealth or income and the stance on the second policy dimension are not independently distributed. He finds conditions under which the party representing (a subset of) the majority in society (the poor) does not propose their ideal tax rate. One of the conditions he identifies is that the second policy dimension is sufficiently salient. Conceptually, I assume the opposite of this condition. Also see, e.g., Besley and Coate (2003, 2008) on issue (un)bundling.

while those of legislators of type $(i,0)$ are

$$\breve{\psi}_{i,0}(t) = \begin{cases} \bar{w} + \chi\eta + (1-\delta)\theta & \text{if } t = 1, \\ \gamma w_i + \chi\eta + (1-\delta)\theta & \text{if } t = 0. \end{cases} \tag{12}$$

As all legislators vote as if their vote was decisive, legislators of types $(i,1)$ and $(i,0)$ always vote for and against regulation, respectively. Comparing the first and second entries in equations (11) and (12), legislators support (oppose) redistribution if $\gamma w_i < \bar{w}$ ($\gamma w_i \geq \bar{w}$). That is, irrespective of their preferences over regulation, legislators from the high-income group h oppose redistribution because $\gamma \geq 1$ and $w_h > \bar{w}$ together imply that $\gamma w_h > \bar{w}$. As before, whether legislators from the low-income group l support or oppose redistribution depends on the size of the office-holding premium, irrespective of their preferences over regulation.

As before, all voters vote as if their vote was decisive in determining the district's representative, and as if that representative's vote and characteristics were decisive in determining the outcome in the legislature. That is, for example, as a candidate of type $(h,0)$ can contribute to generating additional benefits in the legislature and opposes both redistribution and regulation, a voter of type $(h,1)$ associates payoff $w_h + \eta$ with voting for them while a voter of type $(l,0)$ associates payoff $w_l + \eta + \theta$ with voting for them.

Parties can select their candidates from any of the types of citizens in each district. That is, $s_{P,j} \in \{(l,1),(l,0),(h,1),(h,0)\}$ indicates the type of citizen from which party $P \in \{A,B\}$ selects its candidate in district $j \in D$. A strategy s_P for party $P \in \{A,B\}$ then is a collection of candidate selections for all districts,

$$s_P = (s_{P,1},\ldots,s_{P,d}) \in \mathcal{S} \equiv \{(l,1),(l,0),(h,1),(h,0)\}^d.$$

Apart from the definition of $\mathcal{S}$, parties' payoffs and the definition of equilibrium are unchanged.

4.8.3 Predictions

If both candidates in a district are of the same type, then all voters are indifferent among them and thus randomize. Each candidate is expected to receive the same share of votes, in which case a fair coin decides the election. That is, in every district $j \in D$,

$$\pi_j(y,y) = \frac{1}{2} \quad \forall y \in \{(l,1),(l,0),(h,1),(h,0)\}. \tag{13}$$

As to the office-holding premium, first, suppose that $\gamma w_l < \bar{w}$. Then, legislators from the low-income group support redistribution once in office while legislators from the high-income group oppose redistribution. As before, let $i^*_j \in \{l,h\}$ indicate the majority income group in district j. Then, Lemma 3 summarizes all important information about the probability of party P winning the seat in district j in this case.

Lemma 3. *If $\gamma w_l < \bar{w}$, then $\pi_j((i_j^*, 1), y) = 1$ for all $y \neq (i_j^*, 1)$ and $j \in D$.*

As the benefits from issues unrelated to redistribution cannot fully compensate lower-income individuals for too little redistribution, voters from the low-income group always vote for a candidate from the low-income group, if there is one, irrespective of their stance on regulation. Similarly, voters from the high-income group always vote for a candidate from the high-income group, if there is one, irrespective of their stance on regulation. If there are two candidates from the same income group but with different stances on regulation, then all voters vote for the candidate that shares their preferences on regulation. Thus, a candidate from the district's majority income group who favors regulation, as does the majority of voters in every district, wins the election with certainty unless their opponent is of the same type.

Second, suppose that $\gamma w_l \geq \bar{w}$. Then, legislators from the low-income group oppose redistribution once in office. As legislators from the high-income group always oppose redistribution, all legislators from any income group oppose redistribution once in office. Given that legislators from all backgrounds vote for the same redistribution policy, if there are no additional benefits from having a high-average-ability legislature, i.e., if $\eta = 0$, then candidates' stances on regulation is all that matters to voters. Lemma 4 summarizes all important information about the probability of party P winning the seat in district j in this case.

Lemma 4. *If $\gamma w_l \geq \bar{w}$ and $\eta = 0$, then $\pi_j((i_{P,j}, 1), (i_{-P,j}, 1)) = 1/2$ for all $(i_{P,j}, i_{-P,j}) \in \{l, h\}^2$ and $j \in D$ and $\pi_j((i_{P,j}, 1), (i_{-P,j}, 0)) = 1$ for all $(i_{P,j}, i_{-P,j}) \in \{l, h\}^2$ and $j \in D$.*

If only one candidate favors regulation, then that candidate wins the election with certainty. For all other constellations, all voters in the district are indifferent among both candidates and thus randomize so that a fair coin flip is expected to decide the election.

If there is an additional benefit from having a high-average-ability legislature, i.e., if $\eta > 0$, then voters care about candidates' stances on regulation and at the same time would prefer the majority of legislators to have a high-income background. Lemma 5 summarizes all important information about the probability of party P winning the seat in district j in this case.

Lemma 5. *If $\gamma w_l \geq \bar{w}$ and $\eta > 0$, then $\pi_j((h, 1), y) = 1$ for all $y \neq (h, 1)$ and $j \in D$.*

That is, a candidate from the high-income group who favors regulation wins the election with certainty against all candidates that differ from them in at least one dimension. All voters prefer a legislator from the high-income group and a majority of voters prefers a legislator that favors regulation. If both candidates share the same stance on regulation but are from different income backgrounds, then all voters vote for the candidate with the high-income background, who thus wins the election with certainty. If both candidates are from the same income group but differ in their stance on regulation, then the majority of the district's voters votes for the candidate who favors regulation, who thus wins the election with certainty.

The following result shows that the conclusions drawn from Propositions 1–3 still hold.

Proposition 8. *There are two cases:*

1. *If $\gamma w_l < \bar{w}$, then there is a unique equilibrium and all candidates are from their district's majority (income) group and favor regulation.*

2. *If $\gamma w_l \geq \bar{w}$, then every profile of candidates who favor regulation is an equilibrium if $\eta = 0$ while there is a unique equilibrium and all candidates are from the high-income group and favor regulation if $\eta > 0$.*

In equilibrium, if high earners predominate in the legislature, then not a single legislator supports redistribution.

Therefore, as long as the benefits from issues unrelated to redistribution cannot fully compensate lower-income individuals for too little redistribution, the observed predominance of high earners in the legislature is impossible with low office-holding premia. As before, as long as candidates from a lower-income background support redistribution once they hold office, they will win the seat in the majority of districts.

As all candidates and thus all legislators support regulation, regulation is enacted. Hence, the majority stance on regulation among citizens finds support among legislators.

4.9 Extension 4: A Role for Campaign Finance and Special Interests

Candidates for office might face campaign costs. Such costs could be a concern if the only way candidates can pay for them is out of their own pocket. In this case, only rich citizens can run for office, which would be a serious problem for a democratic society to begin with. However, such costs might be less of a concern if candidates can fundraise to cover them. In fact, for the 115th United States Congress for example, candidates for the US House of Representatives in the 2016 election contributed or loaned on average only about 10% of their campaigns' overall receipts. Moreover, about 43% of all candidates contributed or loaned nothing at all to their campaigns; about 52% of all candidates contributed or loaned no more than $1,000 to their campaigns; and about 69% of all candidates contributed or loaned no more than $10,000 to their campaigns. Of all winners, about 83%, 86%, and 89% contributed or loaned nothing at all, no more than $1,000, and no more than $10,000 to their campaigns, respectively; of all nonincumbent winners, about 27%, 38%, and 45% contributed or loaned nothing at all, no more than $1,000, and no more than $10,000 to their campaigns, respectively.[19]

[19] Data from the Federal Election Commission, accessed on 7/2/2019 at https://www.fec.gov/data/browse-data/?tab=historical and https://www.congress.gov/members accessed on 7/4/2019.

In particular, candidates might raise money from interest groups that care about "winning a district's seat" by supporting a candidate who is aligned with them on their issue and votes in their favor on related policies once in office. In this section, I extend the environment to allow for such a role for special interest groups whose policy issue is independent of income.[20]

4.9.1 Changes to the Environment

The starting point is the environment in Section 4.8. Besides a redistribution policy, the legislature also decides over whether or not to enact regulation in a separate plurality vote. A fraction $\lambda_1 > 0$ of the individuals in society, in each district, in each income group, and in each income group in each district prefers regulation to be enacted. If regulation is enacted, then individuals in this group experience an additional utility benefit $\theta > 0$. The remaining fraction $\lambda_0 = 1 - \lambda_1 > 0$, $\lambda_0 < \lambda_1$, of the individuals in society, in each district, in each income group, and in each income group in each district prefers regulation not be enacted. Individuals in this group experience an additional utility benefit $\theta > 0$ if regulation is not enacted. Thus, in every district j, there are four types of citizens: $\lambda_1\mu_l^j > 0$ citizens of type $(l, 1)$ who have low income and prefer regulation; $\lambda_0\mu_l^j > 0$ citizens of type $(l, 0)$ who have low income and prefer no regulation; $\lambda_1\mu_h^j > 0$ citizens of type $(h, 1)$ who have high income and prefer regulation; and $\lambda_0\mu_h^j > 0$ citizens of type $(h, 0)$ who have high income and prefer no regulation, where $\lambda_1\mu_l^j + \lambda_0\mu_l^j + \lambda_1\mu_h^j + \lambda_0\mu_h^j = 1/d$.

In addition, suppose that running for office is prohibitively costly for individual citizen. However, there is a special interest group with abundant resources that opposes regulation and is ready to finance the campaign costs of all candidates in all districts who will vote in line with their agenda on related policies in the legislature once they hold office.

4.9.2 Implications for Strategies and Payoffs

As in Section 4.8, the payoffs of voters of type $(i, 1)$ are given by (9) while those of voters of type $(i, 0)$ are given by (10). Similarly, the payoffs of legislators of type $(i, 1)$ are given by (11) while those of legislators of type $(i, 0)$ are given by (12).

As all legislators vote as if their vote was decisive, legislators of types $(i, 1)$ and $(i, 0)$ always vote for and against regulation, respectively. Therefore, the special interest group finances the campaign of a candidate if and only if that candidate is of types $(l, 0)$ or $(h, 0)$. That is, citizens of types $(l, 1)$ and $(h, 1)$ simply cannot run for office.

Regarding redistribution, as in Section 4.8, comparing the first and second entries in equations (11) and (12), legislators support (oppose) redistribution if $\gamma w_i < \bar{w}$ ($\gamma w_i \geq \bar{w}$). That is, legislators from the high-income group h oppose redistribution because $\gamma \geq 1$ and

[20] I focus on campaign finance, with rather stark assumptions (also see, e.g., Besley and Coate 2003, 2008). On lobbying, see, e.g., Besley and Coate (2001); Felli and Merlo (2006); Gehlbach et al. (2010).

$w_h > \bar{w}$ together imply that $\gamma w_h > \bar{w}$. As before, whether legislators from the low-income group l support or oppose redistribution depends on the size of the office-holding premium.

As citizens of types $(l, 1)$ and $(h, 1)$ cannot run for office, parties can select their candidates in each district only from those citizens who oppose regulation. That is, $s_{P,j} \in \{(l, 0), (h, 0)\}$ indicates the type of citizen from which party $P \in \{A, B\}$ selects its candidate in district $j \in D$. In the following, I suppress the regulation preference 0 from the types of citizens that can run for office so that $s_{P,j} \in \{l, h\}$. Given this suppression, parties' strategies and payoffs as well as the definition of equilibrium are as specified in Section 4.1.

4.9.3 Predictions

First, suppose that $\gamma w_l < \bar{w}$. That is, legislators from the low-income group support redistribution. As legislators from the high-income group oppose redistribution, all legislators from any income group support the redistribution policy preferred by individuals in that group. Ignoring regulation because both candidates vote against it once in office, by the same logic as in Section 4.2, the probability of party P winning the seat in district j is given by (3).

Second, suppose that $\gamma w_l \geq \bar{w}$. Then, legislators from the low-income group oppose redistribution once in office. As legislators from the high-income group always oppose redistribution, all legislators oppose redistribution, irrespective of their income background. Again, ignoring regulation because both candidates vote against it once in office, by the same logic as in Section 4.3, the probability of party P winning the seat in district j is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$.

The following result shows that the conclusions drawn from Propositions 1–3 still hold.

Proposition 9. *Propositions 1–2, Corollaries 1–2, and Proposition 3 hold.*

Thus, the logic carries over to the case in which a special interest group whose issue is independent of income can support candidates of its choosing. As before, candidates from a lower-income background win the seat in the majority of districts as long as they support redistribution once in office. The observed predominance of high earners in the legislature requires that legislators from all backgrounds oppose redistribution once they hold office.

As all candidates and thus all legislators oppose regulation, regulation is not enacted. The majority stance on regulation among citizens does not find support among legislators.

5 Discussion

Finally, in this section, I discuss a number of modeling choices and interpretations.

5.1 Legislator Preferences, In-Office Income, and Office-Holding Premia

The assumption that legislators vote according to their personal policy preferences finds empirical support in the literature (e.g., Levitt 1996; Lee et al. 2004; Matsusaka 2017). The logic of the results then builds on the idea that the political institutions—the laws and rules in place—elected representatives face once in office may alter the policies they support.

Throughout the paper, I interpret γ as an income premium associated with holding office. Empirical evidence for office-holding premia is provided by, e.g., Gagliarducci et al. (2010), Eggers and Hainmueller (2009), Peichl et al. (2013), Kotakorpi et al. (2017). One possible element of such a premium is a disproportionately high legislator salary. Again, as an example, in the United States in 2016, the salary of a generic member of the United States Congress was \$174,000, which was more than four times the median earnings of under \$40,000 in the US population aged 25 and over (see Footnote 7). With such a salary interpretation, the predominance of high earners in the legislature being associated with high office-holding premia is consistent with empirical evidence that higher politician pay is associated with more educated politicians from higher-paying occupations (e.g., Gagliarducci and Nannicini 2013; Carnes and Hansen 2016).

Another element of a high office-holding premium is outside income generated from, e.g., businesses, consultancy, board memberships, speeches, and books. With a focus on this element, γ captures the role of restrictions on outside activities and income imposed by the political institutions in a reduced form, without modeling the underlying agency problems (see, e.g., Gagliarducci et al. 2010). It might capture explicit restrictions as well as implicit rules and custom. It might similarly capture how time-consuming the role of a legislator is, and thus how much time they can spend engaging in outside activities. Any such restrictions deriving from institutions and legislature custom are the same for all legislators. The productivity of outside opportunities, for example, thus depends on the individual office holder's productivity in those activities. On average, the skills and abilities associated with high-income occupations in the private sector are likely more transferable to politicians' opportunities to generate outside income than those associated with less well-paying occupations. Outside income could also be derived from wealth, which might be correlated with income or earnings potential. In principle, γ could be interpreted as capturing, in a reduced form, legislators' increased income potential in a post-legislature career (e.g., Diermeier et al. 2005; Mattozzi and Merlo 2008; Eggers and Hainmueller 2009; Parker and Parker 2009; Palmer and Schneer 2016). Higher expected future income likely does affect a legislator's support for, e.g., certain changes to the tax code.

In principle, the in-office income and thus the office-holding premium could be thought of as including the monetary value of certain nonmonetary benefits and costs of running for and holding office. Such benefits could be derived from, e.g., the status and nonmonetary perks associated with the office. Such costs could be associated with, e.g., the loss of privacy due to subjecting oneself to public scrutiny.

5.2 Parties, Parties' Motivation, and Party Discipline

The role of political parties here is to mechanically select the most promising candidates.[21] The assumption that there are two of them is realistic for the United States and ensures that an equilibrium exists without further restrictions on the income distribution. The assumption that parties only care about the number of their seats in the legislature emphasizes the focus on potential candidates' ability to win the office. However, the logic carries over to the case of policy-motivated parties that play only weakly undominated strategies.

Suppose that parties only care about the redistribution policy the legislature chooses, where one party supports redistribution while the other one opposes it. If office-holding premia are low enough, then legislators from a lower-income background support redistribution while legislators from a high-income background oppose it. Parties then select candidates that support their preferred policy. In this case, the party that supports redistribution and selected its candidates from the low-income group wins the seat in the majority of districts, i.e., in all those that have a majority of low-income individuals. Thus, high earners cannot predominate in the legislature. If office-holding premia are high enough, then legislators from all groups oppose redistribution once in office. Parties and voters are then indifferent among the backgrounds of possible candidates. In this case, high earners can predominate in the legislature, and no legislator supports redistribution once in office.

In the case of policy-motivated parties, there can be a role for party discipline to counteract the effect of high office-holding premia on how legislators from a lower-income background vote in the legislature. They might always vote in favor of redistribution if they were initially selected by the party that supports redistribution. However, if legislators from a high-income background oppose redistribution, then candidates from a lower-income background win the seat in the majority of districts. That is, high earners cannot predominate in the legislature.

5.3 Income Distribution and Taxation

The assumption that $|D_l| > |D_h|$ captures the empirical observation that lower-income citizens do not only constitute a majority in the United States overall, which is captured by the assumption that $\mu_l > \mu_h$, but also in the majority of US congressional districts (see Footnote 3). If $|D_l| < |D_h|$ were to hold, then high earners would constitute a majority in the majority of electoral districts. That is, in the majority of congressional districts, the median income in the district is higher than the mean income in the population overall. For the case of

[21] On the role of parties in their own right, see, e.g., Bernhardt et al. 2009; Galasso and Nannicini 2011.

high office-holding premia, the analysis and predictions would be unaffected. However, high earners could predominate in the legislature even in the case of low office-holding premia.

The assumption of only two income levels is not important. The logic is that in the empirically relevant case in which the majority of voters in the majority of districts has a less-than-average income, lower-income candidates that support redistribution once in office win the district election in this majority of districts. That is, predominance of high earners in the legislature is impossible. Therefore, suppose that there are groups with income levels between w_l and w_h, and suppose that every district has residents from all income groups. Some of these additional income levels might be above and some might be below the average income. As long as the majority of voters in the majority of districts still has a less-than-average income, the logic is unaffected. In order for the observed predominance of high earners in the legislature to arise in equilibrium, office-holding premia would have to be high enough for even the lowest-income citizens to oppose redistribution once in office.

I restrict the policy space for the tax rate t to $\{0, 1\}$. If that policy space was $[0, 1]$ instead, then the ideal point of every individual in any role would be either 0 or 1. As long as an equilibrium of the voting game in the legislature in which the majority does not implement their shared ideal point is considered unreasonable and somehow ruled out, the restriction to $\{0, 1\}$ is inconsequential. Given this policy space, the analysis is unchanged when voting in the legislature is strategic with weakly dominated voting strategies being excluded. For simplicity, I abstract from a trade-off between the size of the pie and its distribution, thereby, in a sense, favoring redistribution. If this trade-off were present, then redistribution would be implemented with a tax rate less than one. None of the results would change materially.

6 Conclusion

This paper contributes to the discussion about what role the preferences of lower-income citizens play in the policy-making process in representative democracies. I consider a policy issue stylized as redistribution, and I show that the observed predominance of high earners in the legislature may imply that not a single lawmaker supports the redistribution policies preferred by lower-income citizens. That is, lower-income citizens' redistribution preferences might not play a role in the policy-making process at all. This finding neither depends on an interpretation of legislators' individual voting behavior or policy outcomes, nor on a definition of legislative representation. It is concerning if the legislature is supposed to represent all citizens' policy preferences, let alone represent them equally.

Appendix

A Proofs

In this appendix, I provide the proofs. Lemmas 1 and 2 derive directly from comparing the respective entries in Equations (1) and (2) while Corollaries 1 and 2 follow immediately from Propositions 1 and 2. Their proofs are thus omitted.

Proposition 1

Proof. The probability of party $P \in \{A, B\}$ winning the seat in district j is given by (3). Consider the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = (i_j^*, i_j^*)$ for all $j \in D$. Then, by (3), $\pi_j(s_{P,j}^*, s_{-P,j}^*) = \pi_j(i_j^*, i_j^*) = 1/2$ for all $P \in \{A, B\}$ and $j \in D$. Party P's payoff is

$$V(s_P^*, s_{-P}^*) = \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = \frac{1}{2}d.$$

Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s_P^*$. Then, there must be a nonempty subset $D' \subseteq D$, such that $k \in D'$ if and only if $s'_{P,k} \neq s_{P,k}^*$. Moreover, for all $k \in D'$, $s'_{P,k} = -i_k^*$ and thus, by (3), $\pi_k(s'_{P,k}, s_{-P,k}^*) = \pi_k(-i_k^*, i_k^*) = 0$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s_{-P,j}^*) = \pi_j(s_{P,j}^*, s_{-P,j}^*) = 1/2$. Thus, letting $d' = |D'| > 0$, party P's payoff from this deviation is

$$V(s'_P, s_{-P}^*) = \sum_{j \in D} \pi_j(s'_{P,j}, s_{-P,j}^*) = \frac{1}{2}(d - d') < \frac{1}{2}d = V(s_P^*, s_{-P}^*).$$

That is, deviating to any different strategy $s'_P \neq s_P^*$ is not profitable. Thus, the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = (i_j^*, i_j^*)$ for all $j \in D$ is an equilibrium.

Consider any strategy profile $(s_A, s_B) \neq (s_A^*, s_B^*)$. That is, in some district $k \in D$, $(s_{A,k}, s_{B,k}) \neq (i_k^*, i_k^*)$. Party P's payoff is

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

There are two cases: either *(a)* both parties select candidates from the minority group $-i_k^*$, i.e., $(s_{P,k}, s_{-P,k}) = (-i_k^*, -i_k^*)$; or *(b)* only one of the two parties selects a candidate from the minority group $-i_k^*$ while the other party selects a candidate from the majority group i_k^*, i.e., for some $P \in \{A, B\}$, $(s_{P,k}, s_{-P,k}) = (-i_k^*, i_k^*)$. Consider each case in turn.

Case (a). If $(s_{P,k}, s_{-P,k}) = (-i_k^*, -i_k^*)$, then by (3), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(-i_k^*, -i_k^*) = 1/2$

and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) = \frac{1}{2} + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = i^*_k$. From (3) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(i^*_k, -i^*_k) = 1$ so that

$$V(s'_P, s_{-P}) = 1 + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) > \frac{1}{2} + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Case (b). If $(s_{P,k}, s_{-P,k}) = (-i^*_k, i^*_k)$, then by (3), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(-i^*_k, i^*_k) = 0$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) = \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = i^*_k$. From (3) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(i^*_k, i^*_k) = 1/2$ so that

$$V(s'_P, s_{-P}) = \frac{1}{2} + \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) > \sum_{j\in D, j\neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Therefore, the strategy profile (s^*_A, s^*_B) such that $(s^*_{A,j}, s^*_{B,j}) = (i^*_j, i^*_j)$ for all $j \in D$ is the unique equilibrium. ■

Proposition 2

Proof. Suppose that $\eta = 0$. Then, the probability of party P winning the seat in district j is given by (4). Consider any strategy profile (s_A, s_B). By (4), $\pi_j(s_{P,j}, s_{-P,j}) = 1/2$ for all $P \in \{A, B\}$ and $j \in D$. Therefore, party P's payoff is

$$V(s_P, s_{-P}) = \sum_{j\in D} \pi_j(s_{P,j}, s_{-P,j}) = \frac{1}{2}d.$$

Consider any deviation by any party $P \in \{A, B\}$ to a strategy $s'_P \neq s_P$. By (4), $\pi_j(s'_{P,j}, s_{-P,j}) = 1/2$ for all $j \in D$. Therefore, party P's payoff from this deviation is

$$V(s'_P, s_{-P}) = \sum_{j\in D} \pi_j(s'_{P,j}, s_{-P,j}) = \frac{1}{2}d = V(s_P, s_{-P}).$$

That is, deviating to any different strategy $s'_P \neq s_P$ is not profitable. Hence, the strategy profile (s_A, s_B) is an equilibrium. Thus, if $\eta = 0$, then every strategy profile (s_A, s_B) is an equilibrium.

Suppose that $\eta > 0$. Then, the probability of party P winning the seat in district j is given by (5). Consider the strategy profile (s^*_A, s^*_B) such that $(s^*_{A,j}, s^*_{B,j}) = (h, h)$ for all $j \in D$. Then, by (5), $\pi_j(s^*_{P,j}, s^*_{-P,j}) = \pi_j(h, h) = 1/2$ for all $P \in \{A, B\}$ and $j \in D$. Thus, each party P has payoff

$$V(s^*_P, s^*_{-P}) = \sum_{j \in D} \pi_j(s^*_{P,j}, s^*_{-P,j}) = \frac{1}{2}d.$$

Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s^*_P$. Then, there must be a nonempty subset $D' \subseteq D$, such that $k \in D'$ if and only if $s'_{P,k} \neq s^*_{P,k}$. Moreover, for all $k \in D'$, $s'_{P,k} = l$ and thus, by (5), $\pi_k(s'_{P,k}, s^*_{-P,k}) = \pi_k(l, h) = 0$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s^*_{-P,j}) = \pi_j(s^*_{P,j}, s^*_{-P,j}) = 1/2$. Thus, letting $d' = |D'| > 0$, party P's payoff from this deviation is

$$V(s'_P, s^*_{-P}) = \sum_{j \in D} \pi_j(s'_{P,j}, s^*_{-P,j}) = \frac{1}{2}(d - d') < \frac{1}{2}d = V(s^*_P, s^*_{-P}).$$

That is, deviating to any different strategy $s'_P \neq s^*_P$ is not profitable. Thus, if $\eta > 0$, then the strategy profile (s^*_A, s^*_B) such that $(s^*_{A,j}, s^*_{B,j}) = (h, h)$ for all $j \in D$ is an equilibrium.

Consider any strategy profile $(s_A, s_B) \neq (s^*_A, s^*_B)$. That is, in some district $k \in D$, $(s_{A,k}, s_{B,k}) \neq (h, h)$. Party P's payoff is

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

There are two cases: either *(a)* both parties select candidates from the low-income group l, i.e., $(s_{P,k}, s_{-P,k}) = (l, l)$; or *(b)* only one of the two parties selects a candidate from the low-income group l while the other party selects a candidate from the high-income group h, i.e., for some $P \in \{A, B\}$, $(s_{P,k}, s_{-P,k}) = (l, h)$. Consider each case in turn.

Case (a). If $(s_{P,k}, s_{-P,k}) = (l, l)$, then by (5), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(l, l) = 1/2$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = h$. From (5) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(h, l) = 1$ so that

$$V(s'_P, s_{-P}) = 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Case (b). If $(s_{P,k}, s_{-P,k}) = (l, h)$, then by (5), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(l, h) = 0$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = h$. From (5) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(h, h) = 1/2$ so that

$$V(s'_P, s_{-P}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Therefore, if $\eta > 0$, then the strategy profile (s^*_A, s^*_B) such that $(s^*_{A,j}, s^*_{B,j}) = (h, h)$ for all $j \in D$ is the unique equilibrium. ■

Proposition 3

Proof. By Propositions 1 and 2, an equilibrium always exists for all $\gamma \geq 1$. Suppose that high earners predominate in the legislature in equilibrium. By contraposition, it follows from Corollary 1 that $\gamma w_l \geq \bar{w}$ must hold, and Corollary 2 verifies that if $\gamma w_l \geq \bar{w}$, then there is an equilibrium such that high earners predominate in the legislature. From $\gamma w_l \geq \bar{w}$ follows that all legislators oppose redistribution, irrespective of their income-background. ■

Proposition 4

Proof. Fix $\mu_l > 0$, $\mu_h > 0$, and $\bar{w} \in (0, \infty)$. Suppose that $(\mu_l, w'_l, \mu_h, w'_h)$ is more unequal than (μ_l, w_l, μ_h, w_h). Then, $w_l > w'_l$. By Corollaries 1 and 2, given (μ_l, w_l, μ_h, w_h), predominance of high earners in the legislature requires that $\gamma \geq \bar{\gamma} \equiv \bar{w}/w_l$; given $(\mu_l, w'_l, \mu_h, w'_h)$, the same predominance requires that $\gamma \geq \bar{\gamma}' \equiv \bar{w}/w'_l$; and $w_l > w'_l$ implies that $\bar{\gamma}' > \bar{\gamma}$. ■

Proposition 5

Proof. Fix any income distribution (μ_l, w_l, μ_h, w_h), where $\mu_l > 0$, $\mu_h = 1 - \mu_l > 0$, and $0 < w_l < w_h < \infty$, implying that $w_l < \bar{w} < w_h$. There is a $\bar{\gamma} = \bar{w}/w_l > 1$ such that $\gamma w_l \geq \bar{w}$ for all $\gamma \geq \bar{\gamma}$, so that high earners can predominate the legislature (Corollary 2). ■

Proposition 6

Proof. The proofs of Propositions 1–2 are unaffected; Corollaries 1–2 follow directly; the proof of Proposition 3 only requires that γ be replaced by $\hat{\gamma}$. ■

Proposition 7

Proof. I consider each case in turn and then establish the last sentence of the proposition.

1. Suppose that $\tilde{\gamma} w_l < \gamma w_l < \bar{w}$. Then, the probability of party P winning the seat in district j is given by (3). The proof is then exactly the same as that of Proposition 1.

2. Suppose that $\gamma w_l > \tilde{\gamma} w_l \geq \bar{w}$. Then, the probability of party P winning the seat in district j is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$. The proof is then exactly the same as that of Proposition 2.

3. Suppose that $\tilde{\gamma} w_l < \bar{w} \leq \gamma w_l$. Then, the probability of party P winning the seat in district $j \in D_l$ is given by (3) while the probability of party P winning the seat in district $j \in D_h$ is given by (4) if $\eta = 0$ and by (5) if $\eta > 0$.

   Consider the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = (l, l)$ for all $j \in D_l$ and $(s_{A,j}^*, s_{B,j}^*) = (h, h)$ for all $j \in D_h$. By (3), party $P \in \{A, B\}$ wins the seat in all districts $j \in D_l$ with probability $\pi_j(s_{P,j}^*, s_{-P,j}^*) = \pi_j(i_j^*, i_j^*) = 1/2$; by (4) in the case of $\eta = 0$ and by (5) in the case of $\eta > 0$, party $P \in \{A, B\}$ wins the seat in all districts $j \in D_h$ with probability $\pi_j(s_{P,j}^*, s_{-P,j}^*) = \pi_j(h, h) = 1/2$. Thus, party P has payoff

   $$V(s_P^*, s_{-P}^*) = \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = \frac{1}{2} d.$$

   Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s_P^*$. Then, there must be a nonempty subset $D' \subseteq D$, such that $k \in D'$ if and only if $s'_{P,k} \neq s_{P,k}^*$. Moreover, for all $k \in D'$, $s'_{P,k} = h = -i_k^*$ if $k \in D_l$ while $s'_{P,k} = l$ if $k \in D_h$. Thus, if $k \in D_l$, then by (3), $\pi_k(s'_{P,k}, s_{-P,k}^*) = \pi_k(-i_k^*, i_k^*) = 0$ while if $k \in D_h$, then by (4), $\pi_k(s'_{P,k}, s_{-P,k}^*) = \pi_k(l, h) = 1/2$ in the case of $\eta = 0$ and by (5), $\pi_k(s'_{P,k}, s_{-P,k}^*) = \pi_k(l, h) = 0$ in the case of $\eta > 0$. That is, for all $k \in D'$, $\pi_k(s'_{P,k}, s_{-P,k}^*) \leq \pi_k(s_{P,k}^*, s_{-P,k}^*)$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s_{-P,j}^*) = \pi_j(s_{P,j}^*, s_{-P,j}^*)$. Therefore, party P's payoff from this deviation is

   $$V(s'_P, s_{-P}^*) = \sum_{j \in D} \pi_j(s'_{P,j}, s_{-P,j}^*) \leq \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = V(s_P^*, s_{-P}^*).$$

   That is, deviating to any different strategy $s'_P \neq s_P^*$ is not profitable. Thus, the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = (l, l)$ for all $j \in D_l$ and $(s_{A,j}^*, s_{B,j}^*) = (h, h)$ for all $j \in D_h$ is an equilibrium.

   Consider any strategy profile (s_A, s_B) such that in some district $k \in D_l$, $(s_{A,k}, s_{B,k}) \neq (i_k^*, i_k^*) = (l, l)$. The probability of party P winning the seat in district $k \in D_l$ is given by (3). Party P's payoff is

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

There are two cases: either *(a)* both parties select candidates from group h, i.e., $(s_{P,k}, s_{-P,k}) = (h, h) = (-i_k^*, -i_k^*)$; or *(b)* only one of the two parties selects a candidate from group h while the other party selects a candidate from group l, i.e., for some $P \in \{A, B\}$, $(s_{P,k}, s_{-P,k}) = (h, l) = (-i_k^*, i_k^*)$. Consider each case in turn.

Case (a). If $(s_{P,k}, s_{-P,k}) = (-i_k^*, -i_k^*)$, then by (3), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(-i_k^*, -i_k^*) = 1/2$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = l = i_k^*$. From (3) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(i_k^*, -i_k^*) = 1$ so that

$$V(s'_P, s_{-P}) = 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Case (b). If $(s_{P,k}, s_{-P,k}) = (-i_k^*, i_k^*)$, then by (3), $\pi_k(s_{P,k}, s_{-P,k}) = \pi_k(-i_k^*, i_k^*) = 0$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = l = i_k^*$. From (3) follows that $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k(i_k^*, i_k^*) = 1/2$ so that

$$V(s'_P, s_{-P}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Therefore, in every equilibrium, the strategy profile (s_A^*, s_B^*) satisfies $(s_{A,j}^*, s_{B,j}^*) = (l, l)$ for all $j \in D_l$.

As there is an equilibrium in all cases, an equilibrium exists for all $\tilde{\gamma} \geq 1$. Finally, if $\tilde{\gamma} w_l < \bar{w}$, then as shown in *1* and *3*, $(s_{A,j}^*, s_{B,j}^*) = (l, l)$ for all $j \in D_l$ in every equilibrium. Thus, district j's legislator is from group l for all $j \in D_l$. Therefore, the legislature has at least $|D_l|$ legislators from group l and at most $|D_h|$ legislators from group h. Since $|D_l| > |D_h|$, the majority of legislators is from group l. By contraposition, if high earners predominate in the legislature, then $\tilde{\gamma} w_l \geq \bar{w}$ must hold. As shown in 2, if $\eta = 0$, then there is an equilibrium such that $(s^*_{A,j}, s^*_{B,j}) = (h, h)$ for all $j \in D''$, where $D'' \subseteq D$ is some subset of D such that $|D''| > |D|/2$, so that $|D''| > |D|/2$ legislators, i.e., the majority of legislators, are from group h. If $\eta > 0$, then $(s^*_{A,j}, s^*_{B,j}) = (h, h)$ for all $j \in D$ is the unique equilibrium, so that all legislators are from group h. Thus, if high earners predominate in the legislature in equilibrium, then $\tilde{\gamma} w_l \geq \bar{w}$. It then follows from $\gamma w_l > \tilde{\gamma} w_l \geq \bar{w}$ and $\gamma w_h > \tilde{\gamma} w_h > \bar{w}$ that all legislators oppose redistribution, irrespective of their income background and which district they represent. That is, not a single legislator supports redistribution. ■

Lemma 3

Proof. Suppose that $\gamma w_l < \bar{w}$. Every district j has $1/d$ voters. From $\lambda_1 + \lambda_0 = 1$ and $\lambda_1 > \lambda_0$ follows that $\lambda_1 > 1/2$.

Consider any $P \in \{A, B\}$ and $j \in D_l$. From $\mu^j_l + \mu^j_h = 1/d$ and $\mu^j_l > \mu^j_h$ follows that $\mu^j_l > 1/2d$. Fix $s_{P,j} = (l, 1)$. If $s_{-P,j} = (l, 0)$, then $\lambda_1 \mu^j_l$ voters of type $(l, 1)$ and $\lambda_1 \mu^j_h$ voters of type $(h, 1)$ vote for $(l, 1)$ because $\bar{w} + \theta > \bar{w}$. That is, $\lambda_1 \mu^j_l + \lambda_1 \mu^j_h = \lambda_1/d > 1/2d$ voters vote for $(l, 1)$ so that $\pi_j((l, 1), (l, 0)) = 1$. If $s_{-P,j} = (h, 1)$, then $\lambda_1 \mu^j_l$ voters of type $(l, 1)$ vote for $(l, 1)$ because $\bar{w} + \theta > w_l + \eta + \theta$ since $\bar{w} > w_l + \eta$; similarly, $\lambda_0 \mu^j_l$ voters of type $(l, 0)$ vote for $(l, 1)$ because $\bar{w} > w_l + \eta$. That is, $\lambda_1 \mu^j_l + \lambda_0 \mu^j_l = \mu^j_l > 1/2d$ voters vote for $(l, 1)$ so that $\pi_j((l, 1), (h, 1)) = 1$. If $s_{-P,j} = (h, 0)$, then $\lambda_1 \mu^j_l$ voters of type $(l, 1)$ vote for $(l, 1)$ because $\bar{w} + \theta > w_l + \eta$ since $\bar{w} > w_l + \eta$; similarly, $\lambda_0 \mu^j_l$ voters of type $(l, 0)$ vote for $(l, 1)$ because $\bar{w} > w_l + \eta + \theta$. That is, $\lambda_1 \mu^j_l + \lambda_0 \mu^j_l = \mu^j_l > 1/2d$ voters vote for $(l, 1)$ so that $\pi_j((l, 1), (h, 0)) = 1$. Thus, $\pi_j((l, 1), y) = 1$ for all $y \neq (l, 1)$ and $j \in D_l$.

Consider any $P \in \{A, B\}$ and $j \in D_h$. From $\mu^j_l + \mu^j_h = 1/d$ and $\mu^j_h > \mu^j_l$ follows that $\mu^j_h > 1/2d$. Fix $s_{P,j} = (h, 1)$. If $s_{-P,j} = (h, 0)$, then $\lambda_1 \mu^j_h$ voters of type $(h, 1)$ and $\lambda_1 \mu^j_l$ voters of type $(l, 1)$ vote for $(h, 1)$ because $w_i + \eta + \theta > w_i + \eta$. That is, $\lambda_1 \mu^j_l + \lambda_1 \mu^j_h = \lambda_1/d > 1/2d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (h, 0)) = 1$. If $s_{-P,j} = (l, 1)$, then $\lambda_1 \mu^j_h$ voters of type $(h, 1)$ vote for $(h, 1)$ because $w_h + \eta + \theta > \bar{w} + \theta$ since $w_h > \bar{w}$; similarly, $\lambda_0 \mu^j_h$ voters of type $(h, 0)$ vote for $(h, 1)$ because $w_h + \eta > \bar{w}$. That is, $\lambda_1 \mu^j_h + \lambda_0 \mu^j_h = \mu^j_h > 1/2d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (l, 1)) = 1$. If $s_{-P,j} = (l, 0)$, then $\lambda_1 \mu^j_h$ voters of type $(h, 1)$ vote for $(h, 1)$ because $w_h + \eta + \theta > \bar{w}$; similarly, $\lambda_0 \mu^j_h$ voters of type $(h, 0)$ vote for $(h, 1)$ because $w_h + \eta > \bar{w} + \theta$ since $w_h - \bar{w} > \bar{w} - w_l > \theta$. That is, $\lambda_1 \mu^j_h + \lambda_0 \mu^j_h = \mu^j_h > 1/2d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (l, 0)) = 1$. Thus, $\pi_j((h, 1), y) = 1$ for all $y \neq (h, 1)$ and $j \in D_h$. ■

Lemma 4

Proof. Suppose that $\gamma w_l \geq \bar{w}$ and $\eta = 0$. Every district j has $1/d$ voters. From $\lambda_1 + \lambda_0 = 1$ and $\lambda_1 > \lambda_0$ follows that $\lambda_1 > 1/2$.

Consider any $P \in \{A, B\}$ and $j \in D$. Fix $s_{P,j} = (i_{P,j}, 1)$ for some $i_{P,j} \in \{l, h\}$. If $s_{-P,j} = s_{P,j}$, then $\pi_j((i_{P,j}, 1), (i_{P,j}, 1)) = 1/2$ by (13). Suppose that $s_{-P,j} = (-i_{P,j}, 1)$, where $-i_{P,j} \in \{l, h\} \backslash \{i_{P,j}\}$. Then, the candidates are of types $(l, 1)$ and $(h, 1)$ and all voters are indifferent among them: as $\eta = 0$ and both candidates favor regulation and oppose redistribution once in office, the payoff associated with voting for either candidate is $w_i + \theta$ for voters of types $(l, 1)$ and $(h, 1)$ and w_i for voters of types $(l, 0)$ and $(h, 0)$. Thus, all voters randomize so that a fair coin flip is expected to decide the election and thus $\pi_j((i_{P,j}, 1), (-i_{P,j}, 1)) = 1/2$. That is, $\pi_j((i_{P,j}, 1), (i_{-P,j}, 1)) = 1/2$ for all $(i_{P,j}, i_{-P,j}) \in \{l, h\}^2$. Finally, suppose that $s_{-P,j} = (i_{-P,j}, 0)$ for some $i_{-P,j} \in \{l, h\}$. As $\eta = 0$ and both candidates oppose redistribution once in office irrespective of their income background, for voters of types $(l, 1)$ and $(h, 1)$, the payoff associated with voting for the candidate of type $(i_{P,j}, 1)$ is $w_i + \theta$ while that associated with voting for the candidate of type $(i_{-P,j}, 0)$ is w_i. Therefore, as $w_i + \theta > w_i$, all $\lambda_1 \mu_l^j + \lambda_1 \mu_h^j = \lambda_1/d > 1/2d$ voters of types $(l, 1)$ and $(h, 1)$ vote for the candidate of type $(i_{P,j}, 1)$, who thus wins the election with certainty. That is, $\pi_j((i_{P,j}, 1), (i_{-P,j}, 0)) = 1$ for all $(i_{P,j}, i_{-P,j}) \in \{l, h\}^2$. ■

Lemma 5

Proof. Suppose that $\gamma w_l \geq \bar{w}$ and $\eta > 0$. Every district j has $1/d$ voters. From $\lambda_1 + \lambda_0 = 1$ and $\lambda_1 > \lambda_0$ follows that $\lambda_1 > 1/2$.

Consider any $P \in \{A, B\}$ and $j \in D$. Fix $s_{P,j} = (h, 1)$. If $s_{-P,j} = (h, 0)$, then $\lambda_1 \mu_h^j$ voters of type $(h, 1)$ and $\lambda_1 \mu_l^j$ voters of type $(l, 1)$ vote for $(h, 1)$ because $w_i + \eta + \theta > w_i + \eta$. That is, $\lambda_1 \mu_l^j + \lambda_1 \mu_h^j = \lambda_1/d > 1/2d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (h, 0)) = 1$. If $s_{-P,j} = (l, 1)$, then all λ_1/d voters of types $(h, 1)$ and $(l, 1)$ vote for $(h, 1)$ because $w_i + \eta + \theta > w_i + \theta$ since $\eta > 0$; similarly, all λ_0/d voters of types $(l, 0)$ and $(h, 0)$ vote for $(h, 1)$ because $w_i + \eta > w_i$ since $\eta > 0$. That is, all $\lambda_1/d + \lambda_0/d = 1/d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (l, 1)) = 1$. If $s_{-P,j} = (l, 0)$, then $\lambda_1 \mu_h^j$ voters of type $(h, 1)$ and $\lambda_1 \mu_l^j$ voters of type $(l, 1)$ vote for $(h, 1)$ because $w_i + \eta + \theta > w_i$. That is, $\lambda_1 \mu_h^j + \lambda_1 \mu_l^j = \lambda_1/d > 1/2d$ voters vote for $(h, 1)$ so that $\pi_j((h, 1), (l, 0)) = 1$. Thus, $\pi_j((h, 1), y) = 1$ for all $y \neq (h, 1)$ and $j \in D$. ■

Proposition 8

Proof. I consider each case in turn and then establish the last sentence of the proposition.

1. Suppose that $\gamma w_l < \bar{w}$. Consider the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = ((i_j^*, 1), (i_j^*, 1))$ for all $j \in D$. Then, by (13), $\pi_j(s_{P,j}^*, s_{-P,j}^*) = \pi_j((i_j^*, 1), (i_j^*, 1)) = 1/2$

for all $P \in \{A, B\}$ and $j \in D$. Party P's payoff is

$$V(s_P^*, s_{-P}^*) = \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = \frac{1}{2}d.$$

Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s_P^*$. Then, there must be a nonempty subset $D' \subseteq D$ such that $k \in D'$ if and only if $s'_{P,k} \neq s^*_{P,k}$. Moreover, for all $k \in D'$, $s'_{P,k} \neq (i_k^*, 1)$ while $s^*_{-P,k} = (i_k^*, 1)$ and thus, by Lemma 3, $\pi_k(s'_{P,k}, s^*_{-P,k}) = 1 - \pi_k(s^*_{-P,k}, s'_{P,k}) = 1 - \pi_k((i_k^*, 1), s'_{P,k}) = 1 - 1 = 0$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s^*_{-P,j}) = \pi_j(s^*_{P,j}, s^*_{-P,j}) = 1/2$. Thus, letting $d' = |D'| > 0$, party P's payoff from this deviation is

$$V(s'_P, s^*_{-P}) = \sum_{j \in D} \pi_j(s'_{P,j}, s^*_{-P,j}) = \frac{1}{2}(d - d') < \frac{1}{2}d = V(s_P^*, s_{-P}^*).$$

That is, deviating to any different strategy $s'_P \neq s_P^*$ is not profitable. Thus, the strategy profile (s_A^*, s_B^*) such that $(s^*_{A,j}, s^*_{B,j}) = ((i_j^*, 1), (i_j^*, 1))$ for all $j \in D$ is an equilibrium.

Consider any strategy profile $(s_A, s_B) \neq (s_A^*, s_B^*)$. That is, in some district $k \in D$, $(s_{A,k}, s_{B,k}) \neq ((i_k^*, 1), (i_k^*, 1))$. Party P's payoff is

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

There are two cases: either *(a)* neither party selects a candidate of type $(i_k^*, 1)$, and at least one party wins the seat in district k with probability less than one, i.e., for some $P \in \{A, B\}$, $s_{P,k} \neq (i_k^*, 1)$, $s_{-P,k} \neq (i_k^*, 1)$, and $\pi_k(s_{P,k}, s_{-P,k}) < 1$; or *(b)* only one of the two parties selects a candidate of type $(i_k^*, 1)$ while the other party selects a candidate of some other type, i.e., for some $P \in \{A, B\}$, $s_{P,k} \neq (i_k^*, 1)$ while $s_{-P,k} = (i_k^*, 1)$. Consider each case in turn.

Case (a). If $s_{P,k} \neq (i_k^*, 1)$, $s_{-P,k} \neq (i_k^*, 1)$, and $\pi_k(s_{P,k}, s_{-P,k}) < 1$, then

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) < 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = (i_k^*, 1)$. As $s_{-P,k} \neq (i_k^*, 1)$, by Lemma 3, $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k((i_k^*, 1), s_{-P,k}) = 1$ so that

$$V(s'_P, s_{-P}) = 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Case (b). If $s_{P,k} \neq (i_k^*, 1)$ and $s_{-P,k} = (i_k^*, 1)$, then by Lemma 3, $\pi_k(s_{P,k}, s_{-P,k}) = 1 - \pi_k(s_{-P,k}, s_{P,k}) = 1 - \pi_k((i_k^*, 1), s_{P,k}) = 1 - 1 = 0$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = (i_k^*, 1)$. As $s_{-P,k} = (i_k^*, 1)$, $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k((i_k^*, 1), (i_k^*, 1)) = 1/2$ by (13) so that

$$V(s'_P, s_{-P}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Therefore, the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = ((i_j^*, 1), (i_j^*, 1))$ for all $j \in D$ is the unique equilibrium.

2. Suppose that $\gamma w_l \geq \bar{w}$. Suppose that $\eta = 0$. Consider any strategy profile (s_A^*, s_B^*) such that for all $j \in D$, $(s_{A,j}^*, s_{B,j}^*) = ((i_{A,j}, 1), (i_{B,j}, 1))$ for some $(i_{A,j}, i_{B,j}) \in \{l, h\}^2$. By Lemma 4, $\pi_j((i_{A,j}, 1), (i_{B,j}, 1)) = 1/2$ for all $j \in D$. Party P's payoff is

$$V(s_P^*, s_{-P}^*) = \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = \frac{1}{2}d.$$

Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s_P^*$. Then, there must be a nonempty subset $D' \subseteq D$ such that $k \in D'$ if and only if $s'_{P,k} \neq s_{P,k}^* = (i_{P,k}, 1)$. Moreover, for all $k \in D'$, $s'_{P,k} \in \{(-i_{P,k}, 1), (i_{P,k}, 0), (-i_{P,k}, 0)\}$, where $-i_{P,k} \in \{l, h\} \backslash \{i_{P,k}\}$, while $s_{-P,k}^* = (i_{-P,k}, 1)$ and, by Lemma 4 and $\pi_k(s'_{P,k}, s_{-P,k}^*) = 1 - \pi_k(s_{-P,k}^*, s'_{P,k})$, $\pi_k(s'_{P,k}, s_{-P,k}^*) \leq 1/2$. That is, for all $k \in D'$, $\pi_k(s'_{P,k}, s_{-P,k}^*) \leq \pi_k(s_{P,k}^*, s_{-P,k}^*)$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s_{-P,j}^*) = \pi_j(s_{P,j}^*, s_{-P,j}^*)$. Therefore, party P's payoff from this deviation is

$$V(s'_P, s_{-P}^*) = \sum_{j \in D} \pi_j(s'_{P,j}, s_{-P,j}^*) \leq \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = V(s_P^*, s_{-P}^*).$$

That is, deviating to any different strategy $s'_P \neq s_P^*$ is not profitable. Thus, if $\eta = 0$, then every strategy profile (s_A^*, s_B^*) such that for all $j \in D$, $(s_{A,j}^*, s_{B,j}^*) = ((i_{A,j}, 1), (i_{B,j}, 1))$ for some $(i_{A,j}, i_{B,j}) \in \{l, h\}^2$ is an equilibrium.

Suppose that $\eta > 0$. Consider the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = ((h, 1), (h, 1))$ for all $j \in D$. Then, by (13), $\pi_j(s_{P,j}^*, s_{-P,j}^*) = \pi_j((h, 1), (h, 1)) = 1/2$

for all $P \in \{A, B\}$ and $j \in D$. Party P's payoff is

$$V(s_P^*, s_{-P}^*) = \sum_{j \in D} \pi_j(s_{P,j}^*, s_{-P,j}^*) = \frac{1}{2}d.$$

Consider any party $P \in \{A, B\}$ and suppose that they were to deviate to a different strategy $s'_P \neq s_P^*$. Then, there must be a nonempty subset $D' \subseteq D$ such that $k \in D'$ if and only if $s'_{P,k} \neq s_{P,k}^*$. Moreover, for all $k \in D'$, $s'_{P,k} \neq (h, 1)$ while $s_{-P,k}^* = (h, 1)$ and thus, by Lemma 5, $\pi_k(s'_{P,k}, s_{-P,k}^*) = 1 - \pi_k(s_{-P,k}^*, s'_{P,k}) = 1 - \pi_k((h, 1), s'_{P,k}) = 1 - 1 = 0$ while for all $j \in D - D'$, $\pi_j(s'_{P,j}, s_{-P,j}^*) = \pi_j(s_{P,j}^*, s_{-P,j}^*) = 1/2$. Thus, letting $d' = |D'| > 0$, party P's payoff from this deviation is

$$V(s'_P, s_{-P}^*) = \sum_{j \in D} \pi_j(s'_{P,j}, s_{-P,j}^*) = \frac{1}{2}(d - d') < \frac{1}{2}d = V(s_P^*, s_{-P}^*).$$

That is, deviating to any different strategy $s'_P \neq s_P^*$ is not profitable. Thus, the strategy profile (s_A^*, s_B^*) such that $(s_{A,j}^*, s_{B,j}^*) = ((h, 1), (h, 1))$ for all $j \in D$ is an equilibrium.

Consider any strategy profile $(s_A, s_B) \neq (s_A^*, s_B^*)$. That is, in some district $k \in D$, $(s_{A,k}, s_{B,k}) \neq ((h, 1), (h, 1))$. Party P's payoff is

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

There are two cases: either *(a)* neither party selects a candidate of type $(h, 1)$, and at least one party wins the seat in district k with probability less than one, i.e., for some $P \in \{A, B\}$, $s_{P,k} \neq (h, 1)$, $s_{-P,k} \neq (h, 1)$, and $\pi_k(s_{P,k}, s_{-P,k}) < 1$; or *(b)* only one of the two parties selects a candidate of type $(h, 1)$ while the other party selects a candidate of some other type, i.e., for some $P \in \{A, B\}$, $s_{P,k} \neq (h, 1)$ while $s_{-P,k} = (h, 1)$. Consider each case in turn.

Case (a). If $s_{P,k} \neq (h, 1)$, $s_{-P,k} \neq (h, 1)$, and $\pi_k(s_{P,k}, s_{-P,k}) < 1$, then

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) < 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = (h, 1)$. As $s_{-P,k} \neq (h, 1)$, by Lemma 5, $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k((h, 1), s_{-P,k}) = 1$ so that

$$V(s'_P, s_{-P}) = 1 + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Case (b). If $s_{P,k} \neq (h,1)$ and $s_{-P,k} = (h,1)$, then by Lemma 5, $\pi_k(s_{P,k}, s_{-P,k}) = 1 - \pi_k(s_{-P,k}, s_{P,k}) = 1 - \pi_k((h,1), s_{P,k}) = 1 - 1 = 0$ and

$$V(s_P, s_{-P}) = \pi_k(s_{P,k}, s_{-P,k}) + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}).$$

Party P can deviate to strategy s'_P such that $s'_{P,j} = s_{P,j}$ for all $j \in D, j \neq k$ and $s'_{P,k} = (h,1)$. As $s_{-P,k} = (h,1)$, by (13), $\pi_k(s'_{P,k}, s_{-P,k}) = \pi_k((h,1),(h,1)) = 1/2$ so that

$$V(s'_P, s_{-P}) = \frac{1}{2} + \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) > \sum_{j \in D, j \neq k} \pi_j(s_{P,j}, s_{-P,j}) = V(s_P, s_{-P}).$$

That is, (s_A, s_B) is not an equilibrium.

Therefore, if $\eta > 0$, then the strategy profile (s^*_A, s^*_B) such that $(s^*_{A,j}, s^*_{B,j}) = ((h,1),(h,1))$ for all $j \in D$ is the unique equilibrium.

As there is an equilibrium in each case, an equilibrium exists for all $\gamma \geq 1$. Finally, if $\gamma w_l < \bar{w}$, then as shown in *1*, in equilibrium, $(s^*_{A,j}, s^*_{B,j}) = ((l,1),(l,1))$ for all $j \in D_l$ while $(s^*_{A,j}, s^*_{B,j}) = ((h,1),(h,1))$ for all $j \in D_h$. Thus, district j's legislator is from group l for all $j \in D_l$ and from group h for all $j \in D_h$. Therefore, the legislature has $|D_l|$ legislators from group l and $|D_h|$ legislators from group h. Since $|D_l| > |D_h|$, the majority of legislators is from group l. By contraposition, if high earners predominate in the legislature, then $\gamma w_l \geq \bar{w}$ must hold. As shown in *2*, if $\eta = 0$, then there is an equilibrium such that $(s^*_{A,j}, s^*_{B,j}) = ((h,1),(h,1))$ for all $j \in D''$, where $D'' \subseteq D$ is some subset of D such that $|D''| > |D|/2$, so that $|D''| > |D|/2$ legislators, i.e., the majority of legislators, are from group h. If $\eta > 0$, then $(s^*_{A,j}, s^*_{B,j}) = ((h,1),(h,1))$ for all $j \in D$ in the unique equilibrium, so that all legislators are from group h. Thus, if high earners predominate in the legislature in equilibrium, then $\gamma w_l \geq \bar{w}$. It then follows from $\gamma w_h > \gamma w_l \geq \bar{w}$ that all legislators oppose redistribution, irrespective of their income-background. That is, not a single legislator supports redistribution. ■

Proposition 9

Proof. The proofs of Propositions 1–2 are unaffected; Corollaries 1–2 follow directly; the proof of Proposition 3 is unaffected. ■

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