Productive Office and Political Elitism

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Abstract

Many representative democracies experience political elitism in the sense that virtually all members of the national legislature are high-income citizens. However, evidence suggests that electoral prospects are independent of income in the sense that voters do not consider low-income candidates less competent or less likely to get their vote. I explore a financial-rewards channel through which political elitism can arise by self-selection when citizen-candidates' electoral prospects are independent of income. Elitism arises if and only if the office is attractive and the difference in differences in income between holding office, collecting a salary and outside income, and being a private citizen is large enough. Higher income premia or more productive outside activity for high-income citizens are not necessary or sufficient. Outside income limits can always prevent elitism, while salary reform often cannot. The results offer context for some somewhat mixed evidence on the association between politician pay and politician background.

Keywords: Political Elitism, Citizen-Candidates, Productive Office, Outside Income.
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1 Introduction

Besides its role in giving a voice to a group's interests, descriptive representation has been argued to also play an important role in legitimizing policy outcomes and the policy-making process itself, which may matter for the implementation of and compliance with policy decisions (e.g., Mansbridge 1999; Hayes and Hibbing 2017; Arnesen and Peters 2018; Clayton et al. 2019). However, many representative democracies experience political elitism in the sense that at all times, virtually all members of the national legislature are high-income citizens (Carnes 2012; Thompson et al. 2019; Gagliarducci et al. 2010; Peichl et al. 2013; Dal Bó et al. 2017).[1,2] In fact, in the U.S., for example, it is not only the members of the United States Congress who are high-income citizens but congressional candidates more generally (Thompson et al. 2019).

At the same time, first, high income *in itself* is not required to run for office in most democracies in the sense that there are no wealth, income, or education qualifications to be eligible and candidates can fundraise to finance campaigns.[3] That is, in principle, low-income citizens can run for office. (I discuss several channels that might prevent them from running below.) Second, empirical evidence suggests that low-income citizens are generally not less interested in running for political office than high-income citizens (Carnes and Lupu 2021). That is, in principle, low-income citizens are willing to run for office. Third, empirical evidence also suggests that voters do not prefer high-income candidates over low-income candidates or perceive high-income candidates as more qualified or effective than low-income candidates (Carnes and Lupu 2016a; Campbell and Cowley 2014).[4] That is, voters appear to consider the competence required to hold office and, relatedly, the likelihood of getting their vote to be independent of income, suggesting that, in principle, electoral prospects are independent of income. Taking these observations seriously and treating political elitism as an outcome of political selection rather than a principle shaping it, why does it arise in democracies?

[1] For example, following the 2016 elections, over 95% of the members of the 115th United States Congress held at least a bachelor's degree and over 60% held degrees beyond that (Manning 2018), signaling high income potential. At the same time, only about 30% of the overall U.S. population aged 25 and over held at least a bachelor's degree (United States Census Bureau, 2012–2016 American Community Survey 5-year estimates, accessed on 9/25/2018).

[2] For example, Thompson et al. (2019) find that, among other things, future candidates for and members of the United States Congress have substantially higher incomes than nonpolitician citizens with the same occupation, education, city of residence, birth state, race, gender, and age and even socioeconomic background in the case of future members. Dal Bó et al. (2017) also offer evidence of similar differences in income potential between members of parliament and nonpoliticians with otherwise similar characteristics in Sweden.

[3] For example, respectively, about 43%, 83%, and 27% of all candidates, winners, and nonincumbent winners in the 2016 election for the United States House of Representatives contributed or loaned $0 to their campaigns (Federal Election Commission, accessed at `https://www.fec.gov/data/browse-data/?tab=historical` on 7/2/2019 and the Directory of Members of the United States Congress accessed at `https://www.congress.gov/members` on 7/4/2019).

[4] Also see, e.g., Griffin et al. (2020). Hainmueller et al. (2014) find that voters do not reward and might even punish presidential candidates for higher income. However, voters do seem to value competence measured by, for example, previous experience or past performance in public office (e.g., Lublin 1994; Squire 1995; Hobolt and Høyland 2011; Kendall et al. 2015). Insofar as higher income is associated with higher education, Carnes and Lupu (2016b) find that the perception that high-income candidates are not more qualified or effective is warranted. On the other hand, for example, Besley et al. (2011) argue that a country leader's educational attainment affects economic growth. Measuring wealth by reported assets, Stacy (2020) concludes that while wealthier legislators in the U.S. House of Representatives are more effective at advancing their policy agendas than less wealthy legislators (who are still much wealthier than the overall population), the differences are not due to experience or innate ability but related to institutional factors such as majority party membership and committee chairing.

Motivated by the above observations, I explore one channel through which political elitism can arise when all citizens can run for office and both perceived competence and electoral prospects are independent of income. The channel I focus on concerns the financial rewards associated with holding office and operates through the self-selection of candidates. It rests on the observation that holding office can be quite lucrative. First, legislators tend to be paid a relatively high salary (see, e.g., Berg 2020). For example, in 2016, the salary of a generic member of the United States Congress was $174,000 (Brudnick 2016), while the median earnings in the U.S. population aged 25 and over was under $40,000.[5] Second, the office can be productive in the sense that it offers legislators means to increase current and future income. It may facilitate activities that generate outside income from, for example, businesses, consultancy, board memberships, speeches, book deals, and so on while in office (e.g., Gagliarducci et al. 2010; Eggers and Hainmueller 2009; Peichl et al. 2013; Geys and Mause 2013; Kotakorpi et al. 2017; Cirone et al. 2021; Weschle 2021b; Dahlgaard et al. 2022).[6] For example, even though members of the United States Congress faced an outside earned income limit of $27,495 in 2016 (Brudnick 2016), the highest estimated outside income reported for a member of the United States Congress that year was over $1.7 million.[7] Arguably, royalties collected for book sales might not be quite as considerable without the visibility, popularity, and public image legislators can gain from their role. Most other democracies do not have similarly restrictive rules (e.g., Weschle 2021a), and outside activity and income are quite prevalent among their legislators (e.g., Geys and Mause 2013). The office may similarly facilitate increases in legislators' income potential in a future post-legislature career (e.g., Diermeier et al. 2005; Parker and Parker 2009; Eggers and Hainmueller 2009; Palmer and Schneer 2016). The overall size of these financial rewards may depend on the ability and skills legislators bring to the office and thus their market-income potential. The reward structure may thus affect who self-selects into becoming a candidate (e.g., Groseclose and Krehbiel 1994; Fiorina 1994; Hall and van Houweling 1995; Keane and Merlo 2010).

To assess this channel's potential to help explain political elitism, I study it in isolation from other potentially important channels. One example is that some high-income citizens may have an early fundraising advantage when running for the U.S. Congress (Bonica 2020). However, the importance of such an advantage may depend on campaign finance regulation that varies across countries (Falguera et al. 2014). Another example is a potentially important role for party gatekeepers in making the candidate selection process unrepresentative (Fox and Lawless 2010; Tolley 2019; Dancygier et al. 2021). However, such a role for party gatekeepers can only matter if low-income citizens would otherwise self-select into running. Insofar as gatekeepers or a nomination process via, for example, primaries screen potential candidates for competence, their role in elitism arising might be limited as, again, at least voters seem to consider the competence required to hold office to be independent of income. A third example is that elections and candidate recruitment in the U.S. might be so costly in terms of time and resources that, on the one hand, low-income citizens tend

[5] United States Census Bureau, 2012–2016 American Community Survey 5-year estimates, accessed on 9/25/2018.

[6] Also see Fisman et al. (2014) for evidence of a wealth premium from rent extraction for election winners in India.

[7] Center for Responsive Politics, accessed at https://www.opensecrets.org/personal-finances/top-outside-income?filter=C&year=2016 on 12/03/2019.

to be deterred by the expected financial burden and, on the other hand, high-income political and civic leaders tend to recruit candidates using their personal and professional networks and social shortcuts like similarities to themselves or previously successful candidates (Carnes 2018). However, again, due to differences in, for example, formal and informal rules and custom that determine how electoral campaigns are organized, financed, and run, it is unclear to what extent this channel is as important in other democracies that experience elitism. More generally, insofar as characteristics that are advantageous in electoral competition, like charisma or valence, are not exclusive to high-income citizens, they cannot by themselves explain political elitism. Even if they are relatively more prevalent among high-income citizens, due to the larger number of low-income citizens, likely many of them share these characteristics. I abstract from all these and other likely complementary channels contributing to political elitism to isolate the role of the financial rewards structure.

I consider an environment with high- and low-income citizens who must elect an office holder to enact a policy, and all citizens can run for office at a cost. Two assumptions ensure that both the perceived competence and the electoral prospects of candidates for office are independent of income, as the evidence mentioned above suggests. First, the policy benefits all citizens. While differences in these benefits may be arbitrary and thus may depend on income, they do not affect electoral prospects because all citizens want the policy to be enacted. The policy may be interpreted as a local service or public good that is provided if and only if the district is represented in the legislature, for example, because a district representative needs to request the resources required to pay for it. Alternatively, the utility benefit from the policy could represent the value to each citizen of the district being represented in the legislature and, possibly, having a voice in some policy conflict. I discuss policy conflict in general and between high- and low-income citizens specifically in Section 4.5. Second, all citizens are, or are expected to be, equally effective at enacting the policy once in office. That is, income does not indicate whether a candidate possesses the skills required to hold office. This assumption should not be read as holding office not requiring any skills. An alternative interpretation of the model that makes this point explicit is that citizens either do or do not possess the skills required to enact the policy, and, without loss, the citizens under consideration are those and only those citizens who do possess them. I discuss competence in more detail in Section 4.3.

The office offers a salary and possibly prestige and other perks. In addition, the office may be productive in the sense that the office holder can use their skills that are valuable in the private sector to generate outside income while in office. The productivity of the office captures to what extent holding it translates income potential as a private citizen into outside income while in office. It might stem from, for example, networks or visibility legislators gain while in office. It might depend on, for example, how transferable a legislator's skills are to outside activity while in office. Some skills might be required for some particularly lucrative outside activities, while other skills might be especially suitable for activities that are restricted by formal or informal rules. I discuss an interpretation in terms of post-legislature employment and revolving doors in Section 4.2. Elitism is defined as no equilibrium having low-income candidates. Given equal electoral prospects, if there were low-income candidates, then one should not expect only high-income citizens in office.

I find that two conditions together are necessary and sufficient for elitism to arise. First, its combination of prestige and other perks, salary, and productivity must make the office attractive. For an attractive office, the maximum citizens can gain from holding it instead of being a private citizen is sufficiently greater than the cost of running. While running is costly, the election outcome is uncertain if multiple candidates compete for the office. If the office is attractive, then citizens may be willing to enter a competitive election because the gains from holding office instead of being a private citizen are large enough. If the office is not attractive, on the other hand, then all citizens are happy as soon as someone holds it, and that someone can be a low-income citizen.

Second, the difference in differences in income between holding office and being a private citizen must be sufficiently large. That is, high-income citizens' difference in income between holding office and being a private citizen must be sufficiently larger than low-income citizens'. Candidates for office incur the cost of running in return for a chance to trade their market income for the prestige, perks, salary, and productivity of the office. So, if a low-income citizen were to run for office, then their difference in income between holding office and being a private citizen combined with the office's prestige and perks would have to justify incurring the associated cost. Given the prestige and perks, high-income citizens' sufficiently larger difference in income between holding office and being a private citizen would then induce the noncandidates among them to want to change their running decisions. There can thus not be a low-income candidate in equilibrium. If the difference in differences in income is rather small, on the other hand, then a low-income candidate for office does not invite a profitable deviation by high-income citizens who are not running, and low-income citizens can run for office in equilibrium.

The office-holding premium—the difference in income between holding office and being a private citizen, divided by the income as a private citizen—does not play quite as prominent a role in the occurrence of elitism as one might expect. For elitism to arise, it is not necessary that holding office offers high-income citizens a higher income premium than low-income citizens. Elitism can just as readily arise when holding office offers low-income citizens a higher income premium. At the same time, holding office offering a higher income premium to high-income citizens than to low-income citizens is not sufficient for elitism to arise either. Even if high-income citizens collect higher office-holding premia than low-income citizens, elitism may not arise.

It is also not necessary nor sufficient for elitism to arise that the office is more productive for high-income citizens, facilitating more or better opportunities to generate outside income while in office. Elitism can arise while the office is more productive for low-income citizens, and it may not arise while the office is more productive for high-income citizens. Yet, for elitism to arise, it is necessary that the office is productive for high-income citizens. Rendering the office unproductive by banning outside activity thus prevents elitism. However, outright banning outside activity is not necessary. Allowing outside activity while imposing low enough outside income limits prevents elitism just as effectively. Such limits on outside income could be accompanied by an increase in legislator salaries to keep average legislator income unchanged. High legislator incomes can be ensured while elitism is prevented. However, a reform of legislator salaries alone often cannot prevent elitism from arising.

If a rather prestigious office is productive enough for high-income citizens relative to low-income citizens, then elitism arises irrespective of the legislator salary. The reason is that all legislators receive the same salary so that, given market income potentials, the relative office productivity determines the difference in differences in income between holding office and being a private citizen.

Finally, the results can offer context to rationalize some somewhat mixed evidence on the association between politician pay and politician background (I provide more details in Section 3.5).[8] What it means for the difference in differences in income between holding office and being a private citizen to be sufficiently large changes nonmonotonically with increases in the legislator salary. Depending on fundamentals, an increase in the legislator salary may thus lead to elitism arising when it previously did not arise, to elitism not arising when it previously did arise, or to no change at all to whether elitism arises. Higher politician pay can thus be associated with more, fewer, or the same number of office holders being more highly educated or coming from higher-paying occupations.

Further Related Literature. I study a citizen-candidate environment (Osborne and Slivinski 1996; Besley and Coate 1997) with financial rewards associated with holding office. Besley (2004), Caselli and Morelli (2004), Messner and Polborn (2004), Poutvaara and Takalo (2007), and Mattozzi and Merlo (2008) investigate the role of politician pay in political selection in terms of candidate or politician quality, ability, or valence. I abstract from this dimension to focus on the case in which, as the evidence mentioned above suggests, candidates' perceived competence and electoral prospects are independent of income. I explore a financial-rewards channel through which political elitism can arise by self-selection in this case, distinguishing between the roles of legislator salary and outside income, which could also be interpreted as an increase in future income in a post-legislature career. Gagliarducci et al. (2010), Grossman and Hanlon (2014), and Fedele and Naticchioni (2016) allow for outside income but focus on the self-selected politicians' ability and effort in office. Mattozzi and Merlo (2008) show that a political career may be used to increase post-legislature income.

My analysis complements those in Mattozzi and Snowberg (2018), Gagliarducci et al. (2010), and Auerbach (2021) along different dimensions. Mattozzi and Snowberg (2018) assume that citizens who are more successful in the private sector are better at securing resources for their district, which gives them an electoral advantage. If these negotiation skills are important, then all legislators are high-income citizens in equilibrium. By contrast, I study the case in which there is no such link between private sector success and expected competence and performance in office. It allows me to focus on elitism in an environment that is consistent with the evidence mentioned above, which suggests that candidates' perceived competence and electoral prospects are independent of income.[9]

[8] See, e.g., Kotakorpi and Poutvaara (2011), Gagliarducci and Nannicini (2013), Carnes and Hansen (2016), and Atkinson et al. (2016) for empirical evidence across several political contexts that higher pay is associated with politicians who are more highly educated or come from higher-paying occupations. On the other hand, e.g., Fisman et al. (2015), Braendle (2015), and Pique (2019) find no such association or even the opposite.

[9] Focusing on the specific skill of directing resources to their district, Mattozzi and Snowberg (2018) report evidence from convenience samples using Amazon's Mechanical Turk that in the U.S., voters may perceive high-income candidates as more competent and more competent candidates may have an electoral advantage. For the above-mentioned evidence that candidates' perceived competence and electoral prospects are independent of income, Carnes and Lupu (2016a) and Campbell and Cowley (2014) use nationally representative data and do not focus on a specific skill.

Gagliarducci et al. (2010) study the trade-off between legislator quality and effort when earning outside income while in office is possible. They analyze a related framework in which, however, running for office is costless. They find that high-ability, high-income citizens run for office only if outside activity while in office rewards higher ability more than market activity as a private citizen and, once in office, expend little effort on legislative activity. Given that legislator salaries tend to be relatively high, in their framework, low-income citizens would always run for office unless the positive ego rents are in fact negative and large enough to outweigh the large difference between the high legislator salary and their low market income. However, Diermeier et al. (2005) estimate a yearly monetary value of general nonpecuniary rewards from being a member of the United States Congress of between about 17% and over 166% of their sample period's average annual salary of members of Congress, depending on the chamber and committee roles. That is, Gagliarducci et al. (2010) cannot explain political elitism in the sense that virtually all members of national legislatures are high-income citizens. By contrast, I investigate when such political elitism may arise.

Finally, Auerbach (2021) analyzes the role that the redistribution preferences of low-income citizens play in the policy-making process in representative democracies given that high-income citizens are numerically overrepresented among legislators. The analysis covers equilibria with such overrepresentation when, as the evidence mentioned above suggests, high-income citizens do not have an electoral advantage. However, other equilibria exist in this case, and the analysis is silent on the separate but important question of why what type of equilibrium should arise. By contrast, I focus on why elitism might arise when high-income citizens do not have an electoral advantage.

The Rest of The Paper. I describe the model in Section 2 and analyze its equilibrium predictions in Section 3. After some groundwork around notation, terminology, and equilibrium existence in Sections 3.1 and 3.2, I discuss when elitism arises in Section 3.3 and what might prevent it from arising in Section 3.4. I find that elitism arising is equivalent to the office being attractive and the difference in differences in income between holding office and being a private citizen being sufficiently large. Leveraging this equivalence result, I find that salary reform often cannot prevent elitism from arising (Section 3.4.1) but that limiting outside activity and income might be a more promising approach (Section 3.4.2). In Section 3.5, I discuss how the results offer context for some mixed empirical evidence on the association between politician pay and politician background. I then offer additional discussion of the environment, analysis, and results, and how they map to related contexts and what some limitations are in Section 4. In Section 4.1, I detail how the simplified political process in the model maps to voting and why the simplification is without loss. In Section 4.2, I offer an interpretation of the environment, analysis, and results in terms of pensions and post-legislature careers, distinguishing between human capital accumulation and revolving doors as the source of increases in future income potential. I then discuss competence, effort, and the case of more than two income levels in Section 4.3 and political parties, special interests, and campaign finance in Section 4.4. In Section 4.5, I discuss redistribution as a policy issue and under what circumstances the analysis and results can be interpreted to allow for policy conflict in a second policy dimension without modeling it explicitly. Finally, I offer concluding remarks in Section 5.

2 The Model

Consider an electoral district with $I \in \mathbb{N}$ risk-neutral citizens indexed by $i \in \mathcal{I} = \{1, \ldots, I\}$. Among them, there are $I_l > 1$ low-income citizens with indices in $\mathcal{L} \subset \mathcal{I}$ and market-income potential $w_l > 0$. There are also $I_h > 1$ high-income citizens with indices in $\mathcal{H} \subset \mathcal{I}$ and finite market-income potential $w_h > w_l$, where $\mathcal{L} \cup \mathcal{H} = \mathcal{I}$, $\mathcal{L} \cap \mathcal{H} = \emptyset$. Citizen i's market income thus is

$$w(i) = \begin{cases} w_l & \text{if } i \in \mathcal{L}, \\ w_h & \text{if } i \in \mathcal{H}. \end{cases}$$

High- and low-income citizens should not be thought of as the 'super-rich' and poorest citizens, respectively, but rather as representing large groups of citizens with incomes closer to the mean of the income distribution but (possibly quite a bit) above and below it.

A finite utility benefit $\theta(i) > 0$ accrues to each citizen i, with arbitrary heterogeneity across citizens, if and only if some citizen holds public office. This assumption formalizes the idea that the competence required to hold office and the related electoral prospects are independent of income. First, to ensure that there is no electoral advantage for candidates from some income group due to policy preferences depending on income, all citizens benefit from the policy being enacted, although how much they benefit from it may vary arbitrarily. If all citizens prefer the policy to be enacted, then differences in how much they value it do not matter, even if these differences were to depend on income. The policy might represent a local service or public good that is provided if and only if the district is represented in the legislature, for example, because a district representative needs to request the resources required to pay for it. All income can then be thought of as being after taxes raised from all citizens in all districts to finance such local public goods in all districts. Alternatively, the utility benefit from the policy could, in principle, represent a composite utility benefit associated with the district being represented in the legislature, which may include the value of having a voice in a policy conflict in some policy dimension. I discuss policy conflict in more detail in Section 4.5.

Second, to ensure that there is no electoral advantage for candidates from some income group due to expected competence in office depending on income, all citizens are equally effective at enacting the policy. The interpretation of this assumption should not be that the office holder need not be skilled but rather that income does not indicate whether a candidate possesses the skills required. An alternative interpretation of the model is that citizens either do or do not possess the skills required to enact the policy, and, without loss, the citizens under consideration are those and only those who do possess the skills to enact it. I discuss competence in more detail in Section 4.3.

All citizens are eligible to run for office at a finite utility cost $\delta > 0$ from, for example, a loss of privacy due to public scrutiny. If there is no candidate for office, then the office remains vacant. If there is at least one candidate, then simple random sampling from the candidates determines the office holder. This assumption only simplifies the exposition. I offer a detailed discussion of voting in Section 4.1. The office holder receives finite office utility benefits $\beta \geq 0$ from, for example, prestige and perks associated with the office. Since one would not want to explain political elitism

with differences in preferences across income groups driving self-selection, I assume that the office benefits β and the cost of running δ are institutional in nature and thus the same for all citizens. For example, the utility cost of running for office might be related to the media landscape and the nature of the public scrutiny that candidates face. Some citizens might value privacy more and choose to share less information about themselves publicly, while others might value privacy less and choose to share more information. However, if members of the media exert on average the same effort on learning and revealing information about each candidate beyond what is volunteered by them or easily accessible, then all citizens might expect similar levels of discomfort upon becoming a candidate associated with the loss of privacy beyond what they would otherwise choose to disclose.

To hold office, citizen i must give up their market income $w(i)$. However, legislators receive a finite legislator salary not less than the market income of low-income citizens, $v \geq w_l$. This assumption appears reasonable in the context of national legislatures. As the example in the introduction illustrates, in 2016, the salary of a generic member of the United States Congress was more than four times the median earnings in the overall U.S. population aged 25 and over. In addition, citizen i may generate finite outside income $\varphi(i) \geq 0$ while in office. Outside income may depend on citizen i's market-income potential. First, skills that are valuable in the private sector may be transferable to outside activities while in office, increasing one's productivity in them. Second, citizen i's ability and skills that make them suitable for their occupation when a private citizen may determine the kind and productivity of outside activities they can engage in while in office. For example, on the one hand, some skills might be required or particularly suitable for certain lucrative outside activities, while, on the other hand, formal restrictions, informal rules, or legislature custom might rule out certain other activities particularly suitable for office holders with other skills. Insofar as not all legislators realize outside income while in office in the data, outside income in the model can be interpreted as the expected value at the time of the running decision of a draw of outside-income opportunities from some distribution once in office, where the distribution drawn from may vary with the legislator's income background and thus, potentially, skills. I discuss an interpretation in terms of post-legislature employment and revolving doors in Section 4.2.

To ease the discussion, I write outside income while in office as $\varphi(i) = \phi(i)w(i)$ and refer to $\phi(i)$ as the office productivity for citizen i, where

$$\phi(i) = \begin{cases} \phi_l \geq 0 & \text{if } i \in \mathcal{L}, \\ \phi_h \geq 0 & \text{if } i \in \mathcal{H}. \end{cases}$$

This rewriting and labeling helps the interpretation but is without loss of generality because, fixing $w(i) > 0$, the office productivity for citizen i is simply $\phi(i) = \varphi(i)/w(i)$. The office productivity captures the extent to which holding the office translates market-income potential as a private citizen into outside income while in office. It might stem from, for example, networks or visibility legislators gain while in office, the transferability of their skills from the private sector to outside activity, and the kind and productivity of outside activities that the skills associated with their income background may allow them to engage in while in office, as discussed in the previous paragraph.

From the point of view of an individual citizen, the laws and rules they face once a legislator are exogenous at least in the short run. They thus take, for example, the salary v as well as constraints on outside activity, outside income limits, or restrictions on private-sector activity after leaving the legislature in the context of a post-legislature career interpretation, all of which contribute to determining $\phi(i)$, as given. Citizen i's income while in office thus is $v + \phi(i)w(i) = \gamma(i)w(i)$, where

$$\gamma(i) \equiv v/w(i) + \phi(i) = \begin{cases} \gamma_l \equiv v/w_l + \phi_l & \text{if } i \in \mathcal{L}, \\ \gamma_h \equiv v/w_h + \phi_h & \text{if } i \in \mathcal{H}. \end{cases} \tag{1}$$

The expressions $\gamma(i)$ are useful in the below discussion of differences in income between holding office and being a private citizen and office-holding premia.

Citizens choose to run or not to maximize expected payoffs. The benefits from holding office and enacting the policy outweigh the cost of running for at least some high- and low-income citizens: $\theta(k_h) + \beta > \delta$ for some $k_h \in \mathcal{H}$ and $\theta(k_l) + \beta > \delta$ for some $k_l \in \mathcal{L}$.[10] Both income groups are large:

$$\min\{I_l, I_h\} > (\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\})/\delta. \tag{2}$$

These last two assumption prevent needless convolution by ruling out unrealistic, uninteresting cases in which either no citizen runs for office because nobody finds it worth it or all citizens in an income group, or overall, run for office because there are too few of them.

3 Analysis

I first describe strategies and payoffs, define an equilibrium, and formalize some terminology in Section 3.1. In Section 3.2, I establish that an equilibrium always exists and when it may have high-income candidates. I study when elitism arises in Section 3.3, deriving an equivalence result, which I then leverage to investigate what might prevent elitism from arising in Section 3.4. Finally, I use the results to rationalize some mixed empirical evidence on the association between politician pay and politician background in Section 3.5. All proofs are relegated to the online appendix.

3.1 Strategies, Payoffs, Equilibrium Definition, and Terminology

For all $i \in \mathcal{I}$, let $\chi(i) \in \{0, 1\}$ indicate whether or not citizen i chooses to run for office, where $\chi(i) = 1$ indicates running, while $\chi(i) = 0$ indicates not running. The profile of running decisions can be represented by the set of candidates, $\mathcal{C} = \{i \in \mathcal{I} : \chi(i) = 1\}$. The number of candidates is $n = |\mathcal{C}| \geq 0$. The set of noncandidate citizens is $\mathcal{I} \setminus \mathcal{C}$. The profile of running decisions ignoring citizen i can be represented by the set of candidates other than citizen i, $\mathcal{C}_{-i} = \mathcal{C} \setminus \{i\}$. The number of candidates other than citizen i is $n_{-i} = |\mathcal{C}_{-i}| \geq 0$. If there are $n > 0$ candidates, then simple random sampling from the candidates gives each of them a probability $1/n$ of winning the office.

[10] As $\theta(i) > 0\ \forall i$, these inequalities do not require that the office benefits alone outweigh the cost of running, $\beta > \delta$.

Consider any citizen $i \in \mathcal{I}$. Their expected payoffs depend on their identity—their index i—and the number n_{-i} of candidates other than them. Citizen i's expected payoff of not running is

$$V_0(n_{-i}, i) = \begin{cases} w(i) & \text{if } n_{-i} = 0, \\ \theta(i) + w(i) & \text{if } n_{-i} > 0. \end{cases} \tag{3}$$

If there is no other candidate, then citizen i's payoff of not running is their market income $w(i)$ because the policy will not be enacted. If there is at least one other candidate, then citizen i's payoff of not running is their market income plus their policy benefit, $\theta(i) + w(i)$, because the policy will be enacted by some other citizen. Citizen i's expected payoff of running is

$$V_1(n_{-i}, i) = \frac{1}{n_{-i}+1}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n_{-i}}{n_{-i}+1}\left(\theta(i) + w(i) - \delta\right). \tag{4}$$

Running for office, citizen i incurs the cost of running δ, but the policy benefit $\theta(i)$ accrues to them because the policy will be enacted either by them or by another candidate. With probability $1/(n_{-i}+1)$, citizen i wins the office and collects the office benefits β and the in-office income $\gamma(i)w(i)$. With probability $n_{-i}/(n_{-i}+1)$, citizen i does not win the office and has market income $w(i)$ as a private citizen. Using (3) and (4), an equilibrium is defined as a profile of running decisions such that, given all other citizens' running decisions, no citizen can benefit from changing theirs.

Definition 1. *An equilibrium is a set $\mathcal{C}$ such that*

$$V_1(n_{-i}, i) \geq V_0(n_{-i}, i) \quad \forall i \in \mathcal{C}, \tag{5}$$

$$V_0(n_{-i}, i) \geq V_1(n_{-i}, i) \quad \forall i \in \mathcal{I} \setminus \mathcal{C}. \tag{6}$$

From the point of view of citizen i, the running decisions of all other citizens together determine the number n_{-i} of candidates other than themselves. Given a set $\mathcal{C}$ of $n \geq 0$ candidates, $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ and, if there are candidates so that $\mathcal{C} \neq \emptyset$ and $n \geq 1$, then $n_{-i} = n - 1$ for all $i \in \mathcal{C}$.

I show in Proposition 1 below that an equilibrium always exists and that there are candidates for office. I say that *elitism arises* if and only if there is no equilibrium with a low-income candidate.

Definition 2. *Elitism arises if and only if there is no equilibrium with a low-income candidate.*

This definition of elitism is natural. If an equilibrium with a low-income candidate exists, then not observing it just means that of multiple equilibria, one without a low-income candidate arose.

Below, I distinguish the *difference in income between holding office and being a private citizen*,

$$\gamma(i)w(i) - w(i) = (\gamma(i) - 1)w(i),$$

from the *office-holding premium*,

$$\frac{\gamma(i)w(i) - w(i)}{w(i)} = \gamma(i) - 1.$$

For low-income citizens follows from (1) together with $v \geq w_l$ and $\phi_l \geq 0$ that $\gamma_l w_l \geq w_l$ and, thus, that their difference in income between holding office and being a private citizen is nonnegative, $(\gamma_l - 1)w_l \geq 0$. That is, low-income citizens' income while in office is always at least as high as their income as a private citizen. Fixing $w(i)$, again from (1), using $v \geq w_l$ and $\phi(i) \geq 0$, citizen i's office-holding premium $\gamma(i) - 1$ is not less than $w_l/w(i) - 1$ and increases in both v and $\phi(i)$. For simplicity, throughout, I often drop the deduction of 1 and refer to simply $\gamma(i)$ as the office-holding premium, where $\gamma(i)$ is not less than $w_l/w(i)$ and increases in both v and $\phi(i)$. Then, $\gamma(i) < 1$, $\gamma(i) = 1$, and $\gamma(i) > 1$ refer to a negative, zero, or positive office-holding premium, respectively. A positive office-holding premium for citizen i requires that they have a higher income while in office than as a private citizen, and a higher $\gamma(i)$ represents a higher office-holding premium.

Definition 3. *There is a positive office-holding premium for citizen i if and only if $\gamma(i) > 1$. The office-holding premium is higher for citizen i than for citizen j if and only if $\gamma(i) > \gamma(j)$.*

The office is productive for a citizen if and only if their market-income potential increases their income while in office. The office is more productive for one citizen than for another citizen if and only if their market-income potential increases their income while in office relatively more.

Definition 4. *The office is productive for citizen i if and only if $\phi(i) > 0$. The office is more productive for citizen i than for citizen j if and only if $\phi(i) > \phi(j)$.*

An unproductive office can offer a positive office-holding premium. Suppose that for some citizen i, the office is not productive so that $\phi(i) = 0$. Using (1), the office-holding premium is $\gamma(i) - 1 = v/w(i) - 1$ or simply $\gamma(i) = v/w(i)$. Therefore, if $v > w(i)$, and thus if the legislator salary is high enough, then $\gamma(i) > 1$, and there is a positive office-holding premium for this citizen i. Similarly, for high-income citizens, for example, a productive office does not offer a positive office-holding premium if $\gamma_h \leq 1$ or $v \leq w_h(1 - \phi_h)$, and thus if the legislator salary does not more than compensate for a productivity disadvantage in office, if there is one.

Finally, every pair of office-holding premia $\hat{\gamma}_l \geq 1$ and $\hat{\gamma}_h \geq w_l/w_h$ for low- and high-income citizens, respectively, can be obtained by setting $\hat{v} = w_l$, $\hat{\phi}_l = \hat{\gamma}_l - 1$, and $\hat{\phi}_h = \hat{\gamma}_h - w_l/w_h$.

3.2 Equilibrium Existence and High-Income Candidates

Two initial insights about this environment are that an equilibrium exists and there are candidates.

Proposition 1. *An equilibrium exists. In every equilibrium, there is at least one candidate.*

If no citizen runs for office, then the policy is not enacted. A low-income citizen who deviates to running wins the office with certainty. They incur the cost of running but also receive the benefits from holding office and the policy being enacted, which outweigh the cost of running for at least some low-income citizens. Their income in office is is not less than their income as a private citizen, and they may collect an office-holding premium. There is thus at least one candidate in equilibrium.

Candidates pay the cost of running to enter a lottery to win the office benefits and the difference in income between holding office and being a private citizen. They trade off the cost of running

against the expected gains from running—the probability of winning the office times the payoff from collecting the benefits and difference in income associated with holding it. Citizens' running decisions do not affect the office benefits or difference in income they can win. However, an additional citizen entering the lottery decreases the probability of winning the benefits and difference in income for all candidates. In equilibrium, noncandidate citizens do not benefit from also entering the lottery given how many candidates are already running. Due to the lower probability of winning the office if they entered as well, the expected gains from running do not justify deviating to and incurring the cost of running. Candidates, on the other hand, find the odds of winning the office and collecting the gains associated with holding it they face just high enough to justify incurring the cost of running.

For elitism to possibly arise, there must be an equilibrium with high-income candidates. Regarding the existence of such equilibria, Propositions 2 and 3 allow for a comparison of the implications of the environment here with the insights from the analysis in Gagliarducci et al. (2010). First, Proposition 2 provides a sufficient condition for an equilibrium with high-income candidates to exist.

Proposition 2. *An equilibrium with at least one high-income candidate exists if*

$$(\gamma_h - 1)w_h \geq \max\left\{\delta - \beta - \theta(k_h), \right. \\ \left. (\gamma_l - 1)w_l - \delta\left(1 - \left(\frac{\beta + (\gamma_h - 1)w_h}{\delta} - \left\lfloor \frac{\beta + (\gamma_h - 1)w_h}{\delta} \right\rfloor\right)\right)\right\}. \tag{7}$$

An equilibrium with at least one high-income candidate exists if high-income citizens' difference in income between holding office and being a private citizen is not too small and, in particular, not too much smaller than that of low-income citizens. Their difference in income being not less than the first element of the set on the right-hand side of (7) is sufficient to ensure that the only candidate in a one-candidate equilibrium can be a high-income citizen. Their difference in income being not less than the second element of the set on the right-hand side of (7) is sufficient to ensure that an equilibrium with many candidates can have high-income candidates.

Inspecting (7) reveals several insights. As $\theta(k_h) + \beta > \delta > 0$ and $(\gamma_l - 1)w_l \geq 0$, the right-hand side of (7) can be negative. The inequality can thus hold while high-income citizens have higher income as a private citizen than when holding office, $(\gamma_h - 1)w_h < 0$. Hence, an equilibrium with high-income citizens running for office can exist even when they must accept a pay cut to hold office. There can also be high-income candidates while holding office does not facilitate outside income at all, $\phi_l = \phi_h = 0$, while outside income is higher for low- than for high-income citizens, $\phi_l w_l > \phi_h w_h$, or while the office is more productive for low- than for high-income citizens, $\phi_l > \phi_h$.

Proposition 3. *High-income citizens may run for office while (1) they have higher income as a private citizen than when holding office; (2) the office does not facilitate outside income while in office at all; (3) outside income while in office is higher for low- than for high-income citizens; (4) the office is more productive for low- than for high-income citizens.*

That is, if income potential captures ability, then for there to be a high-income candidate in equilibrium, it is not necessary that outside activity while in office rewards higher ability, let alone

rewards it more than does market activity as a private citizen. This implication provides a sharp contrast to Gagliarducci et al. (2010). They assume that outside activity while in office rewards higher ability and find that it must do so more than market activity as a private citizen for there to be high-income candidates in equilibrium. In their framework, running for office is costless. Thus, if the utility benefits and income that citizens from all income backgrounds can collect while in office outweigh the market income as a private citizen that they must give up to hold office, then all citizens run for office, including those with high market income. Gagliarducci et al. (2010) call these equilibria trivial and exclude them from consideration. However, among them are cases in which outside activity while in office does not reward higher ability more than does market activity as a private citizen. By contrast, given a large enough number of citizens, the cost of running for office in the framework here gives rise to a meaningful strategic interaction among them. Equilibria are thus not trivial in the sense that not all citizens run for office even if the utility benefits and income that citizens from all income backgrounds can collect while in office outweigh their market income as a private citizen. Proposition 3 therefore characterizes some cases that Gagliarducci et al. (2010) ignore because they lead to trivial outcomes in their framework but not in the framework here.

3.3 When Does Elitism Arise?

Two conditions play an important role in determining whether or not political elitism arises. First, Condition 1 states that the office is attractive in the sense that, beyond the fact that the desired policy is enacted, the maximum gains that a citizen can realize by holding office instead of being a private citizen—the benefits from holding office and the maximum difference in income between holding office and being a private citizen—is sufficiently larger than the cost of running for office.

Condition 1. *The cost of running for office satisfies* $2\delta < \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$.

The office could be attractive due to, for example, the benefits from the prestige and perks associated with holding it alone. For the office to be very prestigious or offering a lot of perks might mean that $\beta > 2\delta$, which is sufficient for Condition 1 to hold because $(\gamma_l - 1)w_l \geq 0$. A national legislative office might be attractive in this sense. The office could also be attractive because it facilitates a lot of rather productive outside activity. In this case, for some citizens, the difference in income between holding office and being a private citizen by itself might be large enough relative to the cost of running for office to ensure that Condition 1 holds. Combining some prestige and perks with the opportunity for some quite productive outside activity can also make the office attractive.

Fixing the office benefits β and the cost of running δ, where $\beta < \delta$ in this example, the left panel of Figure 1 depicts pairs of differences in income between holding office and being a private citizen for high- and low-income citizens for which Condition 1 holds. While the difference in income between holding office and being a private citizen is nonnegative for low-income citizens due to $(\gamma_l - 1)w_l \geq 0$, it may be negative for high-income citizens. The solid line separates the set of pairs of differences in income for which Condition 1 holds from the set of pairs of differences in income for which Condition 1 does not hold, where the latter set includes the pairs on the solid line itself.

Condition 1 holds if and only if the difference in income between holding office and being a private citizen is greater than $2\delta - \beta$ for citizens in at least one income group. Condition 1 thus holds for a pair of differences in income between holding office and being a private citizen for high- and low-income citizens if and only if it is located north, east, or north-east of the solid line.

Second, Condition 2 states that high-income citizens' difference in income between holding office and being a private citizen is sufficiently larger than that of low-income citizens.

Condition 2. *The difference in differences in income between holding office and being a private citizen satisfies*

$$(\gamma_h - 1)w_h - (\gamma_l - 1)w_l > \delta\left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right).$$

The difference in differences in income between holding office and being a private citizen may be sufficiently large if, for example, the office facilitates sufficiently more or sufficiently more productive outside activity for high-income citizens than for low-income citizens. Since all office holders collect the same legislator salary, Condition 2 essentially concerns the difference in differences in income between outside activity while in office and market activity as a private citizen.

Another useful way to look at Condition 2 is to rewrite the inequality as

$$\frac{\beta + (\gamma_h - 1)w_h}{\delta} > 1 + \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor. \tag{8}$$

Condition 2 thus requires that the ratio of the gains from holding office instead of being a private citizen—the office benefits and the difference in income between holding office and being a private citizen—to the cost of running must be sufficiently higher for high- than for low-income citizens. It further follows from (8) that the office being prestigious enough in the sense that the utility benefits from the prestige and perks associated with holding the office alone outweigh the cost associated with running for it, $\beta \geq \delta$, is both necessary and sufficient for Condition 2 to imply Condition 1.[11]

Remark 1. *Condition 2 implies Condition 1 if and only if $\beta \geq \delta$.*

One might again imagine that a national legislative office may be prestigious enough in this sense. If the office is prestigious enough so that $\beta > 2\delta$, then Condition 1 always holds irrespectively.

Again fixing the office benefits β and the cost of running δ, where still $\beta < \delta$, the right panel of Figure 1 depicts pairs of differences in income between holding office and being a private citizen for high- and low-income citizens for which Condition 2 holds. Again, while the difference in income between holding office and being a private citizen is nonnegative for low-income citizens due to $(\gamma_l - 1)w_l \geq 0$, it may be negative for high-income citizens. In this panel, the solid line separates the set of pairs of differences in income for which Condition 2 holds from the set of pairs of differences in income for which Condition 2 does not hold, where the latter set includes the set of pairs collected

[11] If $\beta \geq \delta$, then as $(\gamma_l - 1)w_l \geq 0$, the right-hand side of (8) is at least 2 so that $\beta + (\gamma_h - 1)w_h > 2\delta$. If $\beta < \delta$, then if $(\gamma_l - 1)w_l < \delta - \beta < (\gamma_h - 1)w_h < 2\delta - \beta$, then $0 \leq \beta + (\gamma_l - 1)w_l < \delta < \beta + (\gamma_h - 1)w_h < 2\delta$ and (8) hold.

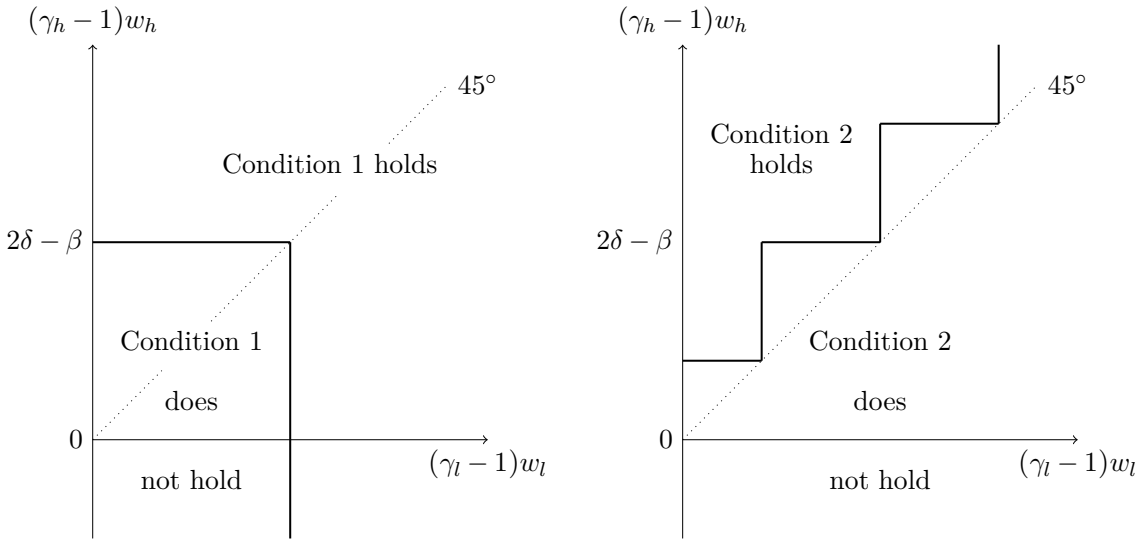

Figure 1: The panels of this figure depict pairs of differences in income between holding office and being a private citizen for low- and high-income citizens that satisfy Condition 1 and 2, respectively, when $\beta < \delta$. While the difference in income between holding office and being a private citizen is nonnegative for low-income citizens, it may be negative for high-income citizens. The left panel illustrates that Condition 1 holds if and only if the citizens in at least one income group have a difference in income between holding office and being a private citizen that is greater than $2\delta - \beta$. Thus, Condition 1 holds for a pair of differences in income between holding office and being a private citizen if and only if it is located north, east, or north-east of the solid line. The right panel illustrates that for Condition 2 to hold, high-income citizens' difference in income between holding office and being a private citizen must be sufficiently larger than low-income citizens'. Thus, Condition 2 holds for a pair of differences in income between holding office and being a private citizen if and only if it is located north of a horizontal segment or west of a vertical segment of the solid line.

by the solid line itself. Condition 2 holds if and only if (8) holds. Rewriting (8) as

$$(\gamma_h - 1)w_h > \delta - \beta + \delta \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor, \tag{9}$$

high-income citizens' difference in income on the left-hand side of (9) is sufficiently larger than low-income citizens' difference in income if and only if it is greater than the expression on the right-hand side of (9). Therefore, the right-hand side of (9) can be used to describe how the set depicted by the solid line sits in the space of pairs of differences in income. The solid line has horizontal and vertical segments. Starting from the origin, moving along the horizontal axis increases low-income citizens' difference in income, $(\gamma_l - 1)w_l$. The horizontal segments of the solid line are due to the value of the right-hand side of (9) being constant as long as the value of $(\beta + (\gamma_l - 1)w_l)/\delta$ lies between two integers. The vertical segments of the solid line are due to the value of the right-hand side of (9) jumping up by δ as the value of $(\beta + (\gamma_l - 1)w_l)/\delta$ becomes an integer. Condition 2 thus holds for a pair of differences in income between holding office and being a private citizen if and only if it is located north of a horizontal segment or west of a vertical segment of the solid line.

Together, Conditions 1 and 2 are necessary and sufficient for elitism to arise.

Proposition 4. *Elitism arises if and only if Conditions 1 and 2 hold.*

Condition 1 ensures that given the cost of running, the office's combination of prestige and other perks, salary, and productivity attracts at least two candidates in equilibrium. These candidates must be willing to pay the cost of running to enter an election in which they face competition for the office and thus an uncertain outcome. If the office is attractive, then citizens may be willing to enter such an election because the gains from holding office instead of being a private citizen are sufficiently large. By contrast, if the office is not that attractive, then the cost of running for it is high enough compared to the maximum gains from holding the office instead of being a private citizen so that nobody wants to join the race as soon as someone else is running. Many citizens might be better off holding office than being a private citizen but willing to run for it only if they do not face competition. In this case, if someone is running for office, then nobody wants to compete with them, and that someone can be a low-income citizen. There can thus be an equilibrium with one low-income candidate. Therefore, if the office is not that attractive, then elitism does not arise.

Condition 2 ensures that due to their sufficiently larger difference in income between holding office and being a private citizen, high-income citizens who are not running for office would want to change their running decision if there was a low-income candidate. A low-income citizen who runs for office is willing to incur the associated cost in return for a chance to trade their market income for the prestige, perks, salary, and productivity the office brings. Given the probability of winning the office, combined with the office's prestige and perks, their difference in income between holding office and being a private citizen must justify incurring the cost. Then, while the probability of winning jumps to a lower value when a noncandidate high-income citizen deviates to running, combined with the office's prestige and perks, their sufficiently larger difference in income still more than justifies incurring the cost of running. There can thus not be a low-income candidate in equilibrium. By contrast, if the difference in income is not sufficiently larger for high- than for low-income citizens, then the gains from running for office that noncandidate high-income citizens can expect upon deviating to running do not justify incurring the cost associated with doing so. In this case, noncandidate high-income citizens cannot benefit from changing their running decision if there is a low-income candidate. An equilibrium with a low-income candidate thus then exists. Therefore, if the difference in income between holding office and being a private citizen is not sufficiently larger for high- than for low-income citizens, then elitism does not arise.

The solid line in the right panel of Figure 1 captures this intuition. Consider a pair of high- and low-income citizens' differences in income between holding office and being a private citizen located on a horizontal segment of the solid line. Given low-income citizens' difference in income associated with this pair, suppose that there was a low-income candidate for office. Given the cost of running, this low-income candidate must be willing to accept the probability of winning the office benefits and difference in income implied by the overall number of candidates for office. If a noncandidate citizen deviated to running for office, then their deviation would increase the overall number of candidates, implying that the probability of winning for each of them jumps to a lower

value. For noncandidate high-income citizens to want to deviate to running if there is a low-income candidate, their difference in income between holding office and being a private citizen must thus be large enough to compensate them for the distinctly lower probability of winning implied by their deviation. Thus, high-income citizens' difference in income must be larger than that associated with the pair of differences in income on the solid line, indicating that it must be sufficiently larger than that of low-income citizens because the pair itself is located north of the 45° line.

Starting from the same pair of differences in income on the solid line, suppose that low-income citizens' difference in income between holding office and being a private citizen increases. Given the office benefits and cost of running, this increase in their difference in income makes the office more attractive for low-income citizens. They might thus be willing to enter a more competitive race. However, a small enough such increase does not affect the number of other candidates a potential low-income candidate is willing to compete with. The reason is that changes in the finite number of candidates competing for office imply that the probability of winning jumps to a different value. A small enough increase in the difference in income would therefore not compensate them for the distinctly lower probability of winning implied by an additional competitor. Thus, given this small enough increase in their difference in income, a low-income citizen is still willing to run for office only if the overall number of candidates and thus the implied probability of winning is the same as before. It follows that noncandidate high-income citizens' calculations regarding a deviation to running for office are also unaffected by this small enough increase in low-income citizens' difference in income. When deviating to running, their probability of winning is the same as before the increase. Thus, the same differences in income between holding office and being a private citizen as before are still large enough for them to benefit from deviating to running. This intuition explains why the segment of the solid line that the initial pair of differences in income is located on is horizontal to begin with.

Given a large enough increase in their difference in income, however, a low-income candidate is willing to accept competition from an additional competitor and thus a distinctly lower probability of winning to begin with. Starting from this already lower probability of winning, if a noncandidate high-income citizen deviates to running for office, then the probability of winning jumps to an even lower value. Therefore, in this case, a noncandidate high-income citizen has a distinctly lower probability of winning upon deviating to running than before the increase in low-income citizens' difference in income. They thus also require a distinctly larger difference in income between holding office and being a private citizen than before to benefit from deviating to running. The vertical segment of the solid line captures this jump in the difference in income they require. Further increases in low-income citizens' difference in income again do not affect high-income citizens' calculations initially, which is why the next segment is horizontal again, until they do eventually, which is why the next horizontal segment is followed by another vertical segment, and so on.

The left panel of Figure 2 combines the information captured in both panels of Figure 1 to depict the pairs of differences in income between holding office and being a private citizen for low- and high-income citizens for which both Conditions 1 and 2 hold. Thus, by Proposition 4, elitism arises for a pair of differences in income between holding office and being a private citizen if and

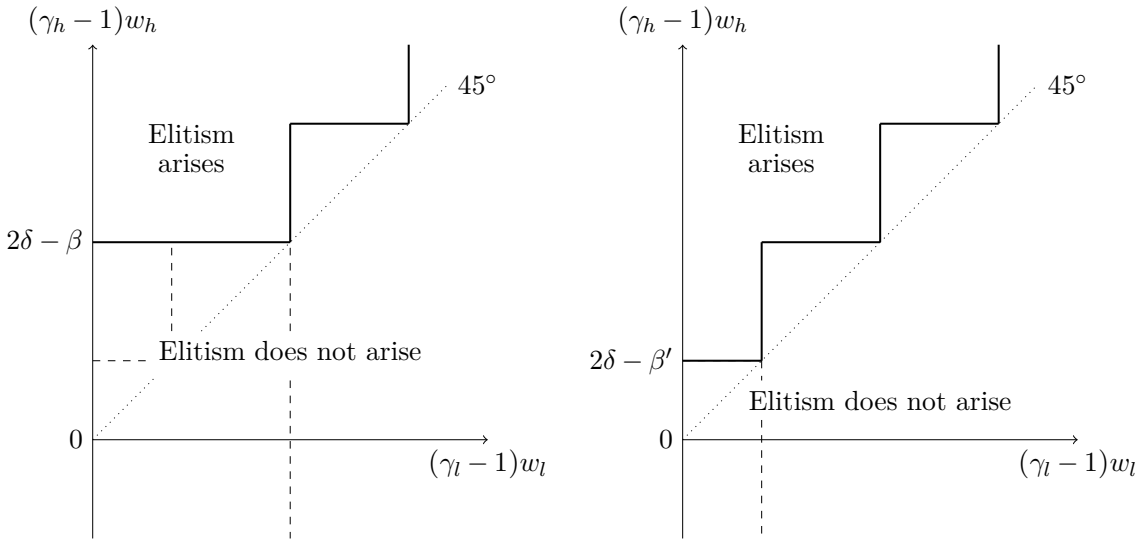

Figure 2: This figure depicts pairs of differences in income between holding office and being a private citizen for low- and high-income citizens for which elitism arises. While the difference in income between holding office and being a private citizen is nonnegative for low-income citizens, it may be negative for high-income citizens. The left panel combines the information captured in both panels of Figure 1 to depict the pairs of differences in income between holding office and being a private citizen for low- and high-income citizens for which both Conditions 1 and 2 hold. Thus, by Proposition 4, elitism arises for a pair of differences in income between holding office and being a private citizen if and only if it is located north of a horizontal segment or west of a vertical segment of the solid line. The right panel depicts the pairs of differences in income between holding office and being a private citizen for low- and high-income citizens for which both Conditions 1 and 2 hold for a more prestigious office. While $\beta < \delta$ in the left panel, fixing δ, the right panel depicts the case in which $2\delta > \beta' \geq \delta$. In this case, the office is prestigious enough so that if Condition 2 holds, then Condition 1 holds as well (see Remark 1). As in the left panel, elitism arises for a pair of differences in income between holding office and being a private citizen if and only if it is located north of a horizontal segment or west of a vertical segment of the solid line.

only if it is located north of a horizontal segment or west of a vertical segment of the solid line. The right panel of Figure 2 illustrates the case of a more prestigious office. While $\beta < \delta$ in the left panel, fixing δ, the right panel depicts the case in which $2\delta > \beta' \geq \delta$. In this case, by Remark 1, the office is prestigious enough so that if Condition 2 holds, then Condition 1 holds as well. If $\beta' = 2\delta$ were to hold instead, then Condition 1 would hold if and only if the difference in income between holding office and being a private citizen is positive for citizens in at least one income group, and it would always hold if, in fact, $\beta' > 2\delta$ held. As in the left panel of Figure 2, in the right panel, elitism arises for a pair of differences in income between holding office and being a private citizen if and only if it is located north of a horizontal segment or west of a vertical segment of the solid line.

As $(\gamma_l - 1)w_l \geq 0$, Condition 2 requires that $(\gamma_h - 1)w_h > 0$ and thus $\gamma_h > 1$. That is, while high-income citizens may run for office despite having higher income as a private citizen (see Proposition 3), they must collect a positive office-holding premium for elitism to arise. At the same

time, elitism arising does not require that the office-holding premium is higher for high- than for low-income citizens nor that the office is more productive for high- than for low-income citizens.

Proposition 5. *Elitism can arise while (1) office-holding premia are higher for low- than for high-income citizens; (2) the office is more productive for low- than for high-income citizens.*

The office may facilitate more or more productive outside activity or pay a higher office-holding premium for low-income citizens than for high-income citizens while elitism arises at the same time. For example, the same high enough office-holding premium for both high- and low-income citizens ensures that Conditions 1 and 2 hold. A small enough further increase in the office-holding premium for low-income citizens ensures that Conditions 1 and 2 still hold. Elitism thus arises while low-income citizens collect a higher office-holding premium than high-income citizens. Conversely, the office being more productive or paying a higher income premium for high-income citizens than for low-income citizens is also not enough for elitism to arise.

Proposition 6. *Elitism may not arise while (1) office-holding premia are higher for high- than for low-income citizens; (2) the office is more productive for high- than for low-income citizens.*

The office may facilitate more or more productive outside activity or pay a higher office-holding premium for high-income citizens than for low-income citizens while elitism does not arise at the same time. For example, if the office benefits alone do not compensate for the cost of running, $\beta < \delta$, then the same positive, low enough office-holding premium for both high- and low-income citizens makes the office unattractive. A small further decrease in low-income citizens' office-holding premium does not change that. Elitism does thus not arise while high-income citizens collect a higher office-holding premium than low-income citizens. Together, Propositions 5 and 6 show that for elitism to arise, it is neither necessary nor sufficient that holding office yields a higher income premium or facilitates more productive outside activity for high- than for low-income citizens.

Finally, Proposition 4 shows that elitism can arise for every income distribution and thus every level of income inequality. This fact is not surprising. All else fixed, a high enough office productivity that is independent of the office holder's income background ensures that Conditions 1 and 2 hold.

3.4 What May Prevent Elitism?

In the context of the framework here, elitism implies a lack of descriptive representation. Besides its role in giving a voice to a group's interests, descriptive representation has been argued to also play an important role in, for example, legitimizing policy outcomes and the policy-making process itself, which may matter for the implementation of and compliance with policy decisions (see, e.g., Mansbridge 1999; Hayes and Hibbing 2017; Arnesen and Peters 2018; Clayton et al. 2019). Abstracting from policy altogether, elitism as an outcome of political selection, in equilibrium, prevents low-income citizens from becoming high-income citizens by earning the high legislator salary. In this section, I thus explore what may prevent elitism. Given Proposition 4, I can simply ask what regulation or restrictions ensure that Conditions 1 and 2 do not both hold. I take utility benefits and costs as given and focus on the legislator salary and the productivity of the office.

3.4.1 Using Legislator Salaries to Prevent Elitism is Often Impossible

One approach to preventing elitism might be to consider adjusting the legislator salary. For example, one could decrease it in an attempt to reduce the office's appeal enough so that as soon as one citizen runs for it, nobody else is interested in running. Then, a low-income citizen could be the single candidate in equilibrium, and elitism does not arise. However, if holding the office facilitates a lot of very productive outside activity, then the office might still be attractive despite a lower salary. Elitism might thus still arise. A reform that has been suggested as a remedy for elitism at least in U.S. state legislatures is to increase legislator salaries. The argument in favor of such a reform essentially holds that a higher legislator salary makes running for office more attractive, relative to not running, to low-income citizens (see Carnes and Hansen 2016 for a discussion).[12] Is there a reform of legislator salaries that prevents elitism? There often may not be one.

Proposition 7. *If $\beta \geq \delta$, then elitism arises for every legislator salary if and only if* $(\phi_h - 1)w_h - (\phi_l - 1)w_l > \delta$.

That is, for a rather prestigious office, the extent to which it is more productive for high-income citizens than for low-income citizens determines whether or not some legislator salary can prevent elitism. The condition $\beta \geq \delta$ implies that if Condition 2 holds, then Condition 1 holds as well (Remark 1). It can be interpreted as the prestige and perks associated with holding the office alone outweighing the cost of running for it. Again, one might imagine that a national legislative office may be prestigious enough in this sense. This assumption implies that by Proposition 4 and Remark 1, elitism arises for all legislator salaries if and only if Condition 2 holds for all legislator salaries.

Since all legislators get the same salary, the difference in differences in income between holding office and being a private citizen is equal to the difference in differences in income between outside activity while in office and market activity as a private citizen. Condition 2 thus holds for all legislator salaries if and only if the difference in income between outside activity while in office and market activity as a private citizen is sufficiently larger for high-income citizens than for low-income citizens. This condition does not require that outside income while in office is greater than market income as a private citizen. Instead, fixing the market incomes and low enough cost of running, this condition holds if the office is sufficiently productive for high-income citizens compared to low-income citizens. If, for example, the office is rather unproductive for low-income citizens, their market income is not too much smaller than that of high-income citizens, and the cost of running is not too high, then both high- and low-income citizens' outside incomes while in office can be (a lot) smaller than their market incomes as private citizens while the required condition holds. Similarly, however, the office can be very productive for both high- and low-income citizens, equally so for both or even more so for low-income citizens, while the required condition holds.

Fixing the market incomes and low enough cost of running, Proposition 7 therefore says that, if the office is rather prestigious and facilitates enough and sufficiently productive outside activity

[12] See Carnes (2018) for a discussion of several reform proposals aimed at alleviating the numerical underrepresentation of low-income citizens in public offices.

for high-income citizens compared to low-income citizens, then elitism arises no matter what salary legislators are paid. If, however, the office does not facilitate enough and sufficiently productive outside activity for high-income citizens compared to low-income citizens, then there always is a salary that legislators can be paid so that elitism does not arise. Thus, some reform of legislator salaries may be a remedy for political elitism in the latter case, but certainly none is in the former.

3.4.2 Appropriate Outside Income Limits Always Prevent Elitism

Another approach to preventing elitism might be to consider restricting or even banning outside activity while in office or limiting income from it. Regulation along those lines has been widely discussed (e.g., Geys and Mause 2013) but adopted only to highly varying degree (e.g., Bovend'Eert 2018). Are there restrictions on outside activity or income from it that prevent elitism? One fairly stark such restriction can be motivated from the insight that for elitism to arise, the office must be productive for high-income citizens.

Proposition 8. *Elitism does not arise if the office is unproductive for high-income citizens.*

This result implies that if the office is generally unproductive, then elitism does not arise. If legislators cannot generate outside income while in office, then their income while in office is simply the salary. Since the salary is the same for all legislators no matter their income background, the difference in income between holding office and being a private citizen is smaller for high- than for low-income citizens. Thus, Condition 2 does not hold, and elitism does not arise by Proposition 4.

For the office to be generally unproductive, outside activity might have to be banned altogether. However, for elitism not to arise, it is not necessary to outright ban outside activity if outside income can be limited. Suppose that legislators may only take on outside activity that yields income up to some limit $m \geq 0$, which could, for example, be proportional to the legislator salary. Then, the outside income citizen i collects when in office satisfies $\varphi(i) \leq m$. Their income while in office thus satisfies $\gamma(i)w(i) \leq v + m$. As a result, the outside income limit m restricts what differences in differences in income between holding office and being a private citizen can occur. The lower the limit is, the smaller is the maximum difference in differences in income that is consistent with it. If the maximum difference in differences in income is small enough, then Condition 2 does not hold. Therefore, imposing a low enough such outside income limit m prevents elitism.

Proposition 9. *Elitism does not arise if an outside income limit $m \leq \bar{m} \equiv w_h - w_l$ is imposed.*

Outside income limits reduce the income legislators can collect while in office. Concerns that such regulation may thus make attracting candidates harder can be addressed to some extent by simultaneously increasing legislator salaries. In the U.S., for example, outside income limit legislation has been accompanied by compensatory increases in legislator salaries on several occasions in the past (Rosenson 2007). Given a low enough outside income limit, no salary increase can lead to elitism arising because Condition 2 cannot hold. So, in principle, regulation that increases legislator salaries at the same time as it imposes an outside income limit can ensure that elitism does not arise,

while, for example, the average legislator income remains unchanged. In fact, Rosenson (2007) finds that because outside income limit legislation clashes with legislators' financial self-interest, it might need to include such compensation to get passed.[13] Of course, the concern that legislators' outside activity may affect their behavior in office might be relevant more generally (Weschle 2021b).

Outside activity and income of members of the United States Congress tend to be relatively more restricted than those of members of the national legislature in many other countries (Weschle 2021a). Yet, virtually all candidates for and members of the United States Congress have a high-income background (Carnes 2012; Thompson et al. 2019). As a congressional office is arguably rather prestigious and thus attractive, following Propositions 8 and 9, it might thus also be productive enough for elitism to arise despite the restrictions faced by members of Congress. Maybe the nature of outside activity and sources from which members of Congress can generate income are not restricted enough, allowing them, for example, to benefit from the visibility, popularity, and public image their position grants them. As the example in the introduction illustrates, in 2016, the highest estimated outside income reported for a member of the United States Congress was over $1.7 million. I offer a discussion of the results and their interpretation in terms of the role of potential post-legislature employment and revolving doors in Section 4.2.

Finally, leveraging the insights from Proposition 7, a combination of outside income limits and salary reform could be effective in preventing elitism in prestigious offices. Restrictions on outside activity and income could be used to ensure that the office is, first, generally not very productive and, second, not too much more productive for high- than for low-income citizens. If the restrictions decrease the difference in differences in income between outside activity while in office and market activity as a private citizen enough, then an appropriate salary reform can prevent elitism.

3.5 Context to Rationalize Some Mixed Evidence

Insofar as high income is associated with high levels of education and high-paying or high-skill occupations, the results offer context that can help rationalize some somewhat mixed empirical evidence on the association between politician pay and politician background. For example, on the one hand, Gagliarducci and Nannicini (2013) find that in Italy, higher mayoral pay is associated with more educated mayors and mayoral candidates who are more educated and come from higher-paying occupations. On the other hand, Pique (2019) finds that in Peru, higher mayoral wages are associated with less educated mayors who are less experienced in private management and mayoral candidates with less political experience. As for national parliaments, Kotakorpi and Poutvaara (2011) and Atkinson et al. (2016) find that higher salaries are associated with more educated women candidates for parliament in Finland and women members of parliament in Canada, respectively, while there are no demonstrable associations for men. Finally, both Fisman et al. (2015) and Braendle (2015) study the harmonization of the base pay for members of the European Parliament, which for each member was previously aligned with the pay of members of their respective national parliament. While Fisman et al. (2015) find that higher salaries are associated

[13] See Section 4.2 for a discussion of pensions and post-legislature careers in this context.

with less qualified members by one metric of education quality, Braendle (2015) finds no association using several alternative metrics. Across these different political contexts, higher politician pay is therefore sometimes associated with more office holders being more highly educated or coming from higher-paying occupations, other times it is associated with fewer office holders being from these backgrounds, and still other times there is no association at all. In terms of the framework here, in some cases, an increase in the legislator salary may lead to elitism arising when it previously did not arise—or an already elitist political selection becoming even more elitist. In other cases, the salary increase may lead to elitism not arising when it previously did arise—or an elitist political selection becoming somewhat less elitist. In yet other cases, the salary increase does not change whether elitism arises or not. Proposition 4 can offer context to rationalize the existence of these different cases and shed light on what connects them.

Suppose that $\beta \geq \delta$, implying that the office is rather prestigious because the prestige and perks associated with holding the office alone outweigh the cost of running for it. Again, this assumption might capture the case of a national legislative office. By Remark 1, given that $\beta \geq \delta$, if Condition 2 holds, then Condition 1 holds as well. Therefore, by Proposition 4, elitism arises if and only if Condition 2 holds. Using (1), Condition 2 can be rewritten in terms of the difference in differences in income between outside activity while in office and market activity as a private citizen,

$$(10) \quad (\phi_h - 1)w_h - (\phi_l - 1)w_l > \delta \left(1 - \left(\frac{\beta + v + (\phi_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + v + (\phi_l - 1)w_l}{\delta} \right\rfloor\right)\right) \equiv g(v).$$

The legislator salary v does not affect the left-hand side of (10). The right-hand side of (10) is a non-monotonic function $g(v)$ that takes values in $(0, \delta]$ and has jumps. It is depicted in Figure 3. Starting from any $v \geq w_l$, increasing v increases the difference between the fraction $(\beta + v + (\phi_l - 1)w_l)/\delta$ and its floor and thus decreases $g(v)$ towards zero until the fraction becomes an integer, at which point $g(v)$ jumps up to δ. Further increasing v again decreases $g(v)$ towards zero until the fraction becomes an integer again, at which point $g(v)$ jumps up to δ again, and so on.

Suppose now that $(\phi_h - 1)w_h - (\phi_l - 1)w_l = \kappa\delta$ for some $\kappa \in (0, 1)$. That is, the difference in differences in income between outside activity while in office and market activity as a private citizen is positive but smaller than the cost of running. The value $\kappa\delta$ is indicated by the lower of the two dashed lines in Figure 3. Consider a legislator salary v such that $g(v) > \kappa\delta$, for example v_1 in Figure 3. Then, (10) does not hold, and elitism does not arise. Increasing v slightly, for example to v_2, decreases $g(v)$. However, elitism does not arise until v increases enough to decrease $g(v)$ below $\kappa\delta$. That is, an increase in the legislator salary may not change who runs for and holds office. Once the legislator salary increases enough for $g(v)$ to be less than $\kappa\delta$, for example to v_3, (10) holds, and elitism arises. That is, an increase in the legislator salary may lead to more office holders being more highly educated or coming from higher-paying occupations. Increasing the legislator salary further, for example to v_4, $g(v)$ decreases further. Elitism keeps arising until the salary increases enough to make the fraction $(\beta + v + (\phi_l - 1)w_l)/\delta$ an integer again. That is, again, an increase in the legislator salary may not change who runs for and holds office. Once the legislator salary increases enough for the fraction $(\beta + v + (\phi_l - 1)w_l)/\delta$ to be an integer again, $g(v)$ jumps to

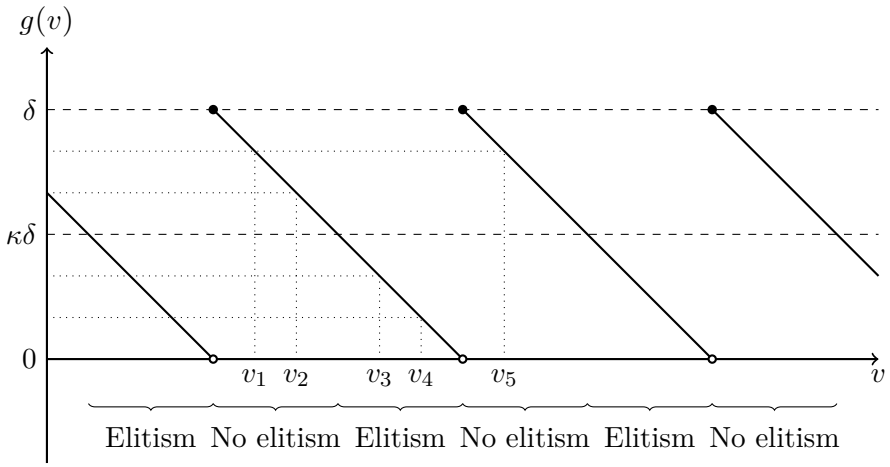

Figure 3: This figure depicts the right-hand side of (10), represented by a non-monotonic function $g(v)$ with values in $(0, \delta]$ and jumps. If the office is rather prestigious, $\beta \geq \delta$, then elitism arises if and only if (10) and thus Condition 2 holds. For example, if the left-hand side of (10) equals $\kappa\delta$ for some $\kappa \in (0, 1)$, then elitism arises if and only if $g(v) < \kappa\delta$. That is, for example, elitism arises for legislator salaries v_3 and v_4 but does not arise for legislator salaries v_1, v_2, and v_5.

the value δ. Thus, increasing v enough but not too much so that $g(v) > \kappa\delta$, for example to v_5, (10) does not hold, and elitism does not arise. That is, an increase in the legislator salary may lead to fewer office holders being more highly educated or coming from higher-paying occupations. Increasing the legislator salary further again does not lead to any changes initially. Once the salary increases further enough, the increase again leads to more office holders being more highly educated or coming from higher-paying occupations. Further increases in the legislator salary then initially do not change anything until they eventually again lead to fewer office holders being more highly educated or coming from higher-paying occupations, and so on.

There are also two cases in which increasing the legislator salary cannot have an effect. First, if the left-hand side of (10) is greater than δ, then Condition 2 holds and elitism arises for every legislator salary (see Proposition 7). Second, if the left-hand side of (10) is nonpositive, then Condition 2 does not hold and elitism does not arise for every legislator salary.

To summarize, the results can offer context to help rationalize the somewhat mixed empirical evidence discussed above. For a rather prestigious office, these different cases can arise from (10) due to differences in, for example, the distribution of market-income potential, the extent to which the political institutions allow for the office to be productive, or the cost of running for office.

4 Discussion

In this section, I discuss several assumptions, interpretations of the environment and results, how they map to related contexts, and what some limitations of the analysis are. I first map the simplified political process in the model to voting and discuss why the simplification is without loss in Section

4.1. In Section 4.2, I interpret the environment, analysis, and results in terms of pensions and post-legislature careers, distinguishing between human capital accumulation and revolving doors as the source of increases in future income potential. I discuss competence, effort, and more than two income levels in Section 4.3 and political parties, special interests, and campaign finance in Section 4.4. Finally, in Section 4.5, I discuss under what circumstances the analysis and results can be interpreted to allow for policy conflict in a second policy dimension without modeling it explicitly.

4.1 Voting

The description of the political process in Section 2 captures the implications of a setting with elections under the following assumptions. If there is no candidate for office, then it remains vacant. If there is exactly one candidate for office, then this candidate automatically becomes the office holder. If there are at least two candidates for office, then a plurality-vote election is held. All noncandidate citizens are eligible to vote in the election. Candidates cannot vote. This assumption still simplifies the exposition but is otherwise immaterial (see below). Voters vote as if their vote was decisive. They abstain if they are indifferent among all candidates and otherwise break ties by simple random sampling. Tied elections are also broken by simple random sampling.

The equilibrium concept is pure-strategy Nash equilibrium. As all voting is sincere and mechanical, equilibrium only requires that given all other citizens' running decisions, no citizen can benefit from changing theirs. If there is only $n = 1$ candidate for office, then the single candidate 'wins' the office with probability $1/n = 1$ by assumption. There is an election only if there are $n > 1$ candidates. Since all n candidates in the election are equally good at enacting the desired policy irrespective of their income background, all voters are indifferent among them and thus abstain. Thus, all candidates tie at zero votes. Simple random sampling determines the election winner. Each of the n candidates wins the election with probability $1/n$.

If candidates were allowed to vote, then one would have to first introduce more general notation capturing the probability of winning and then show that in any equilibrium, simple random sampling determines the election winner. All voters, candidate or not, still vote as if their vote was decisive. Noncandidate voters are still indifferent among all candidates and thus abstain. Candidates vote for themselves. A candidate who votes for another candidate rather than for themselves must have at least as high a payoff when losing as when winning and can increase their payoff further by deviating to not running and saving the associated cost. Thus, all candidates tie at one vote. The tie is broken by simple random sampling. Each of the n candidates wins the election with probability $1/n$.

4.2 Pensions and Post-Legislature Careers

In principle, the financial rewards in the model could represent expected present values of future incomes. With this interpretation, $w(i)$ would represent citizen i's expected present value of all future market income as a private citizen, which depends on their income background. Similarly, v would represent the expected present value of both all future legislator salaries and all future pensions, and $\phi(i)w(i)$ would represent the expected present value of both all future outside income

while in office and all future income in a post-legislature career, which both may depend on citizen i's income background. It may include income from investments. The utility benefits from the policy, $\theta(i)$, and holding office, β, would similarly represent the lifetime utility from such benefits.

With this interpretation of the model, the interpretation of some of the results changes slightly. On the one hand, for example, the extent to which $\phi(i)w(i)$ can be restricted to prevent elitism as found in Propositions 8 and 9 depends on why holding office increases income potential in a future post-legislature career. Such an increased income potential might derive mostly from human capital accumulation while in office (see, e.g., Parker and Parker 2009), which can hardly be banned. However, arguably, much of the increased future income potential likely stems from networks and political connections acquired while in office (e.g., Blanes i Vidal et al. 2012; Bertrand et al. 2014). In this case, one might have to restrict the private sector employment that former legislators can take up, like, for example, preventing them from lobbying (e.g., Keane and Merlo 2010), even if only for a "cooling off" period (Straus 2015). On the other hand, Proposition 7 implies that there may be no changes to legislator wages and pensions (e.g., Keane and Merlo 2010) that prevent elitism.

4.3 Competence, Effort, and More Than Two Income Levels

By assumption, competence to enact the policy is independent of income. If only a subset of citizens can enact the policy, then the analysis above should be considered pertaining to this subset only. Doing so is without loss of generality. Suppose that there was a candidate who cannot enact the policy. If, on the one hand, there is another candidate who can enact the policy, then the candidate who cannot enact the policy does not receive any votes as all citizens desire the policy to be enacted. They can thus profitably deviate to not running and saving the associated cost. If, on the other hand, there is no other candidate who can enact the policy, then a citizen who cannot enact the policy will hold office and thus the policy will not be enacted. In this case, some low-income citizen who can enact the policy can profitably deviate to running. They would win the election with certainty as all citizens desire the policy to be enacted. They would collect the policy and office benefits, which outweigh the cost of running for at least some low-income citizens, and a potential income premium. Therefore, in any equilibrium, all candidates for office can enact the policy.

I am interested in the income background of legislators rather than their legislative effort, which I thus abstract from. The empirical evidence on the interaction of outside activity and income with legislator effort is somewhat mixed. It ranges from higher outside income being associated with lower legislator effort (Gagliarducci et al. 2010) to outside income being or not being associated with lower legislator effort depending on what metric of effort is used (Arnold et al. 2014; Staat and Kuehnhanss 2017) to outside income being associated with lower effort among only a specific subset of legislators (Fedele and Naticchioni 2016) to the sign of the association between legislator effort and outside activity not only depending on how effort is measured but also on the number and type of outside positions legislators hold (Hurka et al. 2018) to legislators with outside income exerting more effort than others (Weschle 2021b). Given this mixed evidence and the focus of this paper, arguably, abstracting from legislative effort is a reasonable simplification.

Finally, while I assume two income levels for simplicity, the analysis and results extend naturally to more than two income levels. For example, Condition 1 would then involve the maximum of the difference in income between holding office and being a private citizen among all the then more than two income groups. If the wording of the definition of elitism arising is unchanged, then Condition 2 would involve the maximum difference in differences in income, relative to the low-income group, between holding office and being a private citizen among all other income groups. The details of most proofs require little more than modifications of much the same nature, while the statements of some results need minor changes to account for more than two income levels. Such an extension would allow capturing that, for example, the super-rich also rarely ever become politicians.

4.4 Political Parties, Special Interests, and Campaign Finance

I abstract from political parties to focus on the decision of citizens whether to put themselves forward as a candidate. If running for office requires nomination by a political party and parties perceive only a subset of citizens to be, for example, charismatic enough for nomination, then the analysis above should be considered pertaining only to this subset of charismatic citizens. Uncharismatic citizens simply cannot run for office. The assumption then is that enough high- and low-income citizens are charismatic. However, charismatic citizens still need to select themselves into applying for a party nomination to run for office. Similarly, one might imagine that running for office requires funding from a special interest group to finance a candidate's electoral campaign. Assuming that a special interest group with abundant resources finances a candidate's campaign costs if and only if they are aligned with the group and will vote in line with its agenda once in office, citizens who are not aligned with the interest group simply cannot run for office. The above analysis should then be considered pertaining only to the subset of citizens who are aligned with the special interest group. The assumption then is that enough high- and low-income citizens are aligned with the interest group. However, they still need to choose to run for office, which is what I focus on here.

4.5 Redistribution and Policy Conflict More Generally

I assume that all citizens benefit from the policy being enacted, although how much they value the policy may vary arbitrarily across citizens. This assumption ensures that there is no electoral advantage for candidates from some income group due to policy preferences depending on income. If all citizens prefer the policy to be enacted, differences in how much they value the policy do not matter, even if these differences were to depend on income. This assumption thus contributes to the environment being consistent with the evidence suggesting that electoral prospects are independent of income mentioned in the introduction (Carnes and Lupu 2016a; Campbell and Cowley 2014).

Related to this reasoning, the environment is not well suited to study, for example, taxation and redistribution, which, given the evidence, might in fact also not be the policy issue of most interest. If redistribution was the focus, low-income citizens are the majority, and low-income citizens support redistribution, while high-income citizens oppose it, then electoral prospects might not be independent of income. Thus, one way to think about the evidence suggesting that electoral

prospects are independent of income is that voters did not consider a policy issue the preferences over which depend on income to be salient. Another way to think about it is that such a policy issue was salient, but voters anticipated that, once in office, candidates from all income backgrounds support the same policy. This interpretation is in line with Auerbach (2021), who finds that if redistribution is the salient policy issue, then the predominance of high-income citizens among members of the national legislature may imply that, regardless of income background, all legislators oppose redistribution in the sense that they would vote against it if their vote was pivotal. In this case, electoral prospects do not depend on income because voters are indifferent among candidates from all income backgrounds. In either case, however, given the evidence discussed, it appears reasonable to focus on a policy issue that can be thought of as the provision of a local public good.

One may wonder whether an explicit policy conflict in a second policy dimension can be accommodated. For electoral prospects to still be independent of income, policy preferences over this second policy issue must be independent of income. If one is willing to make two concessions, then the above analysis and results can be interpreted as speaking to a related but slightly modified version of political elitism in the presence of such a policy conflict, despite not modeling it explicitly.

One might imagine a policy such as regulation in a specific dimension. Support for the regulation is independent of income in the sense that it is supported by about the same share of all citizens in each income group in the district and opposed by all others. There might be two ideological parties, one supporting the regulation and one opposing it, each comprising of all high- and low-income citizens who share the ideological position. Further, each party might use a primary election to determine a candidate for the district election. In each party's primary, citizens are eligible to vote or run for the nomination if and only if they are a member of the party. Thus, all eligible voters are indifferent among all candidates for the nomination in each party's primary. All party members desire the local public good and share the same position on the regulation policy. In the district election, all citizens in the district then vote for the candidate who shares their stance on regulation.

As one concession, assume that a strict majority of citizens in the district either support or oppose the regulation. That is, the candidate fielded by the party that represents the majority position in the district wins the election and becomes the district's legislator with certainty. As a second concession, altogether ignore the district's losing party, its candidate nomination process, and the candidate it ends up fielding. With respect to predictions of interest, only the income background of the losing candidate in the district is lost. Elitism arising is then defined as there being no equilibrium with a low-income candidate for the nomination in the party representing the district's majority position on regulation. The analysis and results above can then not be interpreted as speaking to the income background of all candidates for the national legislature anymore. They instead refer to the income background of all candidates for the nomination in the district's majority party. These candidates are everyone who has an actual chance to become the district's legislator, including the eventual legislator themselves. With these concessions and reinterpretations in place, despite not modeling the policy conflict in the second policy dimension explicitly, the analysis and results can be interpreted as speaking to political elitism in an environment with such a conflict.

5 Concluding Remarks

While there are generally no wealth, income, or education qualifications to be eligible for office, many representative democracies experience political elitism in the sense that at all times, virtually all members of the national legislature are high-income citizens. At the same time, evidence suggests that low-income citizens are not less interested in holding office, not considered less competent by voters, and not less likely to get voters' votes. Motivated by this evidence, I explore a financial-rewards channel through which political elitism can arise by self-selection when candidates' perceived competence and electoral prospects are independent of income. It rests on the observation that holding office can be quite lucrative. Besides paying a relatively high salary, the office may be productive. It may facilitate outside activity while in office or increase legislators' income potential in a future post-legislature career. To assess this channel's potential to help explain political elitism, I study it in isolation from other potentially important, complementary channels.

I find that elitism arises if and only if the office is attractive and the difference in differences in income between holding office and being a private citizen is large enough. While one might expect otherwise, the office paying higher income premia or facilitating more productive outside activity for high- than for low-income citizens is not necessary for elitism to arise. It is not sufficient either. At the same time, however, appropriate outside income limits can always prevent elitism from arising. Salary reform, on the other hand, often cannot prevent elitism. With an interpretation in terms of post-legislature employment and revolving doors, to prevent elitism from arising, one might have to restrict the private sector employment that former legislators can take up. For example, one might have to ban former legislators from lobbying for at least some time after they left office. On the other hand, there often is no reform of legislator pay or pensions that by itself can prevent elitism from arising. Finally, the results offer context that can help rationalize some somewhat mixed empirical evidence on the association between politician pay and politician background.

Future work could attempt to integrate the channel I study with other potentially important and complementary channels that have been discussed in the context of political selection. One prominent such channel is the role of parties, party gatekeepers, and political and civic leaders in candidate recruitment. Other likely important channels are advantages in campaign finance acquisition and the financial burden of running for office. Future work could also attempt an empirical analysis of the association between restrictions on legislators' outside activity, outside income, and post-legislature careers on the one hand and the intensity of elitism on the other.

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Online Appendix for *Productive Office and Political Elitism* (Not for Publication)

This online appendix collects the omitted proofs for *Productive Office and Political Elitism*.

Proposition 1

Proof. There are two cases: *(1)* $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$; *(2)* $2\delta < \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. From (1) follows with $v \geq w_l$ and $\phi_l \geq 0$ that $\gamma_l w_l \geq w_l$. Therefore, $(\gamma_l - 1)w_l \geq 0$ so that $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq 0$. I show that an equilibrium exists in general by separately describing and verifying an equilibrium for each case.

(1) Suppose that $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. Let $\mathcal{C} = \{k_l\}$ so that $n = 1$. Recall that $k_l \in \mathcal{L}$. Using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6), $\mathcal{C}$ is an equilibrium if and only if

$$\theta(k_l) + \beta + \gamma(k_l)w(k_l) - \delta \geq w(k_l), \tag{11}$$

$$\theta(i) + w(i) \geq \frac{1}{2}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{1}{2}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \{k_l\}. \tag{12}$$

Inequality (11) holds because $k_l \in \mathcal{L}$, $\gamma_l w_l \geq w_l$, and $\theta(k_l) + \beta > \delta$ so that

$$\theta(k_l) + \beta + \gamma(k_l)w(k_l) - \delta = \theta(k_l) + \beta + \gamma_l w_l - \delta \geq \theta(k_l) + \beta + w_l - \delta > w_l = w(k_l).$$

Inequality (12) can be rewritten as

$$2\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \{k_l\},$$

which holds because $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq \beta + (\gamma(i) - 1)w(i)$ for all $i \in \mathcal{I} \setminus \{k_l\}$. That is, $\mathcal{C}$ is an equilibrium. Thus, an equilibrium exists.

(2) Suppose that $2\delta < \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. Pick $n \in \mathbb{N}$ such that

$$n \leq \frac{\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}}{\delta} \leq n + 1. \tag{13}$$

It follows that $n \geq 2$. By (2), $n < I_l$ and $n < I_h$. Consider any $\mathcal{C}$ such that $|\mathcal{C}| = n$ and $\mathcal{C} \subset \mathcal{L}$ if $(\gamma_l - 1)w_l \geq (\gamma_h - 1)w_h$ and $\mathcal{C} \subset \mathcal{H}$ otherwise. That is, there are $n \geq 2$ candidates and $(\gamma(i) - 1)w(i) = \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$ for all $i \in \mathcal{C}$. Using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6), $\mathcal{C}$ is an equilibrium if and only if

$$\frac{1}{n}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n-1}{n}\left(\theta(i) + w(i) - \delta\right) \geq \theta(i) + w(i) \quad \forall i \in \mathcal{C}, \tag{14}$$

$$\theta(i) + w(i) \geq \frac{1}{n+1}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n}{n+1}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \mathcal{C}. \tag{15}$$

Inequality (14) can be rewritten as

$$\beta + (\gamma(i) - 1)w(i) \geq n\delta \quad \forall i \in \mathcal{C},$$

which holds by (13) because $\beta + (\gamma(i) - 1)w(i) = \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq n\delta$ for all $i \in \mathcal{C}$. Inequality (15) can be rewritten as

$$(n+1)\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \mathcal{C},$$

which holds by (13) because $\beta + (\gamma(i) - 1)w(i) \leq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \leq (n+1)\delta$ for all $i \in \mathcal{I} \setminus \mathcal{C}$. That is, $\mathcal{C}$ is an equilibrium. Thus, an equilibrium exists.

Therefore, combining *(1)* and *(2)*, an equilibrium exists in general.

Suppose for a contradiction that $\mathcal{C} = \emptyset$ is an equilibrium. Consider k_l. As $n = 0$, by (6), $V_0(0, k_l) \geq V_1(0, k_l)$ or, using (3) and (4), $w(k_l) \geq \theta(k_l) + \beta + \gamma(k_l)w(k_l) - \delta = \theta(k_l) + \beta + \gamma_l w_l - \delta \geq \theta(k_l) + \beta + w_l - \delta > w_l = w(k_l)$ since $k_l \in \mathcal{L}$, $\gamma_l w_l \geq w_l$, and $\theta(k_l) + \beta > \delta$, a contradiction. Thus, $\mathcal{C} = \emptyset$ is not an equilibrium, and in every equilibrium, there is at least one candidate. ■

Proposition 2

Proof. Suppose that (7) holds. There are two cases: *(1)* $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$; *(2)* $2\delta < \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. From (1) follows with $v \geq w_l$ and $\phi_l \geq 0$ that $\gamma_l w_l \geq w_l$. Therefore, $(\gamma_l - 1)w_l \geq 0$ so that $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq 0$. I show that an equilibrium with a high-income candidate exists in general by separately describing and verifying an equilibrium with a high-income candidate for each case.

(1) Suppose that $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. Let $\mathcal{C} = \{k_h\}$ so that $n = 1$. Recall that $k_h \in \mathcal{H}$. Using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6), $\mathcal{C}$ is an equilibrium if and only if

$$\theta(k_h) + \beta + \gamma(k_h)w(k_h) - \delta \geq w(k_h), \tag{16}$$

$$\theta(i) + w(i) \geq \frac{1}{2}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{1}{2}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \{k_h\}. \tag{17}$$

Inequality (16) holds because $k_h \in \mathcal{H}$ and $(\gamma_h - 1)w_h \geq \delta - \beta - \theta(k_h)$ by (7) so that

$$\theta(k_h) + \beta + \gamma_h w_h - \delta \geq w_h.$$

Inequality (17) can be rewritten as

$$2\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \{k_h\},$$

which holds as $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq \beta + (\gamma(i) - 1)w(i)$ for all $i \in \mathcal{I} \setminus \{k_h\}$. That is, $\mathcal{C}$ is an equilibrium. Thus, an equilibrium with a high-income candidate exists.

(2) Suppose that $2\delta < \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. Pick $n \in \mathbb{N}$ such that

$$n < \frac{\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}}{\delta} \leq n + 1. \tag{18}$$

It follows that $n \geq 2$. By (2), $n < I_l$ and $n < I_h$. Consider any $\mathcal{C} \subset \mathcal{H}$ such that $|\mathcal{C}| = n$. That is, there are $n \geq 2$ high-income candidates. Using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6), $\mathcal{C}$ is an equilibrium if and only if

$$\frac{1}{n}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n-1}{n}\left(\theta(i) + w(i) - \delta\right) \geq \theta(i) + w(i) \quad \forall i \in \mathcal{C}, \tag{19}$$

$$\theta(i) + w(i) \geq \frac{1}{n+1}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n}{n+1}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \mathcal{C}. \tag{20}$$

Inequality (20) can be rewritten as

$$(n+1)\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \mathcal{C},$$

which holds by (18) because $\beta + (\gamma(i) - 1)w(i) \leq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \leq (n+1)\delta$ for all $i \in \mathcal{I} \setminus \mathcal{C}$. As $\mathcal{C} \subset \mathcal{H}$, Inequality (19) can be rewritten as

$$\beta + (\gamma_h - 1)w_h \geq n\delta. \tag{21}$$

There are two cases: *(a)* $(\gamma_h - 1)w_h \geq (\gamma_l - 1)w_l$; *(b)* $(\gamma_h - 1)w_h < (\gamma_l - 1)w_l$.

(a) If $(\gamma_h - 1)w_h \geq (\gamma_l - 1)w_l$, then $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = (\gamma_h - 1)w_h$, and it follows directly from (18) that (21) and thus (19) holds.

(b) If $(\gamma_h - 1)w_h < (\gamma_l - 1)w_l$, then $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = (\gamma_l - 1)w_l$, and $(\beta + (\gamma_l - 1)w_l)/\delta > n$ from (18) so that (21) and thus (19) holds because by (7),

$$\begin{aligned}
& (\gamma_h - 1)w_h \geq (\gamma_l - 1)w_l - \delta\left(1 - \left(\frac{\beta + (\gamma_h - 1)w_h}{\delta} - \left\lfloor \frac{\beta + (\gamma_h - 1)w_h}{\delta} \right\rfloor\right)\right) \\
\iff \quad & \frac{\beta + (\gamma_h - 1)w_h}{\delta} \geq \frac{\beta + (\gamma_l - 1)w_l}{\delta} - 1 + \frac{\beta + (\gamma_h - 1)w_h}{\delta} - \left\lfloor \frac{\beta + (\gamma_h - 1)w_h}{\delta} \right\rfloor \\
\implies \quad & \left\lfloor \frac{\beta + (\gamma_h - 1)w_h}{\delta} \right\rfloor \geq \frac{\beta + (\gamma_l - 1)w_l}{\delta} - 1 > n - 1 \\
\implies \quad & \frac{\beta + (\gamma_h - 1)w_h}{\delta} \geq \left\lfloor \frac{\beta + (\gamma_h - 1)w_h}{\delta} \right\rfloor \geq n \\
\implies \quad & \beta + (\gamma_h - 1)w_h \geq n\delta.
\end{aligned}$$

That is, $\mathcal{C}$ is an equilibrium. Thus, an equilibrium with a high-income candidate exists. Combining *(1)* and *(2)*, an equilibrium with a high-income candidate exists if (7) holds. ■

Proposition 3

Proof. I construct parameter examples for each Case *(1)–(4)* that satisfy Inequality (7) so that an equilibrium with at least one high-income candidate exists by Proposition 2.

(1) Fix any finite $I_l > 1$, $I_h > 1$, $w_l > 0$, $w_h > w_l$ and let $v = w_l$, $\phi_l = \phi_h = 0$, $\beta = \delta = w_h - w_l > 0$, and, for all $i \in \mathcal{I}$, $\theta(i) = \delta$, implying that $\theta(i) + \beta > \delta$ for all $i \in \mathcal{I}$ and thus $\theta(k_h) + \beta > \delta$ and $\theta(k_l) + \beta > \delta$. Then, $(\gamma_h - 1)w_h = v - w_h = w_l - w_h = -\delta < 0$ and $(\gamma_l - 1)w_l = v - w_l = w_l - w_l = 0$. Since $I_l > 1$, $I_h > 1$, $\beta = \delta$, and $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = \max\{0, -\delta\} = 0$, Inequality (2) is satisfied. Since $\theta(i) = \beta = \delta$ for all $i \in \mathcal{I}$, the first element of the set on the right-hand side of Inequality (7) equals $\delta - \beta - \theta(k_h) = \delta - \delta - \delta = -\delta$. Since $(\gamma_l - 1)w_l = 0$, $(\gamma_h - 1)w_h = -\delta$, and $\beta = \delta$ so that $(\beta + (\gamma_h - 1)w_h)/\delta = (\delta - \delta)/\delta = 0$, the second element of the set on the right-hand side of Inequality (7) equals $-\delta$ as well. Then, Inequality (7) is satisfied and $(\gamma_h - 1)w_h < 0$.

(2) See the proof of *(1)* for an example with $\phi_l = \phi_h = 0$ that satisfies Inequality (7).

(3) Fix any finite $\beta \geq 0$ and $\delta > 0$. Fix a $w_l > 0$ and a $w_h > w_l$ such that $w_h - w_l < \delta$. Next, fix any finite $v \geq w_l$ and pick a finite $\phi_h \geq 1$ such that $(\beta + v + (\phi_h - 1)w_h)/\delta = (\beta + (\gamma_h - 1)w_h)/\delta = \lfloor(\beta + (\gamma_h - 1)w_h)/\delta\rfloor$. Let $\phi_l = (\delta - (w_h - w_l) + \phi_h w_h)/w_l > 0$, which implies that, first, $\phi_l w_l - \phi_h w_h = \delta - (w_h - w_l) > 0$ and thus $\phi_l w_l > \phi_h w_h$ and, second, $(\phi_h - 1)w_h = (\phi_l - 1)w_l - \delta$ and thus $(\gamma_h - 1)w_h = (\gamma_l - 1)w_l - \delta = (\gamma_l - 1)w_l - \delta(1 - ((\beta + (\gamma_h - 1)w_h)/\delta - \lfloor(\beta + (\gamma_h - 1)w_h)/\delta\rfloor))$. Pick large enough finite $\theta(i) > 0$ so that $(\gamma_h - 1)w_h \geq \delta - \beta - \theta(i)$ and $\theta(i) + \beta > \delta$ for all $i \in \mathcal{I}$, implying that $(\gamma_h - 1)w_h \geq \delta - \beta - \theta(k_h)$, $\theta(k_h) + \beta > \delta$, and $\theta(k_l) + \beta > \delta$. Finally, pick finite $I_l > 1$ and $I_h > 1$ that satisfy Inequality (2). Then, Inequality (7) is satisfied and $\phi_l w_l > \phi_h w_h$.

(4) See the proof of *(3)* for an example with $\phi_l > \phi_h$ that satisfies Inequality (7) because $\phi_l = (\delta - (w_h - w_l) + \phi_h w_h)/w_l > \phi_h$ if and only if $\delta + (\phi_h - 1)(w_h - w_l) > 0$, while $\delta > 0$, $w_h > w_l$, and $\phi_h \geq 1$. ■

Proposition 4

Proof. I proceed in two steps. **Step 1** establishes that if elitism arises, then Conditions 1 and 2 hold. **Step 2** establishes that if Conditions 1 and 2 hold, then elitism arises.

Step 1. I proceed by contraposition. Suppose that Conditions 1 and 2 do not both hold. I show that elitism does not arise, i.e., there is an equilibrium with a low-income candidate. There are two cases: *(1)* Condition 1 does not hold, and Condition 2 holds or does not hold; *(2)* Condition 1 holds, and Condition 2 does not hold. Consider each case in turn.

(1) Suppose that Condition 1 does not hold, and Condition 2 holds or does not hold. Then, $2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}$. For this case, irrespective of whether or not Condition 2 holds, the first part of the proof of Proposition 1 shows that an equilibrium with a low-income candidate exists. Therefore, elitism does not arise.

(2) Suppose that Condition 1 holds, and Condition 2 does not hold. Then,

$$(\gamma_h - 1)w_h - (\gamma_l - 1)w_l \leq \delta \left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right). \tag{22}$$

I show that there is an equilibrium with a low-income candidate. Pick $n \in \mathbb{N}$ such that

$$n < \frac{\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\}}{\delta} \leq n + 1. \tag{23}$$

It follows from Condition 1 that $n \geq 2$. By (2), $n < I_l$ and $n < I_h$. Consider any $\mathcal{C} \subset \mathcal{L}$ such that $|\mathcal{C}| = n$. That is, there are $n \geq 2$ low-income candidates. Using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6), $\mathcal{C}$ is an equilibrium if and only if

$$\frac{1}{n}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n-1}{n}\left(\theta(i) + w(i) - \delta\right) \geq \theta(i) + w(i) \quad \forall i \in \mathcal{C}, \tag{24}$$

$$\theta(i) + w(i) \geq \frac{1}{n+1}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n}{n+1}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \mathcal{C}. \tag{25}$$

Inequality (25) can be rewritten as

$$(n+1)\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \mathcal{C},$$

which holds by (23) because $\beta + (\gamma(i) - 1)w(i) \leq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \leq (n+1)\delta$ for all $i \in \mathcal{I} \setminus \mathcal{C}$. As $\mathcal{C} \subset \mathcal{L}$, Inequality (24) can be rewritten as

$$\beta + (\gamma_l - 1)w_l \geq n\delta. \tag{26}$$

There are two cases: *(a)* $(\gamma_l - 1)w_l \geq (\gamma_h - 1)w_h$; *(b)* $(\gamma_l - 1)w_l < (\gamma_h - 1)w_h$.

(a) If $(\gamma_l - 1)w_l \geq (\gamma_h - 1)w_h$, then $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = (\gamma_l - 1)w_l$, and it follows directly from (23) that (26) and thus (24) holds.

(b) If $(\gamma_l - 1)w_l < (\gamma_h - 1)w_h$, then $\max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = (\gamma_h - 1)w_h$, and $(\beta + (\gamma_h - 1)w_h)/\delta > n$ from (23) so that (26) and thus (24) holds because by (22),

$$\begin{aligned}
& \beta + (\gamma_l - 1)w_l \geq \beta + (\gamma_h - 1)w_h - \delta\left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right) \\
\iff & \frac{\beta + (\gamma_l - 1)w_l}{\delta} \geq \frac{\beta + (\gamma_h - 1)w_h}{\delta} - 1 + \frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor \\
\implies & \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor \geq \frac{\beta + (\gamma_h - 1)w_h}{\delta} - 1 > n - 1 \\
\implies & \frac{\beta + (\gamma_l - 1)w_l}{\delta} \geq \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor \geq n \\
\implies & \beta + (\gamma_l - 1)w_l \geq n\delta.
\end{aligned}$$

That is, $\mathcal{C}$ is an equilibrium with a low-income candidate. Thus, elitism does not arise.

Therefore, combining *(1)* and *(2)*, if Conditions 1 and 2 do not both hold, then elitism does not arise. By contraposition, therefore, if elitism arises, then Conditions 1 and 2 hold.

Step 2. Suppose that Conditions 1 and 2 hold. Suppose for a contradiction that there is an equilibrium $\mathcal{C}$ such that $k \in \mathcal{C}$ for some $k \in \mathcal{L}$. There are two cases: *(1)* $n = 1$; *(2)* $n > 1$.

(1) If $n = 1$, then $\mathcal{C} = \{k\} \subset \mathcal{L}$. As $\mathcal{C}$ is an equilibrium, using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6),

$$\theta(k) + \beta + \gamma(k)w(k) - \delta \geq w(k), \tag{27}$$

$$\theta(i) + w(i) \geq \frac{1}{2}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{1}{2}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \{k\}. \tag{28}$$

Inequality (28) can be rewritten as

$$2\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \{k\},$$

which, due to $\mathcal{H} \setminus \{k\} \neq \emptyset$ and $\mathcal{L} \setminus \{k\} \neq \emptyset$ (because $I_h > 1$ and $I_l > 1$), implies that

$$2\delta \geq \beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\},$$

which establishes a contradiction because Condition 1 holds.

(2) Suppose that $n > 1$. As $\mathcal{C}$ is an equilibrium, using (3) and (4) together with the fact that $n_{-i} = n - 1$ for all $i \in \mathcal{C}$ and $n_{-i} = n$ for all $i \in \mathcal{I} \setminus \mathcal{C}$ in (5) and (6),

$$\frac{1}{n}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n-1}{n}\left(\theta(i) + w(i) - \delta\right) \geq \theta(i) + w(i) \quad \forall i \in \mathcal{C}, \tag{29}$$

$$\theta(i) + w(i) \geq \frac{1}{n+1}\left(\theta(i) + \beta + \gamma(i)w(i) - \delta\right) + \frac{n}{n+1}\left(\theta(i) + w(i) - \delta\right) \quad \forall i \in \mathcal{I} \setminus \mathcal{C}. \tag{30}$$

As $k \in \mathcal{L}$, for $k \in \mathcal{C}$, Inequality (29) can be rewritten as

$$\beta + (\gamma_l - 1)w_l \geq n\delta. \tag{31}$$

It follows by (2) that $n < I_l$ and $n < I_h$ as $\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq \beta + (\gamma_l - 1)w_l$. Inequality (30) can be rewritten as

$$(n+1)\delta \geq \beta + (\gamma(i) - 1)w(i) \quad \forall i \in \mathcal{I} \setminus \mathcal{C},$$

which, due to $\mathcal{H} \setminus \mathcal{C} \neq \emptyset$ (because $n < I_h$), implies that

$$(n+1)\delta \geq \beta + (\gamma_h - 1)w_h. \tag{32}$$

From Condition 2 together with (31) follows that

$$(\gamma_h - 1)w_h > (\gamma_l - 1)w_l + \delta\left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right)$$

$$
\begin{aligned}
&\iff \quad \frac{\beta+(\gamma_h-1)w_h}{\delta} > \frac{\beta+(\gamma_l-1)w_l}{\delta} + 1 - \frac{\beta+(\gamma_l-1)w_l}{\delta} + \left\lfloor \frac{\beta+(\gamma_l-1)w_l}{\delta} \right\rfloor \\
&\implies \quad \frac{\beta+(\gamma_h-1)w_h}{\delta} > \left\lfloor \frac{\beta+(\gamma_l-1)w_l}{\delta} \right\rfloor + 1 \geq n+1 \\
&\implies \quad \beta+(\gamma_h-1)w_h > (n+1)\delta,
\end{aligned}
$$

which contradicts (32).

Combining *(1)* and *(2)*, if Conditions 1 and 2 hold, then there is no equilibrium $\mathcal{C}$ such that $k \in \mathcal{C}$ for some $k \in \mathcal{L}$. Therefore, if Conditions 1 and 2 hold, then elitism arises. ■

Proposition 5

Proof. I construct parameter examples for each Case *(1)* and *(2)* that satisfy Conditions 1 and 2 so that elitism arises by Proposition 4.

(1) Fix any finite $w_l > 0$, $w_h > w_l$, $\beta \geq 0$, and $\delta > 0$. Pick large enough finite $\theta(i) > 0$ so that $\theta(i) + \beta > \delta$ for all $i \in \mathcal{I}$, implying that $\theta(k_h) + \beta > \delta$ and $\theta(k_l) + \beta > \delta$. Since $w_h > w_l > 0$, $\delta/(w_h - w_l) + 1$ and $(2\delta - \beta)/w_h + 1$ are some finite numbers. There is a large enough finite $\hat{\gamma}$ such that $\hat{\gamma} > \max\{\delta/(w_h - w_l) + 1, (2\delta - \beta)/w_h + 1\} > 1$. It follows that $(\hat{\gamma} - 1)(w_h - w_l) > \delta$. By continuity, there is a small enough $\epsilon > 0$ such that $(\hat{\gamma} - 1)w_h - ((\hat{\gamma} + \epsilon) - 1)w_l > \delta$. Let $\gamma_h = \hat{\gamma}$ and $\gamma_l = \hat{\gamma} + \epsilon$. Then, first, $\gamma_l > \gamma_h = \hat{\gamma} > 1$ so that $\gamma_l \geq 1$ and $\gamma_h \geq w_l/w_h$ as required. Second, it follows from $\gamma_h = \hat{\gamma} > (2\delta - \beta)/w_h + 1$ that $\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq \beta + (\gamma_h - 1)w_h > 2\delta$ so that Condition 1 holds. Third, it follows from $(\gamma_h - 1)w_h - (\gamma_l - 1)w_l = (\hat{\gamma} - 1)w_h - ((\hat{\gamma} + \epsilon) - 1)w_l > \delta$ that Condition 2 holds. Finally, pick any finite $I_l > 1$ and $I_h > 1$ that satisfy Inequality (2) and let $v = w_l$, $\phi_l = \gamma_l - 1$, and $\phi_h = \gamma_h - w_l/w_h$. Then, $\gamma_l > \gamma_h$ and Conditions 1 and 2 hold.

(2) Fix any finite $w_l > 0$, $w_h > w_l$, $v \geq w_l$, $\beta \geq 0$, and $\delta > 0$. Pick large enough finite $\theta(i) > 0$ so that $\theta(i) + \beta > \delta$ for all $i \in \mathcal{I}$, implying that $\theta(k_h) + \beta > \delta$ and $\theta(k_l) + \beta > \delta$. Since $w_h > w_l > 0$, $\delta/(w_h - w_l) + 1$ and $(2\delta + w_h - \beta - v)/w_h$ are some finite numbers. There is a large enough finite $\hat{\phi}$ such that $\hat{\phi} > \max\{\delta/(w_h - w_l) + 1, (2\delta + w_h - \beta - v)/w_h\} > 1$. It follows that $(\hat{\phi} - 1)(w_h - w_l) > \delta$. By continuity, there is a small enough $\epsilon > 0$ such that $(\hat{\phi} - 1)w_h - ((\hat{\phi} + \epsilon) - 1)w_l > \delta$. Let $\phi_h = \hat{\phi}$ and $\phi_l = \hat{\phi} + \epsilon$. Then, first, $\phi_l > \phi_h = \hat{\phi} > 1$ so that $\phi_l \geq 0$ and $\phi_h \geq 0$ as required. Second, it follows from $\phi_h = \hat{\phi} > (2\delta + w_h - \beta - v)/w_h$ and (1) that $\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} \geq \beta + (\gamma_h - 1)w_h = \beta + (v/w_h + \phi_h - 1)w_h = \beta + v + (\phi_h - 1)w_h > 2\delta$ so that Condition 1 holds. Third, using (1), $(\gamma_h - 1)w_h - (\gamma_l - 1)w_l = (v/w_h + \phi_h - 1)w_h - (v/w_l + \phi_l - 1)w_l = (\phi_h - 1)w_h - (\phi_l - 1)w_l = (\hat{\phi} - 1)w_h - ((\hat{\phi} + \epsilon) - 1)w_l > \delta$ so that Condition 2 holds. Finally, pick any finite $I_l > 1$ and $I_h > 1$ that satisfy Inequality (2). Then, $\phi_l > \phi_h$ and Conditions 1 and 2 hold. ■

Proposition 6

Proof. I construct a parameter example that captures both Cases *(1)* and *(2)* and does not satisfy Condition 1 so that elitism does not arise by Proposition 4.

Fix any finite $I_l > 2$, $I_h > 2$, $w_l > 0$, $w_h > w_l$, and let $0 < \beta = \delta < w_h - w_l < 2\delta$, $v = w_l$,

$\phi_l = 0$, $\phi_h = 2\delta/w_h$, and, for all $i \in \mathcal{I}$, $\theta(i) = \delta$, implying that $\theta(i) + \beta > \delta$ for all $i \in \mathcal{I}$ and thus $\theta(k_h) + \beta > \delta$ and $\theta(k_l) + \beta > \delta$. Then, $\phi_h > \phi_l$ and $\gamma_h > \gamma_l$ because, using (1), $\gamma_l = v/w_l + \phi_l = w_l/w_l = 1$ and $\gamma_h = v/w_h + \phi_h = w_l/w_h + 2\delta/w_h > 1$ since $2\delta > w_h - w_l$. Further, $(\gamma_l - 1)w_l = 0$ and $(\gamma_h - 1)w_h = (w_l/w_h + 2\delta/w_h - 1)w_h = 2\delta - (w_h - w_l) > 0$ so that $\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\} = \delta + 2\delta - (w_h - w_l) < 2\delta$ since $\delta < w_h - w_l$, which also implies that $(\beta + \max\{(\gamma_l - 1)w_l, (\gamma_h - 1)w_h\})/\delta = (\delta + 2\delta - (w_h - w_l))/\delta < 2$ so that Inequality (2) is satisfied as $I_l > 2$ and $I_h > 2$. Then, $\phi_h > \phi_l$ and $\gamma_h > \gamma_l$ and Condition 1 does not hold. ■

Proposition 7

Proof. Suppose that $\beta \geq \delta$. I proceed in two steps. **Step 1** establishes that if $(\phi_h - 1)w_h - (\phi_l - 1)w_l > \delta$, then elitism arises for all $v \geq w_l$. **Step 2** establishes that if elitism arises for all $v \geq w_l$, then $(\phi_h - 1)w_h - (\phi_l - 1)w_l > \delta$.

Step 1. Suppose that $(\phi_h - 1)w_h - (\phi_l - 1)w_l > \delta$. Fix any $v \geq w_l$. Using (1),

$$\begin{aligned}(\gamma_h - 1)w_h - (\gamma_l - 1)w_l &= (v/w_h + \phi_h - 1)w_h - (v/w_l + \phi_l - 1)w_l \\ &= v + (\phi_h - 1)w_h - v - (\phi_l - 1)w_l \\ &= (\phi_h - 1)w_h - (\phi_l - 1)w_l \\ &> \delta \\ &\geq \delta\left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right),\end{aligned}$$

so that Condition 2 holds. From Remark 1 follows that Condition 1 holds as well because $\beta \geq \delta$. Thus, elitism arises by Proposition 4. Since $v \geq w_l$ was arbitrary, elitism arises for all $v \geq w_l$.

Step 2. I proceed by contraposition. Suppose that $(\phi_h - 1)w_h - (\phi_l - 1)w_l \leq \delta$. I show that there is a $v \geq w_l$ such that elitism does not arise. Fix $v > w_l$ such that $h(v) = 0$, where $h : [w_l, \infty) \to \mathbb{R}$ is given by

$$h(x) = \frac{\beta + x + (\phi_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + w_l + (\phi_l - 1)w_l}{\delta} \right\rfloor - 1,$$

which is negative at $x = w_l$, strictly increasing in x, and approaching infinity with x approaching infinity. Then, $(\beta + v + (\phi_l - 1)w_l)/\delta$ is an integer. Thus, by (1),

$$\frac{\beta + (\gamma_l - 1)w_l}{\delta} = \frac{\beta + v + (\phi_l - 1)w_l}{\delta} = \left\lfloor \frac{\beta + v + (\phi_l - 1)w_l}{\delta} \right\rfloor = \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor.$$

Therefore, using (1),

$$\begin{aligned}(\gamma_h - 1)w_h - (\gamma_l - 1)w_l &= (v/w_h + \phi_h - 1)w_h - (v/w_l + \phi_l - 1)w_l \\ &= v + (\phi_h - 1)w_h - v - (\phi_l - 1)w_l \\ &= (\phi_h - 1)w_h - (\phi_l - 1)w_l\end{aligned}$$

$$\leq \delta$$
$$= \delta \left(1 - \left(\frac{\beta + (\gamma_l - 1)w_l}{\delta} - \left\lfloor \frac{\beta + (\gamma_l - 1)w_l}{\delta} \right\rfloor\right)\right),$$

so that Condition 2 does not hold. Thus, given v, elitism does not arise by Proposition 4. ■

Proposition 8

Proof. Suppose that $\phi_h = 0$. Then, using (1), $w_h > w_l > 0$, and $\phi_l \geq 0$, it follows that $(\gamma_l - 1)w_l = (v/w_l + \phi_l - 1)w_l = v + \phi_l w_l - w_l \geq v - w_l > v - w_h = (v/w_h + \phi_h - 1)w_h = (\gamma_h - 1)w_h$. Thus, Condition 2 does not hold, and elitism does not arise by Proposition 4. ■

Proposition 9

Proof. Fix any $m \leq \bar{m} \equiv w_h - w_l$. Then, using $\gamma_h w_h \leq v + m$ and $\gamma_l w_l \geq v$, it follows that $(\gamma_h - 1)w_h = \gamma_h w_h - w_h \leq v + m - w_h \leq v + \bar{m} - w_h = v + w_h - w_l - w_h = v - w_l \leq \gamma_l w_l - w_l = (\gamma_l - 1)w_l$. Thus, Condition 2 does not hold, and elitism does not arise by Proposition 4. ■