Affluence and Influence Under Tax Competition: Income Bias in Political Attention*

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Abstract

This study reveals that tax competition magnifies the political overrepresentation of the rich in democracy; thus, it prevents redistribution both economically and politically. We develop a capital tax competition model between countries, each comprising two distinct classes: rich and poor. An income bias in political attention creates an overrepresentation of the rich in each country. First, we show that tax competition diminishes the political attention of the poor, amplifying the rich's political influence. Hence, tax competition reduces capital taxation not only through conventional economic channels but also by altering political power in favor of the rich. Remarkably, from a global perspective, the attention of the poor is underprovided for their benefit. Second, rising inequality encourages the poor to pay attention to politics, thereby increasing capital taxation. However, we show that tax competition weakens this mechanism; thus, increasing inequality in tax competition is more likely to lead to reduced capital taxation than in a closed economy.

Keywords: Redistribution; Inequality; Capital tax competition; Political attention; Election

JEL classification: H23, D72, D83

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1 Introduction

To address the challenge of inequality, governments must perform redistribution. For this, capital taxation such as corporate taxation is essential because the rich earn their incomes mainly from capital, not labor. However, despite increasing inequality, capital taxation is weakened in countries such as the United States, preventing redistribution (Saez and Zucman, 2019). This study shows that globalization in the form of tax competition reinforces the political overrepresentation of the rich in democracy and prevents redistribution not only economically but also politically.

The mobility of tax bases is one of the features of globalization, in addition to trade liberalization. As a result of globalization, production factors can move freely across countries, implying that tax bases such as capital are mobile. Therefore, countries lower tax rates to attract mobile tax bases. This feature of globalization results in international tax competition (Devereux, Lockwood and Redoano, 2008), which is expected to impede the expansion of redistribution. Since Zodrow and Mieszkowski (1986) and Wilson (1986), the theory of tax competition has been the subject of extensive economic research (see Keen and Konrad (2013) for a literature review).

The political process plays another key role in taxation. Although the political economy of redistribution tends to assume that each voter has equal power and the media voter theorem holds (Meltzer and Richard, 1981), it is not necessarily true. Despite the "one person, one vote" principle, the actual distribution of political power is far from equal; that is, the rich have large political power, and the interests of the poor are often ignored in the political arena. As underscored by Gilens (2012)'s influential work "*Affluence and Influence*," in the US, when policy preferences of low- and middle-income earners diverge from those of the affluent, policy outcomes do not reflect their preferences (see also Bartels (2008)). This overrepresentation of the wealthy is evident across the world (Lupu and Warner, 2022). Furthermore, in Norway, the overrepresentation of the rich in taxation is driven by not that in labor income taxation but that in capital taxation (Mathisen, forthcoming). This political nature could prevent the expansion of redistribution through capital taxation in addition to globalization.

Nonetheless, the effect of tax competition on the political overrepresentation of the rich has been overlooked. Without considering this political effect, we may mistakenly estimate the impact of tax competition on redistribution. This study is the first attempt to examine how tax competition affects redistribution through changes in the overrepresentation of the rich. Subsequently, we gain a deeper understanding of the impact of globalization on the political economy of redistribution.

For this purpose, we construct a capital tax competition model with n symmetric countries. Each country has a continuum of residents, who are divided into rich and poor depending on their capital endowment. Thus, capital taxation is a redistributive method. Capital is freely mobile across countries, which creates tax competition.

We formalize the overrepresentation of the rich by focusing on income bias in political knowledge. In democratic systems, citizens shape political processes through various forms of participation, including voting, protests, and campaign contributions. Political knowledge is the key to effective participation. Without paying attention to politics and having sufficient political knowledge, individuals cannot identify the candidates they should support.[1] However, empirical studies report income bias in political knowledge (Benz and Stutzer, 2004; Erikson, 2015; Lind and Rohner, 2017), which may create an overrepresentation of the rich (Hodler, Luechinger and Stutzer, 2015; Erikson, 2015; Lind and Rohner, 2017). The overrepresentation of the rich is attributed, at least in part, to the poor's lack of political attention (i.e., political apathy).[2]

Motivated by this, we develop a two-candidate electoral competition model. In each country, two office-seeking candidates propose a capital tax rate subject to probabilistic voting by citizens. The key is the income bias at the attention level. On the one hand, the rich are familiar with policy issues; thus, they can observe the proposed policy platforms without any cost. However, the poor are unfamiliar with policy issues; thus, paying attention is costly for them. Hence, they choose the attention level at which the probability of observing policy platforms depends. In equilibrium, candidates propose a policy platform that maximizes the weighted sum of the rich's utility and the poor's utility (Lindbeck and Weibull, 1987); thus, the relative weight of the rich's utility can be interpreted as the *relative* political influence of the rich. Notably, the attention levels of the poor decrease the relative weight of the rich's utility. Since individuals' choice of attention depends on economic factors, this model allows us to analyze how globalization impacts the political overrepresentation of the rich through an endogenous change in the political attention level of the poor.

Equipped with this model, we address two questions:

(1) How does globalization alter the political influence of the rich?

(2) How does globalization impact the relationship between rising inequality and redistribution, considering changes in political influence?

To answer the first question, we conduct comparative statics of the equilibrium attention level of the poor and the equilibrium tax rate with respect to the number of countries n. When $n = 1$, the model is reduced to a closed economy, implying that the country does not consider tax competition. Therefore, an increase in n can be considered a continuation of globalization. We show that an increase in n magnifies the overrepresentation of the rich by

[1] Various empirical studies find that people do not necessarily understand government fiscal activities (e.g., Kuklinski et al., 2000; Barnes et al., 2018). Furthermore, a burgeoning literature has attempted to resolve the redistribution paradox by emphasizing people's misperceptions of inequality and redistribution (e.g., Kuziemko et al., 2015; Alesina, Stantcheva and Teso, 2018; Windsteiger, 2022).

[2] One might argue that the rich have political influence simply because they provide large campaign contributions. While this explanation is plausible in the US, where parties rely on campaign contributions from interest groups (Bartels, 2008; Gilens, 2012), this is not necessarily the case in other countries, where political donations do not play a key role. For example, political advertisements on television are banned in Norway; thus, opportunities to use money in elections are limited. However, the rich are overrepresented (Mathisen, 2023, forthcoming).

reducing the attention levels of the poor. Consequently, this reduces the equilibrium tax rates across countries. Tax competition intensifies as the number of countries increases. Hence, even if the poor pay considerable attention to taxation politics, they cannot implement high capital taxation. Owing to this redistribution constraint imposed by tax competition, an increase in the number of countries reduces the marginal benefit of paying more attention to the poor. Therefore, the attention level of the poor decreases, resulting in a greater influence of the rich and lower equilibrium capital taxation.

An increase in the number of countries intensifies tax competition and reduces the equilibrium tax rate without endogenous changes in the attention levels of the poor. In addition to this standard economic effect, we identify a novel effect of an endogenous change in the level of political attention paid to the poor. The decline in capital taxation, such as corporate taxation, over the decades has been regarded as a direct economic consequence of tax competition (Keen and Konrad, 2013). However, our results indicate that the indirect political effect of tax competition may significantly contribute to the reduction in tax rates triggered by globalization.

It should be emphasized that a decline in the attention level of the poor is not optimal for them from a global perspective. Specifically, we show that in terms of the world welfare of the poor, their attention is underprovided under tax competition. This can be easily understood based on the logic of fiscal externality. If a country i's poor increases attention, its tax rate increases so that capital flows from the country to other countries. This would increase the other countries' tax revenues and improve the welfare of the poor. However, the poor in country i do not consider the fiscal externality. Therefore, their attention levels were lower than the world's optimal level.

Building on these insights from the first question, we seek to answer the second question: How does globalization impact the relationship between rising inequality and redistribution? Income and wealth inequality has been rising in countries such as the United States (Saez and Zucman, 2019). Given the widening gap between the average and median income, the median voter should increase support for redistribution, which is expected to expand redistribution (Meltzer and Richard, 1981). However, reality has presented a contradiction known as the "redistribution paradox": redistribution does not necessarily expand in practice. Evidently, the size of the US government has remained relatively stable (e.g., Kuziemko et al., 2015). Our second question seeks to resolve this puzzle by emphasizing the effect of globalization.

For this purpose, we restrict our attention to a comparison between a closed economy ($n = 1$) and a two-country economy ($n = 2$). We show that the redistribution paradox is more likely to arise when the society is globalized.

In a closed economy, an increase in inequality leads to higher capital taxation only if the level of inequality exceeds a threshold value. Rising inequality inherently diminishes the support for capital taxation by the rich. Therefore, the overrepresentation of the rich leads to lower capital taxation, keeping the political influence of the rich fixed. Nevertheless, this reduction is countered by an increase in the attention levels of the poor. We show that an increase in inequality increases the attention level of the poor and reduces the political influence of the rich.

As long as the attention level of the poor is strictly positive, this counteracting effect dominates, leading to higher capital taxation. Conversely, when the level of inequality falls below a certain threshold, the attention level of the poor becomes zero, rendering the counteracting effect inconsequential. Thus, capital taxation decreases in response to an increase in inequality. In summary, rising inequality leads to higher capital taxation only when the level of inequality exceeds a threshold value, such that the attention level of the poor is strictly positive.

We show that in the two-country model, this threshold value for inequality decreases, that is, an increase in inequality is more likely to decrease capital taxation in the two-country model than in the closed-economy model. An increase in inequality in one country encourages the attention of the poor in that country, as in the closed-economy model. However, as we show under tax competition, even if the poor pay more attention to taxation politics, they cannot implement high capital taxation. Consequently, the positive effect of rising inequality on the attention level of the poor becomes weaker than in the closed-economy model. Therefore, an increase in inequality is likely to reduce capital taxes. Thus, tax competition impedes the expansion of redistribution induced by rising inequalities.

Taken together, our analysis reveals that tax competition induced by globalization exaggerates the political overrepresentation of the rich, thus impeding redistribution.

Related literature: The present study contributes to three strands of literature. First, various studies on tax competition have analyzed the conflicts between the rich and the poor. However, they assume that each voter's political influence is exogenous (e.g., Persson and Tabellini, 1992; Haufler, 1997; Lorz, 1998; Lockwood and Makris, 2006; Haufler, Klemm and Schjelderup, 2008; Ihori and Yang, 2009; Lai, 2010, 2014; Ogawa and Susa, 2017*a*,*b*; Yang, 2018; Traub and Yang, 2020). For example, Lai (2010) analyzes lobbying by capitalists under tax competition, but the level of lobbying is exogenously given; that is, the weight of the capitalists' utility in the government's objective, interpreted as the level of lobbying, is exogenous. An exception is a study by Lorz (1998), which analyzes how campaign contributions from various interest groups affect the weight of each group in the government's objective function. However, his model assumes symmetric interest groups[3] leading to an equilibrium in which all groups have equal influence irrespective of the degree of tax competition. By contrast, we show that tax competition enhances the political influence of the rich.[4]

Seocnd, the literature on rational ignorance analyzes citizens' endogenous decisions regarding their attention levels to politics. This concept originated from Downs (1957) and was formalized by Martinelli (2006), who introduced voters' costly information acquisition into a voting game with a finite population. Matějka and Tabellini (2021) adopt the modern frame-

[3]Each interest group has a representative voter, and the capital endowment of a representative voter is distributed around the average income across interest groups. Each group's cost for campaign contributions is also the same.

[4]Studies on strategic delegation examine to whom the median voter delegates the policy-making (e.g., Persson and Tabellini, 1992; Ihori and Yang, 2009; Ogawa and Susa, 2017*a*,*b*). In this sense, whether a policymaker is rich or poor is determined endogenously. However, as a median voter, the median capital owner chooses the delegated policymaker, which is given exogenously.

work of rational inattention a la Sims (2003) and analyze its impact on electoral competition with probabilistic voting. Its impact on taxation politics has been analyzed by Larcinese (2005), Hodler, Luechinger and Stutzer (2015), Eguia and Nicolò (2019), and Murtinu, Piccirilli and Sacchi (2022). The study by Larcinese (2005) is particularly relevant because it analyzes the effect of voters' information acquisition on redistribution within the median voter framework. Our study is distinct in two ways. First, unlike Larcinese (2005), which focuses on a closed economy, ours is the first to examine the interplay between globalization and voter attention in taxation politics. Second, our model diverges by considering political rather than private economic decisions as incentives for information acquisition. Consequently, inequality reduces the political influence of the rich in our model, whereas it has an ambiguous effect in his model.

Third, this study contributes to political economy literature of redistribution by addressing the redistribution paradox. Benabou (2000) finds that when redistribution generates gains in ex-ante efficiency, rising inequality may reduce redistribution; Moene and Wallerstein (2001) find it by considering a model of social insurance; Campante (2011) shows it through an endogenous shift of campaign contributions; and Windsteiger (2022) shows it in an environment where people may misperceive the shape of the income distribution due to segregation. By contrast, our study introduces a novel angle, suggesting that higher inequality reduces the political power of the rich, but this effect is discouraged by globalization.

The remainder of this paper is organized as follows: Section 2 describes the model. Section 3 characterize the equilibrium. Section 4 addresses the first question and Section 5 addresses the second question. Section 6 provides a supplementary discussion. Finally, Section 7 concludes the paper.

2 Model

2.1 Economy

There are n symmetric countries ($n \geq 1$), which are integrated with the international capital market. In each of these countries, there is a continuum of residents with measure one. The production of private goods requires labor and capital under constant returns-to-scale technology. Subsequently, we extend the model to an asymmetric case.

Each resident owns one unit of labor and provides it inelastically. Labor is immobile across countries. Additionally, each resident owns a different amount of capital, which is the focus of this study.[5] Specifically, a fraction $\theta \in (0, 1)$ of residents is rich in that they own k^R capital, whereas the remaining $1 - \theta$ fraction of residents is poor in that they own $k^P \in [0, k^R)$ capital. Hence, the initial capital per-capita endowment in each country is $\bar{k} := \theta k^R + (1 - \theta)k^P$. In

[5]This specification has been widely used in the literature (e.g., Persson and Tabellini, 1992; Lorz, 1998; Ihori and Yang, 2009; Ogawa and Susa, 2017*a*,*b*). In another setting, inequalities in labor income and capital income coexist. Yang (2018) and Traub and Yang (2020) assume that labor and capital incomes are positively correlated, whereas Haufler (1997) and Lai (2010) assume that the rich own capital, but the poor own labor.

contrast to labor, capital is freely mobile across countries, and there are no absentee capital owners (i.e., the total capital in this economy is $n\bar{k}$). Each country's government imposes a tax on capital used within the country.

Markets: In each country, there is a continuum of firms with measure one whose production technology is common. Since we assume constant returns-to-scale technology, this yields perfect competition in each country. In particular, the production function per-capita in country i is given by $f(k_i) = (A - k_i)k_i$, where k_i represents the amount of capital per-capita in country i and $A > 0$ represents the productivity of country i.[6] We assume $A \geq 2n\bar{k}$.[7] Then, the firm's profit in country i is $\Pi_i = (A - k_i)k_i - w_i - r_i k_i - t_i k_i$, where w_i is the wage rate, r_i is the interest rate, and t_i is the unit capital tax rate in country i. Whether taxes are paid by firms or capital owners does not change results.

Capital is mobile across countries; therefore, $r_i = r$ for all i. This implies that $r = f'(k_i) - t_i = A - 2k_i - t_i$ for all i and $n\bar{k} = \sum_{i=1}^{n} k_i$. Combining these two yields the amount of capital and interest rate:

$$k_i = \bar{k} - \frac{(n-1)t_i - \sum_{j\neq i} t_j}{2n}; \tag{1}$$

$$r = A - 2\bar{k} - \frac{\sum_{i=1}^{n} t_i}{n}. \tag{2}$$

Governments: In each country, the government chooses a unit tax rate on the capital used within the country, t_i,[8] and produces the public good, g_i. Production technology for public goods is linear. In particular, one unit of public good is produced by one unit of private good. Hence, $g_i = t_i k_i$. Note that the good provided by the government does not have to be non-rivalrous: private goods provided by the government can be also interpreted as g_i.

Residents' economic utility: Consider resident j in country i. From economic activities, he or she obtains a utility

$$x_{ij} + (1+\alpha)g_i - \frac{c}{2}t_i^2,$$

where x_{ij} is the consumption of a private numeraire good and $c > 0$. Here, $\alpha \in [0,1)$ represents the strength of the preference for public goods.[9] $\frac{c}{2}t_i^2$ captures the distortion of capital taxation,

[6]This production technology is homogeneous of degree one. Furthermore, together with residents' preferences described later, this technology yields the linear best response functions, enabling us to obtain a closed-form solution for the equilibrium tax rates. This technology has been widely adopted in the literature on strategic tax competition (e.g., Bucovetsky, 1991; Hindriks, Peralta and Weber, 2008; Itaya, Okamura and Yamaguchi, 2008; Ogawa and Susa, 2017*a*,*b*).

[7]The level of productivity must be sufficiently large to ensure k_i to be less than the capital level at which the production function has its maximum.

[8]One might think that capital taxation should be zero under non-linear income taxation by the famous zero capital tax result of Atkinson and Stiglitz (1976). However, because heterogeneity in capital income is not fully correlated with heterogeneity in labor income in our model, their result does not apply (Saez and Stantcheva, 2018): capital taxation is necessary for redistribution.

[9]For this interpretation, see Kawachi, Ogawa and Susa (2019). Another interpretation is that $1+\alpha$ is the marginal cost of public funds in country i. See, for example, Keen and Konrad (2013).

such as the administrative cost of taxation (e.g., Bolton and Roland, 1997). Note that $\frac{c}{2}t_i^2$ is introduced because each resident's ideal tax rate is always a corner solution in a closed economy without this term. Even without this term, the same results hold when we restrict attention to the cases with $n \geq 2$ by setting $c = 0$. In addition, to ensure that the tax rate is always positive, we assume that $\alpha \geq \frac{k^R}{\bar{k}} - 1$.

The total income of resident j in country i consists of labor income and rent from the capital. Labor income is $f(k_i) - f'(k_i)k_i$. Thus, $x_{ij} = f(k_i) - f'(k_i)k_i + rk_j$, where $k_j \in \{k^P, k^R\}$ is capital resident j. By substituting them into the utility function above, we obtain

$$U_i(k_j|\boldsymbol{t}) := f(k_i) - f'(k_i)k_i + rk_j + (1+\alpha)t_i k_i - \frac{c}{2}t_i^2,$$

where $\boldsymbol{t} := (t_1, ..., t_n)$. Since the amount of tax payment increases with the amount of owned capital, capital taxation works as a way to redistribute capital within a country. In practice, capital taxation is essential for redistribution (Saez and Zucman, 2019).

2.2 Electoral Competition

In each country, two candidates run for election: A and B (for ease of notation, we omit i). The objective of each candidate is to maximize his or her probability of winning an election. The electoral competition game proceeds as follows: At the beginning of the game, each voter decides the amount of attention to be paid to taxation politics. After observing this, both candidates simultaneously propose a tax rate (t_{iA}, t_{iB}). Each voter observes policy platforms with a positive probability, depending on the amount of attention paid to taxation politics. Each voter decides which candidate to vote for. The winning candidate with the majority of voters implements the tax rate promised during the election. This process occurs simultaneously in all countries. After this political process, markets open, and economic activities take place as specified in the previous subsection.

Attention: We first introduce the model of how people rationally pay attention to taxation politics. Motivated by the empirical findings that the poor have less political knowledge (Benz and Stutzer, 2004; Lind and Rohner, 2017),[10] we assume asymmetry in the cost of information acquisition between the rich and poor. This asymmetry has also been assumed in theoretical studies (Hodler, Luechinger and Stutzer, 2015; Lind and Rohner, 2017).

On the one hand, the rich are familiar with policy issues. Thus, we assume that they can observe (t_{iA}, t_{iB}) without any cost. In other words, they observe policy platforms. However, the poor are unfamiliar with policy issues; thus, paying attention is costly for them. Specifically, a poor voter j chooses the amount of attention $q_{ij} \in [0, 1]$, considering its cognitive cost. If they pay q_{ij} amount of cost, they can observe (t_{iA}, t_{iB}) only with probability q_{ij} (nothing is observed with the remaining probability). However, this requires cost κq_{ij} for voter j where

[10] This assumption is also consistent with income bias in turnout (Matsubayashi and Sakaiya, 2021).

$\kappa > 0$.[11]

Since there is a continuum of residents, each poor resident's choice of q has no impact on electoral competition, and self-interested residents have no incentive to choose a positive q as Downs (1957) advocates. This is consistent with the theoretical result that voters have no incentive to ballot in a large election (Feddersen, 2004). Nonetheless, a certain fraction of low-income earners acquire political information by incurring the attention cost in reality. Empirical studies indicate that fulfilling the civic duty of staying informed is a significant motivation (McCombs and Poindexter, 1983; Kam, 2007). Therefore, we assume that the poor can overcome the free-rider problem because they feel a duty to remain informed.[12] Moreover, the social norms regarding the extent of political attention the poor should pay are endogenously determined within their community.

For this purpose, as Harsanyi (1980) and Coate and Conlin (2004) assumed in analyzing voter turnout, we adopt a group rule–utilitarian approach: As a community, voters choose the attention level that would maximize the utility of the group to which they belong if it were followed by everyone else in the group. In other words, the attention level that maximizes the utility of the group is formed as a civic duty among the group. Specifically, each poor person in country i chooses the level of q optimal for maximizing the sum of utility among the poor in the country. Let the equilibrium utility of the poor in the country i Given that all the poor in the country pay q amount of attention is $V_i^{P*}(q)$. Every poor voter in country i chooses q which maximizes $V_i^{P*}(q)$.

All poor voters in country i choose the same attention level because they are homogeneous. Their choice in country i is observable to candidates and residents in country i but unobservable to players in other countries.

In summary, let (t_{iA}^*, t_{iB}^*) be the equilibrium policy platform in country i. Letting the expectation of t_{ik} $(k = A, B)$ for resident j in country i be $\tilde{t}_{ik}^j$, we have the following: when the realized policy platforms are (t_{iA}, t_{iB}), $\tilde{t}_{ik}^j = t_{ik}$ always holds for the rich resident, whereas for

[11] We do not adopt the rational attention model a la Sims (2003) where an agent can choose any information structure, and the attention cost is proportional to the expected entropy reduction. While this approach is attractive, our model is a complete information game. Without any information acquisition, residents perfectly predict policy platforms on the equilibrium path. Hence, the reduction in uncertainty in the sense of the expected entropy reduction is zero on the equilibrium path; thus, such an approach is unavailable. To resolve this problem, exogenous shocks to policy platforms that create uncertainty must be introduced (Matějka and Tabellini, 2021). While this is feasible in a closed economy, it implies that residents face uncertainty about the opponent country's tax rate; thus, characterizing the equilibrium under tax competition is complicated. Therefore, a different setting is adopted in this study.

[12] Matějka and Tabellini (2021) apply a similar idea to resolve this free-riding problem about attention.

the poor resident,[13]

$$(\tilde{t}^j_{iA}, \tilde{t}^j_{iB}) = \begin{cases} (t_{iA}, t_{iB}) \text{ with probability } q_{ij} \\ (t^*_{iA}, t^*_{iB}) \text{ with probability } 1 - q_{ij} \end{cases} .$$

Note that the cost of information acquisition for the rich does not have to be zero, although we assume this for simplicity. Even if the cost for the rich is positive, they choose $q = 1$ as long as the cost is sufficiently low.

Probabilistic voting: We formalize voting as probabilistic voting (Lindbeck and Weibull, 1987; Dixit and Londregan, 1996), which has been widely adopted in the literature on the political economy of public finance (e.g., Persson and Tabellini, 2002). Without probabilistic voting, the median voter theorem holds, resulting in either the rich or the poor having full political power while the other group has none, depending on which group constitutes the median voter. Probabilistic voting allows for the analysis of situations where both groups have political influence.

Let $\boldsymbol{t}^E_{-i}$ be the equilibrium tax rate for countries other than i. Resident j in country i votes for candidate A if and only if

$$U_i(k_j|\tilde{t}^j_{iA}, \boldsymbol{t}^E_{-i}) \geq U_i(k_j|\tilde{t}^j_{iB}, \boldsymbol{t}^E_{-i}) + \zeta_{ij} + \eta_i. \tag{3}$$

In addition to economic utility, stochastic factors influence voting behavior. These factors were formulated using ζ_i and η. ζ_{ij} is an idiosyncratic shock specific to resident j that follows the uniform distribution $U[-1/(2\gamma), 1/(2\gamma)]$, whereas η_i is an aggregate shock common across residents in country i that follows the uniform distribution $U[-1/(2\psi), 1/(2\psi)]$. We assume that γ and ψ are sufficiently small, such that every voter's probability of voting for A lies in $(0, 1)$ in the equilibrium. The assumption of uniform distributions is not crucial; for any differentiable distribution, Lemma 1 holds, but some conditions must be imposed to guarantee the existence of an equilibrium (Lindbeck and Weibull, 1987).

2.3 Timing of the Game and Equilibrium Concept

1. Poor residents in each country simultaneously determine their attention level, q_{ij}. The value of q_{ij} is observable to candidates in country i, but it is unobservable to residents and candidates in other countries.

2. Candidates in each country simultaneously propose their policy platforms.

[13] With probability $1 - q_{ij}$, the poor cannot observe the actual policy platforms. However, they should precisely predict the equilibrium policy platforms, although the poor cannot notice politicians' deviations from the equilibrium. Hence, $(\tilde{t}^j_{iA}, \tilde{t}^j_{iB}) = (t^*_{iA}, t^*_{iB})$ is assumed. While this rational expectation is an element of the standard equilibrium concept, the poor in the real world may form expectations differently when (t_{iA}, t_{iB}) is unobservable. Our results remain the same and independent of the choice of expectation formation.

3. Voters in country i (imperfectly) observe policy platforms of candidates in the country and vote for one of the two candidates.

4. In each country, the winning candidate implements his or her committing tax rate.

5. Residents decide where to invest their capital,[14] and both production and consumption take place.

We characterize the pure-strategy subgame perfect equilibrium of this game.

3 Equilibrium

3.1 Benchmark: Equilibrium in Closed Economy

We begin by deriving the equilibrium in a closed economy (i.e., $n = 1$).

Electoral competition: Given that the candidates are homogeneous, we derive a symmetric equilibrium in which both candidates propose the same tax rate and let $t^*(q)$ be the equilibrium platform of the tax rate given q. We derive $t^*(q)$.

First, by computing each voter's voting behavior, we obtain the probability of candidate A's winning as follows (see the Online Appendix for the derivation):

$$\pi(t_A, t_B) :== \frac{1}{2} + \psi \left[\theta(U(k^R|t_A) - U(k^R|t_B)) + (1-\theta)q(U(k^P|t_A) - U(k^P|t_B)) \right].$$

When q is low, the poor are unlikely to observe policy platforms; thus, even if candidate A's taxation policy is attractive to the poor, it does not much change voting behaviors of the poor. Therefore, in the above formulation, $U(k^P|t_A) > U(k^P|t_B)$ significantly contributes to candidate A's winning only when q is sufficiently high.

Since the candidates are symmetric, we focus on candidate A's incentive without loss of generality. Given $t_B = t^*(q)$, candidate A maximizes $\pi(t_A, t^*(q))$. By taking the first-order condition,[15] we have

$$\theta \frac{\partial U(k^R|t_A)}{\partial t_A} + (1-\theta)q \frac{\partial U(k^P|t_A)}{\partial t_A} = 0.$$

This yields the following lemma.

Lemma 1. *$t^*(q)$ is given by the solution to maximizing the following weighted utilitarian social welfare function:*

$$\frac{\theta}{\theta + (1-\theta)q} U(k^R|t) + \frac{(1-\theta)q}{\theta + (1-\theta)q} U(k^P|t).$$

[14] As firms are the taxpayers, only each country's interest rate matters for residents. Therefore, residents do not have to know tax rates even when deciding where to invest their capital.

[15] $\pi(t_A, t_B)$ is a concave function with respect to t_A; thus, it suffices to consider the first-order condition.

Furthermore, this social welfare function is equal to $U(\tilde{k}(q)|t)$, *where*

$$\tilde{k}(q) := \frac{\theta k^R + (1-\theta) q k^P}{\theta + (1-\theta) q}.$$

In other words, $t^*(q)$ *is given by the solution to maximize the utility of a hypothetical resident owning* $\tilde{k}(q)$ *amount of capital.*

As in the probabilistic voting literature (Lindbeck and Weibull, 1987), the equilibrium policy platform provides a solution to a weighted utilitarian social welfare function. Hence, we capture the political influence of the rich by their relative weight in the social welfare function $\frac{\theta}{(1-\theta)q}$. Notably, this weight depends on endogenous attention levels of the poor. When $q < 1$, the rich are overrepresented in politics compared to their population size, which is consistent with empirical findings (Bartels, 2008; Gilens, 2012; Mathisen, 2023, forthcoming; Erikson, 2015). Furthermore, because each resident's utility is linear with respect to the capital endowment, the weighted utilitarian social welfare is equivalent to the utility of a hypothetical resident owning $\tilde{k}(q)$ capital. This property will simplify the calculations in the following analysis.

By solving $t^*(q)$ based on the above lemma, we obtain the exact value of $t^*(q)$ as follows:

Lemma 2. *Given* q, *the equilibrium tax rate is*

$$t^*(q) = \frac{1}{c}\left[(1+\alpha)\bar{k} - \tilde{k}(q)\right].$$

This is always non-negative under the assumption that $\alpha \geq \frac{k^R}{\bar{k}} - 1$. $t^*(q)$ decreases with $\tilde{k}(q)$. As in Lemma 1, each candidate's policy platform maximizes the utility of the hypothetical resident owning $\tilde{k}(q)$ amount of capital. The larger capital one owns, his or her ideal tax rate decreases because a richer resident has a stronger incentive to receive a higher return of capital.[16] Thus, the tax rate for $\tilde{k}(q)$ is decreasing in $\tilde{k}(q)$. Furthermore, by the construction of $\tilde{k}(q)$, $\tilde{k}(q)$ decreases with q. Together, these properties imply that $t^*(q)$ increases with q. This property incentivizes the poor to pay more attention to taxation.

Attention level of the poor: By paying more attention to taxation politics (i.e., by increasing q), the poor can increase the equilibrium tax rate. Considering this effect, the poor determine their attention levels. Specifically, the poor solve the following problems:

$$\max_q U(k^P|t^*(q)) - \kappa q.$$

This leads to the following proposition: (The omitted proofs are provided in the Appendix.)

[16]Equation (2) shows that a lower tax rate increases capital prices.

Proposition 1. *The equilibrium attention level of the poor in the closed economy, $q^E(1)$, is given as follows:*

$$q^E(1) = \min\left\{\max\left\{\frac{\left(\frac{\theta^2(1-\theta)(k^R-k^P)^2}{c\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}, 0\right\}, 1\right\}.$$

Furthermore, the equilibrium tax rate $t^E(1)$ is given by

$$t^E(1) = t^*(q^E(1)) = \frac{1}{c}\left[(1+\alpha)\bar{k} - \tilde{k}(q^E(1))\right].$$

1 in the parentheses in q^E and t^E represents $n = 1$. The equilibrium attention level has a reasonable property: an increase in the attention cost (i.e., a higher κ) weakly reduces q^E.

3.2 Equilibrium Under Tax Competition

Now, we analyze the equilibrium with $n \geq 2$.

Electoral competition: Consider country i. Given that other countries implement tax rates $\boldsymbol{t}_{-i}^E$, resident j's utility when candidate k wins country i is $U(k^j|t_{ik}, \boldsymbol{t}_{-i}^*)$. Hence, as in the closed-economy case, candidate A in country i chooses a tax rate that satisfies the following first-order condition:

$$\theta\frac{\partial U_i(k^R|t_{iA}, \boldsymbol{t}_{-i}^E)}{\partial t_{iA}} + (1-\theta)q_i\frac{\partial U_i(k^P|t_{iA}, \boldsymbol{t}_{-i}^E)}{\partial t_{iA}} = 0.$$

Therefore, as in Lemma 1, we obtain the equilibrium policy platform of country i given q_i:

Lemma 3. *Let $t_i^*(q_i; \boldsymbol{t}_{-i}^E)$ be each candidate's policy platform given that country i's attention level is q_i and the other countries choose tax rates $\boldsymbol{t}_{-i}^E$. $t_i^*(q_i; \boldsymbol{t}_{-i}^E)$ is a solution that maximizes the following weighted utilitarian social welfare function:*

$$\frac{\theta}{\theta+(1-\theta)q}U_i(k^R|t_i, \boldsymbol{t}_{-i}^E) + \frac{(1-\theta)q}{\theta+(1-\theta)q}U_i(k^P|t_i, \boldsymbol{t}_{-i}^E).$$

Furthermore,

$$\frac{\theta}{\theta+(1-\theta)q}U_i(k^R|t_i, \boldsymbol{t}_{-i}^E) + \frac{(1-\theta)q}{\theta+(1-\theta)q}U_i(k^P|t_i, \boldsymbol{t}_{-i}^E) = U_i(\tilde{k}(q_i)|t_i, \boldsymbol{t}_{-i}^E).$$

By solving the maximization problem in the lemma above, we obtain the best response function for country i, $t_i^*(q_i; \boldsymbol{t}_{-i}^E)$. In the following, we consider a symmetric equilibrium in which every country chooses the same tax rate, t^E.

Lemma 4. *Suppose that $t_k^E = t^E$ for any $k \neq i$. Then,*

$$t_i^*(q_i; \boldsymbol{t}_{-i}^E) = \frac{2n}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c}\left[(1+n\alpha)\bar{k} - \tilde{k}(q_i)\right] + \frac{1+n\alpha}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c} t^E.$$

Note that $t_i^*(q_i; \boldsymbol{t}_{-i}^E)$ is always positive under the assumption of α as long as the other countries choose a non-negative tax rate. While this formulation is more complicated than that in a closed economy, its basic property remains. The best response is a decrease in $\tilde{k}(q_i)$; that is, greater attention from the poor in the country i leads to a higher tax rate. When $n = 1$, the above formulation is reduced to Lemma 2.

Attention level of the poor: Considering this effect of attention on electoral competition, the poor in country i solve the following problem:

$$\max_q U_i(k^P | t_i^*(q_i), \boldsymbol{t}_{-i}^E) - \kappa q.$$

Note that country i's choice of q is unobservable in other countries; thus, the choice of q_i does not affect the tax rates of the other countries.[17]

By solving this problem for each country, we derive the equilibrium attention level as follows:

Proposition 2. *The equilibrium attention level of the poor, $q^E(n)$, is given by*

$$q^E(n) = \min\left\{\max\left\{\frac{\left(\frac{2\theta^2(1-\theta)(k^R - k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c]\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}, 0\right\}, 1\right\}.$$

Furthermore, the equilibrium tax rate $t^E(n)$ is given by:

$$t^E(n) = \frac{2\left[(1+n\alpha)\bar{k} - \tilde{k}(q^E(n))\right]}{(n-1)(1+\alpha) + 2nc}.$$

The equilibrium attention level and equilibrium tax rate are reduced to those of a closed economy.

4 Effect of Globalization

Our main interest lies in the effects of globalization. An increase in n represents an increasing number of countries integrating into the international capital market. Therefore, n captures the

[17] If q_i is observable to other countries, the choice of q_i implies that country i publicly commits to a specific social welfare function in the tax competition stage, through which it affects the other countries' tax rates. Therefore, the poor should take this strategic commitment effect into account, as in the literature of strategic delegation (e.g., Persson and Tabellini, 1992; Ihori and Yang, 2009; Ogawa and Susa, 2017*a*,*b*). Our assumption that country i's choice of q is unobservable in other countries eliminates the strategic commitment effect.

extent of globalization.

4.1 Effect on Political Influence of the Rich

An increase in n influences the value of $q^E(n)$ as follows:

Proposition 3. *$q^E(n)$ is weakly decreasing in n; that is, the political influence of the rich, $\frac{\theta}{(1-\theta)q^E(n)}$, is weakly increasing in n.*

Hence, globalization magnifies the political influence of the rich by reducing the attention level of the poor. Tax competition intensifies as the number of countries increases. Hence, even if the poor pay considerable attention to taxation politics, they cannot implement high capital taxation. Owing to this redistribution constraint imposed by tax competition, an increase in the number of countries reduces the marginal benefit of paying more attention to the poor. Therefore, the attention level of the poor decreases, as in Proposition 3.

This property is consistent with empirical patterns. Several empirical studies show that globalization, especially capital market integration, reduces voters' political participation measured by turnout (Steiner, 2010; Marshall and Fisher, 2015). Although their focus is not on voters' intentions for information acquisition, and they do not distinguish between the rich and the poor, it echoes our theory in that globalization increases political apathy.

4.2 Effect on Taxation

This reduction of the attention level of the poor further magnifies tax competition. To observe this, suppose that the number of countries changes from $\tilde{n}-1$ to $\tilde{n}$. Furthermore, consider a hypothetical scenario in which the number of countries becomes $\tilde{n}$ but the value of q_i remains at $q^E(\tilde{n}-1)$. The equilibrium tax rate in this hypothetical scenario is given by

$$t^*(\tilde{n}|q^E(\tilde{n}-1)) = \frac{2\left[(1+\tilde{n}\alpha)\bar{k} - \tilde{k}(q^E(\tilde{n}-1))\right]}{(\tilde{n}-1)(1+\alpha)+2\tilde{n}c}.$$

Using this notation, the change in the equilibrium tax rate can be decomposed as follows:

$$\underbrace{t^E(\tilde{n}-1) - t^E(\tilde{n})}_{\text{Total change of tax rate}} = \underbrace{t^*(\tilde{n}-1|q^E(\tilde{n}-1)) - t^*(\tilde{n}|q^E(\tilde{n}-1))}_{\text{(a) Direct economic effect of tax competition}} + \underbrace{t^*(\tilde{n}|q^E(\tilde{n}-1)) - t^*(\tilde{n}|q^E(\tilde{n}))}_{\text{(b) Effect of increased political influence of the rich}}.$$

The first term, (a), represents the direct impact of tax competition; changes in tax rates, assuming the attention level of the poor remain constant. However, this is not the only effect observed. Term (b) represents another effect. As demonstrated in Proposition 3, an increase in the number of countries leads to a decrease in the political attention level of the poor, which, in turn, amplifies the political influence of the rich and subsequently alters tax rates.

Generally, the direct economic effect (a) is not always negative. When $\tilde{k}$ takes a high value close to k^R (i.e., when the rich have significant political power), the direct economic effect can

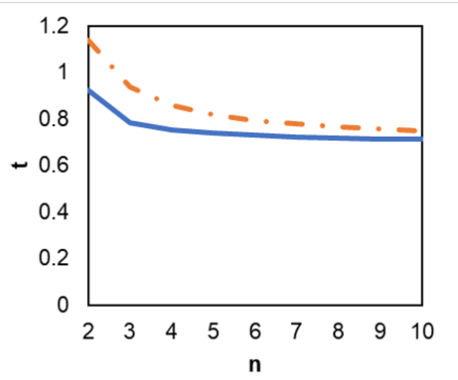


Figure 1: Equilibrium tax rate ($\theta = 0.3$, $k^R = 1.5$, $k^P = 1$, $\alpha = 0.6$, $\kappa = 0, 1$, and $c = 0.2$)

be positive under certain parameter values. [18] To focus our analysis on more typical scenarios in which an increase in the number of competing countries intensifies tax competition while keeping political power constant, suppose that

$$k^R < \left(1 + \frac{\alpha^2 + \alpha}{1 + \alpha + 2c}\right) \bar{k}. \tag{4}$$

This assumption guarantees that (a) is negative. Furthermore, a reduction in the attention level of the poor decreases the tax rate due to the greater political power of the rich. Therefore, (b) is non-positive. Combining these results leads to the fact that globalization reduces the capital tax rate in total.

Corollary 1. *Suppose (4) holds. $t^E(n)$ decreases in n.*

Figure 1 shows this property through a numerical example in which we compare the values of $t^E(n)$ (straight line) and $t^*(n|q^E(1))$ (dotted line) for $n = 2, \ldots, 10$. For $n = 1$, both are the same by definition; therefore, we omit the values for $n = 1$. Both $t^E(n)$ and $t^*(n|q^E(1))$ decrease with n. However, $t^E(n) > t^*(n|q^E(1))$. This difference reflects the effect of an increase in political influence. For example, suppose you are in a closed economy and would attempt to estimate the equilibrium tax rate when the country faces two-country competition. As a result of a change in political power, the actual equilibrium tax rate would be approximately 0.92 in the two-country competition. However, it is around 1.16 when political power is fixed, as in a closed economy. Thus, without considering the shift in political power, we overestimate the equilibrium tax rate by approximately 23 %.

The decline in capital taxation, such as corporate taxation, over the decades has been regarded as a direct economic consequence of tax competition (Keen and Konrad, 2013).

[18] To see this, notice that the rich dislike capital taxation from the following two perspectives. First, higher taxation in a country causes capital flights, which reduces the country's output and public goods provision. Second, it reduces the interest rates in the integrated capital market; this is called the terms-of-trade effect. An increase in n magnifies the former negative effect but mitigates the latter. Therefore, if the latter is dominant, a larger n increases the ideal tax rate of the rich (e.g., Lai, 2010). Condition (4) requires that α (the importance of public goods provision) be sufficiently large such that the former is dominant.

However, our results indicate that indirect political effects may contribute significantly to the reduction in tax rates triggered by globalization.

4.3 Under-Provision of Attention by the Poor

Thus far, we have analyzed how tax competition influences the political influence of the rich. We close this section by pointing out that the attention of the poor is underprovided from an international perspective because the poor in each country ignore fiscal externality.

Suppose that the poor worldwide choose their attention levels in a coordinated manner. Note that we do not consider tax coordination; that is, countries choose their tax rates non-cooperatively. Let the equilibrium tax rate when the poor globally choose the attention level q; then, countries involved in tax competition be $t^C(q)$. The poor maximize the sum of their utility across the world:

$$\max_q n\left[U(k^P | t_1 = ... = t_n = t^C(q)) - \kappa q\right].$$

The solution to this problem, q^C, is the attention level the poor choose if they can coordinate across countries. This value is (weakly) greater than the equilibrium attention level; that is, the attention level of the poor to taxation politics is underprovided in equilibrium:

Proposition 4. *$q^C \geq q^E$ holds, where the strict inequality holds if neither $q^C = q^E = 1$ nor $q^C = q^E = 0$ holds.*

It should be emphasized that the underprovision of attention within a country is completely resolved because we assume that the poor in each country are group utilitarian and maximize the aggregate utility of the poor in the country. Nonetheless, tax competition creates an underprovision of attention from a global perspective. The rationale behind this is as follows. If country i's poor increase their attention level, the country i's tax rate increases, so that capital flows from the country to other countries. This would increase the tax revenue of other countries and improve the welfare of the poor. However, the poor in country i do not consider this fiscal externality when determining their attention levels. Therefore, their attention levels were lower than their socially optimal levels. As such, when the poor globally behave noncooperatively, their attention levels tend to be excessively low. This result reveals that tax competition creates an under-provision of the attention level of the poor, that is, tax competition creates excessive political power for the rich.

5 Effect of Rising Inequality

Based on the previous discussion, we analyze how an increase in inequality in one country influences the political influence of the rich and the tax rate in each country. The question of whether economic inequality increases political inequality has attracted attention in the empirical literature of political science (Solt, 2008; Matsubayashi and Sakaiya, 2021). Furthermore, whether rising inequality increases taxation is one of the most important research questions in politicla economy of redistribution since Meltzer and Richard (1981).

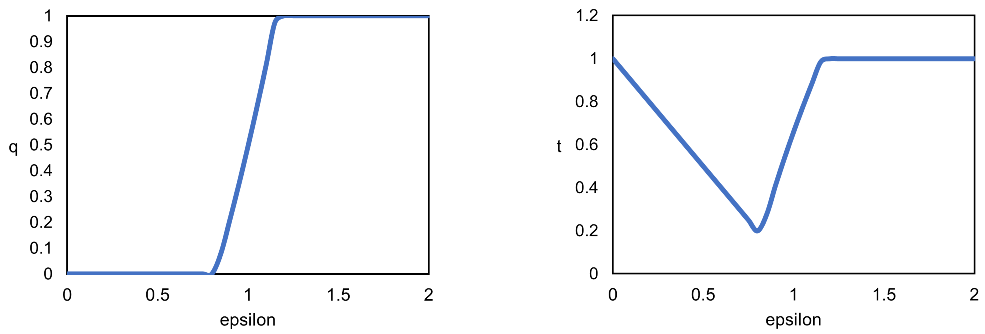
5.1 Closed Economy

We start with the closed economy case. An increase in inequality can be interpreted as a mean-preserving spread of income distribution, keeping the average income fixed. To describe this, we assume $\theta = 0.5$, $k^R = \bar{k} + \varepsilon$, and $k^P = \bar{k} - \varepsilon$, where $\varepsilon \in [0, \bar{k}]$. Although this is restrictive, it enables us to capture an increase in inequality using a single parameter, ε.

Effect on political influence of the rich: By using the result in Proposition 1, we derive the effect of an increase in ε as follows:

Proposition 5. *There exists $(\underline{\varepsilon}, \bar{\varepsilon})$ such that (i) $q^E(1) = 0$ if $\varepsilon \leq \underline{\varepsilon}$; (ii) $q^E(1)$ is strictly increasing in ε for $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$; and (iii) $q^E(1) = 1$ if $\varepsilon \geq \bar{\varepsilon}$.*[19]

This proposition indicates that the attention level of the poor increases weakly with the level of inequality. As the extent of inequality increases, the conflict of interest between rich and poor increases. Hence, the poor have a greater incentive to influence the political process, leading to a higher level of attention. This can be visualized, as shown in Figure 2a. Thus, an increase in inequality weakly reduces the political influence of the rich.



(a) Attention level

(b) Tax rate

Figure 2: Effect of inequality in closed economy ($\bar{k} = 2, \alpha = 0.5, c = 1, \kappa = 1.2$)

Effect on taxation: However, this reduction of the political influence of the rich does not necessarily lead to a higher capital tax rate. We obtain the following result, which we also show in Figure 2b.

[19] $\underline{\varepsilon} > 0$ is ensured, but whether $\bar{\varepsilon} < \bar{k}$ holds depends on the value of κ. If κ is sufficiently large, $\bar{\varepsilon} > \bar{k}$ may hold.

Proposition 6. $t^E(1)$ *is: (i) decreasing in* ε *for* $\varepsilon < \underline{\varepsilon}$*, (ii) increasing in* ε *for* $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$*, and (iii) a constant for* $\varepsilon > \bar{\varepsilon}$*.*

First, suppose that $\varepsilon < \underline{\varepsilon}$; that is, the extent of inequality is small, and thus the conflict of interest between the rich and poor is limited. In this case, the poor pay no attention to taxation politics, implying that the rich's ideal tax rate is implemented. As inequality increases, the capital endowment of the rich also increases, thus reducing the ideal tax rate. Consequently, an increase in inequality reduces the equilibrium tax rate when the extent of inequality is sufficiently small.

Second, suppose that $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$; that is, the extent of inequality is intermediate, such that the poor pay attention to taxation politics. In this case, there are two opposing effects. On the one hand, an increase in inequality increases the attention level of the poor, which reduces the rich's political influence and the tax rate. On the other hand, the rich are overrepresented because their attention levels are less than one. Hence, keeping the attention level of the poor fixed, an increase in inequality reduces the tax rate because the rich dislike taxation more. In other words, keeping q fixed, a higher ε increases $\tilde{k}(q)$, which is the capital endowment of a hypothetical resident whose utility is maximized during the political process. Therefore, the overall effect depends on the dominant effect. In our specification, the former effect always dominates the latter. Thus, an increase in inequality increases tax rates.

Finally, suppose that $\varepsilon > \bar{\varepsilon}$; that is, the extent of inequality is so severe that the poor pay maximum attention to taxation. In this case, the rich are no longer overrepresented; thus, politicians maximize utilitarian social welfare. As residents' utilities are linear in the present model, an increase in inequality does not influence the implemented tax rate (i.e., only the average income matters). In other words, $\tilde{k}(q)$ is independent of ε when $q = 1$. Therefore, the tax rate remains constant.

Thus, an increase in inequality has a non-monotonic effect on redistributive taxation.

5.2 Tax Competition

Next, we analyze how tax competition alters these results in a closed economy. Since our interest lies in how an increase in inequality in one country influences equilibrium, it is inevitable to depart from the assumption of symmetric countries. For example, even if every country's initial level of inequality is the same, rising inequality in country 1 breaks the symmetry. However, it is difficult to characterize the equilibrium of the asymmetric tax competition in n countries. Following the literature on asymmetric tax competition, we restrict our attention to the two-country model.

Let country i's value of ε be ε_i. We allow this value to differ across countries; however, the other parameter values remain the same across countries. This is a minimal departure from symmetric tax competition.

Equilibrium characterization: As in the symmetric tax competition case, the equilibrium is derived in a straightforward way, which is characterized as follows:

Lemma 5. *The equilibrium tax rate of country i is given by*

$$t_i^E(2) = \frac{1}{1+4c+\alpha}\left[2(1+2\alpha)\bar{k} - \frac{(3+8c+4\alpha)\tilde{k}_i(q_i^E(2)) + (1+2\alpha)\tilde{k}_{-i}(q_{-i}^E(2))}{2+4c+3\alpha}\right],$$

where $(q_1^E(2), q_2^E(2))$ is the equilibrium attention level given by

$$q_i^E(2) = \min\left\{\max\left\{2\left[\frac{\varepsilon_i^2}{(3+8c+4\alpha)\kappa}\right]^{\frac{1}{3}} - 1, 0\right\}, 1\right\}.$$

Effect on political influence of the rich: As a direct consequence of the above lemma, we obtain the following result. Without loss of generality, we focus on the rising inequality in country 1 (i.e., an increase in ε_1).

Proposition 7. *The following properties hold:*

(a).There exists $(\underline{\varepsilon}', \bar{\varepsilon}')$ such that (i) $q_1^E(2) = 0$ if $\varepsilon_1 \leq \underline{\varepsilon}'$; (ii) $q^E(2)$ is strictly increasing in ε_1 for $\varepsilon_1 \in (\underline{\varepsilon}', \bar{\varepsilon}')$; and (iii) $q^E(1) = 1$ if $\varepsilon_1 \geq \bar{\varepsilon}'$.

(b). $q_2^E(2)$ is independent of ε_1,

(c). $\underline{\varepsilon}' > \underline{\varepsilon}$. Furthermore, $\frac{\partial q_1^E(2)}{\partial \varepsilon_1} < \frac{\partial q^E(1)}{\partial \varepsilon}$ for $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$.

Proposition 7 (a) argues that the threshold properties hold, as in the closed economy case. Given that there are two countries, the effect on another country is also a potential issue. (b) shows that rising inequality in one country does not affect the attention levels of the poor in the opposite country. Therefore, in terms of attention levels, there is no spillover effect across countries. The intuition behind (b) is as follows. For the poor of country 2, the marginal benefit of larger political attention is an increase in taxation. However, this benefit, $\frac{\partial t_2^*(q_2; t_1^E)}{\partial q_2}$ is independent of country 1's tax rate from Lemma 4. Therefore, although an increase in inequality in country 1 changes country 1's equilibrium tax rate, it does not impact the marginal benefit of political attention in country 2, which leads to (b).[20]

In addition, (c) provides insights into how tax competition alters the effects of rising inequality. When the extent of inequality falls below a certain threshold, the attention level of the poor is zero; thus, rising inequality does not reduce the political influence of the rich. The first part of (c) shows that tax competition increases this threshold value; that is, rising inequality is less likely to reduce the political influence of the rich than it is in a closed economy.

[20]This result may change when the preference for the public goods, α, depends on income. Suppose that the poor's α is $\bar{\alpha}$ and the rich's α is $\underline{\alpha}$, where $\bar{\alpha} > \underline{\alpha}$. Then, α in Lemma 4 will be replaced by $\frac{\theta}{\theta+(1-\theta)q_i}\underline{\alpha} + \frac{(1-\theta)q_i}{\theta+(1-\theta)q_i}\bar{\alpha}$, under which $\frac{\partial t_2^*(q_2; t_1^E)}{\partial q_2}$ depends on t^E. In this respect, (b) may hinge on our specific modelling assumption.

Furthermore, even if rising inequality increases the attention level, its marginal effect is limited compared with a closed economy, as shown in the second part of (c). Under tax competition, the poor do not pay considerable attention to taxation politics. Consequently, the positive effect of rising inequality on the attention level of the poor becomes weaker than in the closed-economy model.

Effect on taxation: Lastly, we analyze the effect of rising inequality on taxation, which is summarized as follows:

Proposition 8. *The following properties hold:*

(a). $t_1^E(2)$ *and* $t_2^E(2)$ *are (i) decreasing in* ε_1 *for* $\varepsilon_1 < \underline{\varepsilon}'$*; (ii) increasing in* ε_1 *for* $\varepsilon_1 \in (\underline{\varepsilon}', \bar{\varepsilon}')$*; and (iii) constant for* $\varepsilon_1 > \bar{\varepsilon}'$.

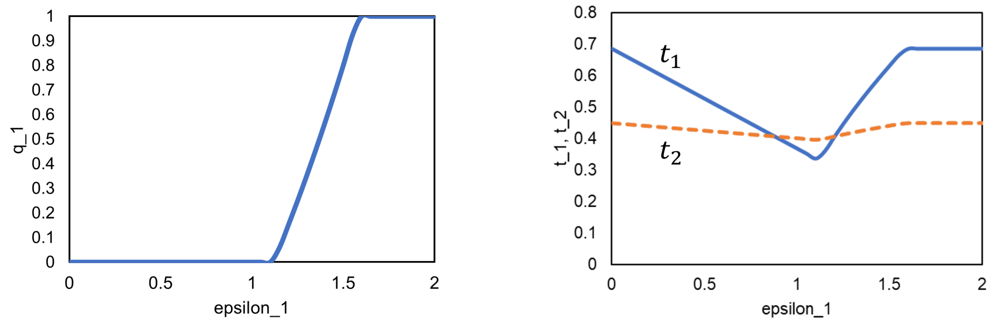
(b). $t_1^E(2) > t_2^E(2)$ *if and only if* $\tilde{k}_1(q_1^E(2)) < \tilde{k}_2(q_2^E(2))$*. Specifically,* $t_1^E(2) > t_2^E(2)$ *(i) if* $\varepsilon_1 < \varepsilon_2 < \underline{\varepsilon}'$*, or (ii) if* $\varepsilon_1 > \varepsilon_2 \geq \underline{\varepsilon}'$ *and* $\varepsilon_2 < \bar{\varepsilon}'$.

(a) shows how rising inequality in country 1 changes taxation in both countries. As in a closed economy, country 1's tax rate increases weakly in response to rising inequality if and only if the level of inequality exceeds the threshold, ε_1'. Given the attention level of the poor in country 2 is independent of ε_1, we expect country 2's tax rate is not affected. However, this is not true due to strategic complementarity in a tax competition game. Specifically, when ε_1 is less than (resp. exceeds) ε_1', increasing inequality decreases (resp. weakly increases) country 1's tax rate, which further decreases (resp. weakly increases) country 2's tax rate. As such, rising inequality in one country influences capital taxation in another.

We obtain the most important implication of (a) by combining it with Proposition 7 (c). Rising inequality reduces capital taxation only if the level of inequality is below the threshold. Proposition 7 (c) shows that the threshold is larger in the two-country case than in the closed-economy case. Therefore, rising inequality is more likely to decrease capital taxation under tax competition than under the closed economy. Furthermore, a reduction in capital taxation is contagious across countries. Thus, tax competition weakens the positive relationship between rising inequality and the redistribution of wealth.

These properties can be observed in the numerical examples. Figure 3a plots $q_1^E(2)$ for parameter values the same as those in Figure 2a, and Figure 3b plots $(t_1^E(2), t_1^E(2))$ for the same parameter values. Regarding the attention level, the zero attention level is more likely to be chosen than in the closed-economy case (Figure 2a). Furthermore, even if rising inequality increases attention, its marginal effect decreases. As a result, compared to the closed-economy case (Figure 2b), inequality is more likely to reduce the tax rate of country 1. In addition, country 2's tax rate is affected by country 1's inequality. Together, these results confirm Proposition 8 (a).

(b) examines whether the more unequal country chooses a higher tax rate than the other country. A country with a lower $\tilde{k}$ implements higher taxation, but $\tilde{k}$ is nonmonotonic with respect to the extent of inequality. Hence, whether a more unequal country chooses a higher tax rate depends on the situation. On the one hand, when both countries' inequality levels fall below $\underline{\varepsilon}'$, the less unequal country implements higher taxation. On the other hand, when both countries' levels of inequality exceed $\underline{\varepsilon}'$, the more unequal the country implements higher taxation.



(a) Attention level

(b) Tax rate

Figure 3: Effect of inequality in tax competition ($\bar{k} = 2, \alpha = 0.5, c = 1, \kappa = 1.2, \varepsilon_2 = 1.2$)

6 Discussions

6.1 Multidimensional Electoral Competition

Thus far, we have assumed that the salient issue in electoral competition is capital taxation. However, in reality, candidates compete over both economic and non-economic issues. To describe this feature, in the Online Appendix, we extend the model, where there are two issues (one is capital taxation and the other is a non-economic issue such as social issues and national security issues).

According to empirical studies, the high-income and low-income citizens have different policy preferences even on issues that appear to have no connection to the economic interests of the rich and poor: high-income earners tend to be more liberal than low-income earners on non-economic issues such as foreign policy and national security issues and religious value issues (Gilens, 2012). Motivated by this empirical pattern, we assume that the rich and poor have different ideal policies on the non-economic issue.

We show that globalization increases the political influence of the rich not only on taxation but also on the non-economic issue. This is because globalization reduces the poor's political attention, which has a spill-over effect on the non-economic issue. Therefore, globalization magnifies the underrepresentation of the poor even in issues that have no connection to tax competition.

6.2 Middle-Income Earners

Thus far, we have assumed that voters consists of the rich and the poor. This two-class model has been widely adopted in the analysis of redistribution, a part of the literature has shown that the presence of middle-income earners also plays a key role (e.g., Moene and Wallerstein, 2001; Iversen and Soskice, 2006). To account for this possibility, in the Online Appendix, we extend the model, where residents consist of three classes: rich, middle, and poor. The capital owned by capital is smaller than the average capital; thus, the middle and the poor prefer redistribution. We consider two scenarios: in the first scenario, the middle are familiar with policy issues, and thus they observe policy platforms without any cost; in the second scenario, the middle and the poor jointly determine q. In either case, the similar results hold; thus, the insights of the two-class model can be extended to the case with middle-income earners.

6.3 Effect of Fiscal Decentralization

Throughout the paper, we have interpreted each government as a country. Another interpretation is that they are local jurisdictions in a single country. Then, n is the number of local jurisdictions in the federation and represents the degree of fiscal decentralization (Sato, 2003). For example, $n = 1$ indicates that the central government has fiscal authorities. Under this interpretation, our results can be interpreted as showing the negative effect of fiscal decentralization. Decentralization magnifies the political influence of the rich and hurts the poor through their underrepresentation in politics.

6.4 Types of Globalization

We have shown that globalization, in a form of tax competition, undermines the political attention of the poor. This does not imply that all aspects of globalization induce a decrease in political attention. In addition to capital market integration and associated tax competition, another important aspect of globalization is the growth of international trade and FDI. This type of globalization increases the demand for compensation because competition creates losers (Rodrik, 2021). Consequently, the marginal benefit of political attention can increase for the poor (Marshall and Fisher, 2015), stimulating their political attention. Indeed, such globalization is claimed to fuel populism (Rodrik, 2021). Therefore, globalization in the form of international trade and FDI may impact the political underrepresentation of the poor differently from tax competition. Considering both aspects of globalization is worthwhile, but it is beyond the scope of the present study.

6.5 Labor Income Tax Competition

Although we have focused on capital tax competition, even workers can be mobile in the recent globalized economy. Evidence shows that highly skilled workers are internationally mobile and tend to migrate to countries with lower income tax rates (Kleven et al., 2014). This could lead to tax competition over labor income taxation (Lehmann, Simula and Trannoy, 2014). While formally addressing the case of labor income taxation with the mobility of the rich is beyond the scope of this study, we believe that the same mechanism would apply. The core of our result is that tax competition limits the scope of redistribution, even when the poor have political influence, thereby discouraging them from engaging in politics. This mechanism extends to labor income tax competition, and we believe our insights are applicable to such scenarios.

7 Concluding Remarks

To address the challenge of inequality, governments must perform redistribution. For this, capital taxation is essential because the rich earn their incomes mainly from capital. However, despite increasing inequality, capital taxation is weakened in countries such as the United States, leading to a less progressive tax system. This study reveals that globalization in the form of tax competition reinforces the political overrepresentation of the rich in democracy and prevents redistribution not only economically but also politically.

For this purpose, we developed a capital tax competition model in which each country consists of two classes (rich and poor), and each country's tax rate is determined by an election with two office-seeking candidates. The rich are familiar with policy issues; thus, they can observe the policy platforms promised by candidates without any cost, whereas the poor can do so only when they incur attention costs.

First, we showed that tax competition reduces the political attention of the poor, thereby boosting the political influence of the rich. Hence, tax competition reduces capital taxation not only through conventional economic effects but also through an endogenous shift in the political power of the rich. Notably, the attention levels of the poor are not optimal for the poor themselves from a global perspective; that is, their attention levels are lower than those at the socially optimal level. Second, it would be expected that rising inequality encourages the poor to pay attention to politics, thereby increasing capital taxation. However, we showed that tax competition weakens this mechanism; thus, an increase in inequality is more likely to decrease capital taxation than in a closed economy. As such, tax competition exaggerates the political overrepresentation of the rich, leading to lower capital taxation.

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A Omitted Proofs

A.1 Proof of Proposition 1

The poor solve the following maximization problem:

$$\max_q U(k^P|t^*(q)) - \kappa q.$$

For now, we ignore the possibility of a corner solution. Since the poor's objective function is concave with respect to q,[21] the interior solution is obtained by taking the first-order condition. The first-order condition yields

$$\begin{aligned}
\frac{\partial U(k^P|t^*(q))}{\partial q} = \kappa \Leftrightarrow & \frac{\partial t^*(q)}{\partial q}\frac{\partial}{\partial t}U(k^P|t^*(q)) = \kappa \\
\Leftrightarrow & -\frac{1}{c}\frac{\partial \tilde{k}(q)}{\partial q}\left\{-k^P + (1+\alpha)\bar{k} - ct^*(q)\right\} = \kappa \\
\Leftrightarrow & -\frac{1}{c}\frac{\partial \tilde{k}(q)}{\partial q}\left\{\tilde{k}(q) - k^P\right\} = \kappa \\
\Leftrightarrow & \frac{1}{c}\frac{(1-\theta)\theta(k^R-k^P)}{[\theta+(1-\theta)q]^2}\left\{\frac{\theta k^R + (1-\theta)qk^P}{\theta+(1-\theta)q} - k^P\right\} = \kappa \\
\Leftrightarrow & \frac{1}{c}\frac{(1-\theta)\theta(k^R-k^P)}{[\theta+(1-\theta)q]^2}\frac{\theta(k^R-k^P)}{\theta+(1-\theta)q} = \kappa \\
\Leftrightarrow & \frac{1}{c}\frac{(1-\theta)\theta^2(k^R-k^P)^2}{[\theta+(1-\theta)q]^3} = \kappa \\
\Leftrightarrow & [\theta+(1-\theta)q]^3 = \frac{(1-\theta)\theta^2(k^R-k^P)^2}{c\kappa} \\
\Leftrightarrow & q = \frac{\left(\frac{\theta^2(1-\theta)(k^R-k^P)^2}{c\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}.
\end{aligned}$$

If this value lies in $[0,1]$, $q^E(1) = \frac{\left(\frac{\theta^2(1-\theta)(k^R-k^P)^2}{c\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}$. If this value is negative, $q^E(1) = 0$. If this value is greater than one, $q^E(1) = 1$. Therefore, the desired results were obtained. □

[21]The second-order derivative of the objective function is

$$\frac{\partial}{\partial q}\left\{\frac{1}{c}\frac{(1-\theta)\theta^2(k^R-k^P)^2}{[\theta+(1-\theta)q]^3} - \kappa\right\} < 0.$$

A.2 Proof of Lemma 4

From Lemma 3, the candidates in country i propose a tax rate that is a solution to the following maximization problem:

$$\max_{t_i} U_i(\tilde{k}(q_i)|\boldsymbol{t}_{-i}^E) := f(k_i) - f'(k_i)k_i + r\tilde{k}(q_i) + (1+\alpha)t_i k_i - \frac{c}{2}t_i^2.$$

As $f'(k_i) = r + t_i$ holds from the market equilibrium condition, this maximization problem can be rewritten as

$$\max_{t_i} f(k_i) + r(\tilde{k}(q_i) - k_i) + \alpha t_i k_i - \frac{c}{2}t_i^2.$$

Taking the first-order condition of this problem, we have

$$f'(k_i)\frac{\partial k_i}{\partial t_i} + \frac{\partial r}{\partial t_i}(\tilde{k}(q_i) - k_i) - r\frac{\partial k_i}{\partial t_i} + \alpha k_i + \alpha t_i \frac{\partial k_i}{\partial t_i} - ct_i = 0. \tag{5}$$

Note that the objective function is concave because it is a quadratic function. Thus, taking the first-order condition yields the optimal solution.

Here, remember that

$$k_i = \bar{k} - \frac{(n-1)t_i - (n-1)t^E}{2n};\ r = A - 2\bar{k} - \frac{t_i + (n-1)t^E}{n}$$

$$\frac{\partial k_i}{\partial t_i} = -\frac{n-1}{2n};\ \frac{\partial r}{\partial t_i} = -\frac{1}{n};\ f'(k_i) = A - 2k_i.$$

By substituting them into (5), we have

$$\begin{aligned}(5) \Leftrightarrow & -\frac{n-1}{2n}t_i - \frac{\tilde{k}(q_i) - k_i}{n} - \frac{n-1}{2n}\alpha t_i + \alpha k_i - ct_i = 0\\ \Leftrightarrow & \ t_i^*(q_i; \boldsymbol{t}_{-i}^E) = \frac{2n}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c}\left[(1+n\alpha)\bar{k} - \tilde{k}(q_i)\right] + \frac{1+n\alpha}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c}t^E,\end{aligned}$$

This completes the proof. □

A.3 Proof of Proposition 2

From Lemma 4, the symmetric equilibrium tax rate is characterized by

$$\begin{aligned} t^E(n) &= \frac{2n}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c}\left[(1+n\alpha)\bar{k} - \tilde{k}(q^E(n))\right] + \frac{1+n\alpha}{n^2 - 1 + 2n(n-1)\alpha + 2n^2 c}t^E(n)\\ \Leftrightarrow t^E(n) &= \frac{2\left[(1+n\alpha)\bar{k} - \tilde{k}(q^E(n))\right]}{(n-1)(1+\alpha) + 2nc}.\end{aligned}$$

Next, we derive the value of $q^E(n)$. The poor in country i solve the following maximization problem:

$$\max_{q_i} U_i(k^P | t_i^*(q_i; \boldsymbol{t}_{-i}^E), \boldsymbol{t}_{-i}^E) - \kappa q_i.$$

For now, we ignore the possibility of a corner solution. Because the poor's objective function is concave with respect to q, the interior solution is obtained by taking the first-order condition. It yields

$$\begin{aligned}
&\frac{\partial U_i(k^P|t_i^*(q_i;\boldsymbol{t}_{-i}^E),\boldsymbol{t}_{-i}^E)}{\partial q_i} = \kappa \\
\Leftrightarrow &\frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i}\left[\frac{\bar{k}-k^P}{n} - \frac{n-1}{2n}t_i^*(q_i;\boldsymbol{t}_{-i}^E) + \alpha\left(k_i - \frac{n-1}{2n}t_i^*(q_i;\boldsymbol{t}_{-i}^E)\right) - ct_i^*(q_i;\boldsymbol{t}_{-i}^E)\right] = \kappa.
\end{aligned} \tag{6}$$

In equilibrium, $k_i = \bar{k}$ and $t_i^*(q_i;\boldsymbol{t}_{-i}^E) = t^E(n)$. Therefore, the above equation can be rewritten as

$$\begin{aligned}
(6) \Leftrightarrow &\frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i} \times \left[\left(\alpha + \frac{1}{n}\right)\bar{k} - \frac{1}{n}k^P - t^E(n)\left(\frac{(n-1)(1+\alpha)}{2n} + c\right)\right] = \kappa \\
\Leftrightarrow &\frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i} \times \frac{1}{n}(\tilde{k}(q_i) - k^P) = \kappa \\
\Leftrightarrow &\frac{2\theta^2(1-\theta)(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c][\theta+(1-\theta)q_i]^3} = \kappa \\
\Leftrightarrow &q_i = \frac{\left(\frac{2\theta^2(1-\theta)(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c]\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}.
\end{aligned}$$

If this value lies in $[0,1]$, $q^E(n) = \frac{\left(\frac{2\theta^2(1-\theta)(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c]\kappa}\right)^{\frac{1}{3}} - \theta}{1-\theta}$. If this value is negative, $q^E(n) = 0$. If this value is greater than one, $q^E(n) = 1$. Therefore, the desired results were obtained. □

A.4 Proof of Corollary 1

First, we show that (4) guarantees that the equilibrium tax rate decreases in n, while keeping q fixed. This is equivalent to showing that

$$t^*(n|\tilde{k}) := \frac{2\left[(1+n\alpha)\bar{k} - \tilde{k}\right]}{(n-1)(1+\alpha)+2nc}$$

decreases in n for any $\tilde{k} \in [0,1]$. By calculation, we have

$$\frac{dt^*(n|\tilde{k})}{dn} = \frac{2}{\{(n-1)(1+\alpha)+2nc\}^2}\left\{-\bar{k}[(1+\alpha)^2+2c] + \tilde{k}(q)(1+\alpha+2c)\right\}.$$

This is negative for any $\tilde{k}$ if and only if:

$$\frac{dt^*(n|k^R)}{dn} < 0 \Leftrightarrow -\bar{k}[(1+\alpha)^2 + 2c] + k^R(1+\alpha+2c) < 0$$
$$\Leftrightarrow k^R < \left(1 + \frac{\alpha^2+\alpha}{1+\alpha+2c}\right).$$

Therefore, (4) guarantees that the equilibrium tax rate decreases in n, while keeping q fixed.

From Proposition 2,

$$\frac{dt^E(n)}{dn} = \frac{2}{\{(n-1)(1+\alpha)+2nc\}^2} \times \left\{-\bar{k}[(1+\alpha)^2+2c] + \tilde{k}(q)(1+\alpha+2c) - \tilde{k}'(q)q^{E'}(n)\left[(n-1)(1+\alpha)+2nc\right]\right\}.$$

The first and second terms in the parentheses are negative in (4). In addition, the last term is negative because $\tilde{k}'(q) < 0$ and $q^{E'}(n) < 0$ hold. Therefore, $\frac{dt^E(n)}{dn}$ decreases in n. □

A.5 Proof of Proposition 4

Since each country does not cooperate with each other when determining the tax rate, each country's tax rate, given that every country chooses q, is

$$t^C(q) = 2\frac{(1+n\alpha)\bar{k} - \tilde{k}(q)}{(n-1)(1+\alpha)+2nc}.$$

The derivation is the same as in Proposition 2.

Given this equilibrium tax rate in the subgame, the poor worldwide cooperatively choose attention level q. Specifically, q^C is the solution to the following problem.

$$\max_q n\left[U(k^P|t_1 = ... = t_n = t^C(q)) - \kappa q\right].$$

Note that

$$U(k^P|t_1 = ... = t_n = t^C(q)) = f(\bar{k}) + r(k^P - \bar{k}) + \alpha t^C(q)\bar{k} - \frac{c}{2}t^C(q)^2 - \kappa q,$$

where

$$r = A - 2\bar{k} - t^C(q).$$

For now, we assume an interior solution. Because this objective function is concave with respect to q, the first-order condition yields

$$\frac{dt^C(q)}{dq}\left[(1+\alpha)\bar{k} - k^P - ct^C(q)\right] = \kappa. \tag{7}$$

If the solution to this equation lies within $[0,1]$, it is q^C; if it is negative, $q^C = 0$; and if it is larger than one, $q^C = 1$.

The remaining task is to compare the values of q^C and q^E. From the proof of Proposition 2, q^E is a solution to the following equation:

$$\frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i}\left[\left(\alpha+\frac{1}{n}\right)\bar{k}-\frac{1}{n}k^P-t^*(q)\left(\frac{(n-1)(1+\alpha)}{2n}+c\right)\right]=\kappa, \tag{8}$$

where

$$t^*(q) := \frac{2\left[(1+n\alpha)\bar{k}-\tilde{k}(q)\right]}{(n-1)(1+\alpha)+2nc}.$$

If the solution to this equation lies within $[0, 1]$, it is q^E; if it is negative, $q^E = 0$; and if it is larger than one, $q^E = 1$.

As the left-hand sides of (7) and (8) are decreasing in q, it suffices to show that the left-hand side of (7) is larger than that of (8). This directly implies the proposition. We prove this property stepwise.

(i). First,

$$\left(\alpha+\frac{1}{n}\right)\bar{k}-\frac{1}{n}k^P < (1+\alpha)\bar{k}-k$$

holds true because $\bar{k} > k^P$.

(ii). Second,

$$ct^C(q) < t^E\left(\frac{(n-1)(1+\alpha)}{2n}+c\right)$$

holds, because $t^C(q) = t^*(q)$.

(iii). Lastly,

$$\frac{dt^C(q)}{dq} = -\frac{2}{(n-1)(1+\alpha)+2nc}\tilde{k}'(q);$$

$$\frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i} = -\frac{2}{n-\frac{1}{n}+2(n-1)\alpha+2nc}\tilde{k}'(q).$$

Here, $\tilde{k}'(q) < 0$ and

$$n-\frac{1}{n}+2(n-1)\alpha+2nc-[(n-1)(1+\alpha)+2nc] = -\frac{1}{n}+1+(n-1)\alpha > 0.$$

Therefore, $\frac{dt^C(q)}{dq} > \frac{dt_i^*(q_i;\boldsymbol{t}_{-i}^E)}{dq_i}$.

(i)-(iii) together imply that the left-hand side of (7) is larger than that of (8), which completes the proof. □

A.6 Proof of Proposition 5

We consider the case where $\theta = 0.5, k^R - k^P = 2\varepsilon$. By substituting these values into $q^E(1)$ derived in Proposition 1, we obtain

$$q^E(1) = \min\left\{\max\left\{2\left(\frac{\varepsilon^2}{4c\kappa}\right)^{\frac{1}{3}} - 1, 0\right\}, 1\right\}.$$

Therefore, we obtain the following: Let

$$\underline{\varepsilon} := \sqrt{\frac{c\kappa}{2}};\ \bar{\varepsilon} := 2\sqrt{c\kappa}.$$

(i)., $q^E(1) = 0$when $\varepsilon \leq \underline{\varepsilon}$, $q^E(1) = 0$.

(ii). When $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$, $q^E(1)$ strictly increases in ε because $q^E(1) = 2\left(\frac{\varepsilon^2}{4c\kappa}\right)^{\frac{1}{3}} - 1$.

(iii)., $q^E(1) = 1$when $\varepsilon \geq \bar{\varepsilon}$, $q^E(1) = 1$.

□

A.7 Proof of Proposition 6

$t^E(1)$ depends on ε only through $\tilde{k}(q^E(1))$ and $t^E(1)$ decreases with $\tilde{k}(q^E(1))$. Therefore, it suffices to examine the effect of ε on $\tilde{k}(q^E(1))$.

(i). Consider the case where $\varepsilon < \underline{\varepsilon}$. Subsequently, because $q^E(1) = 0$ is satisfied,

$$\tilde{k}(0) = \bar{k} + \varepsilon$$

which increases in ε. Therefore, from Proposition 1, t^E decreases in ε.

(ii). Consider the case where $\varepsilon \in (\underline{\varepsilon}, \bar{\varepsilon})$. Then,

$$\frac{d\tilde{k}(q^E(1))}{d\varepsilon} = \frac{1}{(1+q)^2}\left[-2\varepsilon \times \frac{dq^E(1)}{d\varepsilon} + 1 - q^E(1)\right], \tag{9}$$

where

$$\frac{dq^E(1)}{d\varepsilon} = \frac{4}{3}\frac{\varepsilon^{-\frac{1}{3}}}{(2c\kappa)^{\frac{1}{3}}} > 0.$$

From (9), the sign of $\frac{d\tilde{k}(q^E(1))}{d\varepsilon}$ is

$$\text{sing}\left(-2\varepsilon \times \frac{dq^E(1)}{d\varepsilon} + 1 - q^E(1)\right).$$

By substituting the values of $\frac{dq^E(1)}{d\varepsilon}$ and $q^E(1)$, we obtain:

$$\frac{d\tilde{k}(q^E(1))}{d\varepsilon} \gtreqless 0 \Leftrightarrow \varepsilon \lesseqgtr \frac{\sqrt{6c\kappa}}{9}.$$

Because $\underline{\varepsilon} > \frac{\sqrt{6c\kappa}}{9}$, $\frac{d\tilde{k}(q^E(1))}{d\varepsilon} < 0$. Therefore, t^E increases in ε.

(iii). Consider the case where $\varepsilon > \underline{\varepsilon}$. Subsequently, because $q^E(1) = 1$ is satisfied,

$$\tilde{k}(1) = \bar{k},$$

which is a constant for ε. Therefore, t^E is a constant for ε. □

A.8 Proof of Lemma 5

From Lemma 3, the candidates in country i propose a tax rate that is a solution to the following maximization problem:

$$\max_{t_i} f(k_i) + r\left(\tilde{k}_i(q_i) - k_i\right) + \alpha t_i k_i - \frac{c}{2}t_i^2.$$

The first-order conditions for this problem are as follows:

$$t_i^*(q_i; t_{-i}) = \frac{4\left[(1+2\alpha)\bar{k} - \tilde{k}_i(q_i)\right]}{3+8c+4\alpha} + \frac{1+2\alpha}{3+8c+4\alpha}t_{-i}.$$

By substituting the opposite's best response function $t_{-i}^*(q_{-i}; t_i)$ into country i's best response function $t_i^*(q_i; t_{-i})$, we obtain the following equilibrium tax rate when the attention level of the poor is $(q_1^E(2), q_2^E(2))$:

$$\begin{aligned}
t_i^E(2) =& \frac{4\left\{(1+2\alpha)\bar{k} - \tilde{k}_i(q_i^E(2))\right\}}{3+8c+4\alpha} \\
&+ \frac{1+2\alpha}{3+8c+4\alpha}\left[\frac{4\left\{(1+2\alpha)\bar{k} - \tilde{k}_{-i}(q_{-i}^E(2))\right\}}{3+8c+4\alpha} + \frac{1+2\alpha}{3+8c+4\alpha}t_i^E(2)\right] \\
\Leftrightarrow t_i^E(2) =& \frac{1}{1+4c+\alpha}\left[2(1+2\alpha)\bar{k} - \frac{(3+8c+4\alpha)\tilde{k}_i(q_i^E(2)) + (1+2\alpha)\tilde{k}_{-i}(q_{-i}^E(2))}{2+4c+3\alpha}\right].
\end{aligned}$$

Next, we consider the choice of q_i by the poor. The poor in country i solve the following maximization problem:

$$\max_{q_i} U_i(k^P | t_i^*(q_i), t_{-i}^E) - \kappa q_i.$$

For now, we ignore the possibility of a corner solution. Because the poor's objective function is concave with respect to q, the interior solution is obtained by taking the first-order condition. It yields

$$\frac{dt_i^*(q_i;t_{-i}^E)}{dq_i}\frac{\tilde{k}_i(q_i)-k^P}{2}=\kappa \Leftrightarrow \frac{\varepsilon_i^2}{[3+4\alpha+8c][0.5+0.5\times q_i]^3}=\kappa$$
$$\Leftrightarrow q_i^E(2)=2\left[\frac{\varepsilon_i^2}{(3+8c+4\alpha)\kappa}\right]^{\frac{1}{3}}-1.$$

If this value lies in $[0,1]$, $q_i^E(2)=2\left[\frac{\varepsilon_i^2}{(3+8c+4\alpha)\kappa}\right]^{\frac{1}{3}}-1$. If this value is negative, $q_i^E(2)=0$. If this value is greater than one, $q_i^E(2)=1$. Therefore, the desired results were obtained. □

A.9 Proof of Proposition 7

(a). Let

$$\underline{\varepsilon}':=\sqrt{\frac{(3+8c+4\alpha)\kappa}{8}};\ \bar{\varepsilon}':=\sqrt{(3+8c+4\alpha)\kappa}.$$

From Lemma 5, the following holds.

- When $\varepsilon_i \le \underline{\varepsilon}'$, $q^E(2)=0$.
- When $\varepsilon_i \ge \bar{\varepsilon}'$, $q^E(2)=1$.
- When $\varepsilon_i \in (\underline{\varepsilon}', \bar{\varepsilon}')$,

$$q_i^E(2)=2\left[\frac{\varepsilon_i^2}{(3+8c+4\alpha)\kappa}\right]^{\frac{1}{3}}-1.$$

  Hence, $q^E(2)$ is strictly increasing in ε.

(b). This is straightforward based on Lemma 5.

(c). From Propositions 5 and 7 (i), we obtain $\underline{\varepsilon}' > \underline{\varepsilon}$ because

$$\sqrt{\frac{(3+8c+4\alpha)\kappa}{8}}>\sqrt{\frac{c\kappa}{2}}.$$

Furthermore, when $\varepsilon_i \in [\underline{\varepsilon}, \underline{\varepsilon}']$,

$$\frac{\partial q_i^E(2)}{\partial \varepsilon_i}=0<\frac{\partial q^E(1)}{\partial \varepsilon}=\frac{4}{3[\varepsilon\times 2c\kappa]^{\frac{1}{3}}}.$$

When $\varepsilon_i \in [\underline{\varepsilon}', \bar{\varepsilon}]$,

$$\frac{\partial q_i^E(2)}{\partial \varepsilon_i}=\frac{4}{3[\varepsilon_i(3+8c+4\alpha)\kappa]^{\frac{1}{3}}}<\frac{\partial q^E(1)}{\partial \varepsilon}=\frac{4}{3[\varepsilon\times 2c\kappa]^{\frac{1}{3}}}.$$

Therefore, the desired results were obtained. □

A.10 Proof of Proposition 8

(a). Both $t_1^E(2)$ and $t_2^E(2)$ depend on ε_1 only through $\tilde{k}_1(q_1^E(2))$. Furthermore, they decrease in $\tilde{k}_1(q_1^E(2))$. Therefore, it suffices to examine the effect of ε_1 on $\tilde{k}_1(q_1^E(2))$.

(i). Consider the case where $\varepsilon_1 < \underline{\varepsilon}'$. Subsequently, because $q_1^E(2) = 0$ is satisfied,

$$\tilde{k}_1(0) = \bar{k} + \varepsilon_1,$$

which increases in ε_1. Therefore, t_1^E and t_2^E decrease in ε_1.

(ii). Consider the case where $\varepsilon \in (\underline{\varepsilon}', \bar{\varepsilon}')$. Then,

$$\frac{d\tilde{k}_1(q_1^E(2))}{d\varepsilon_1} = \frac{1}{(1+q_1)^2}\left[-2\varepsilon_1\frac{dq_1^E(2)}{d\varepsilon_1} + 1 - q_1^E(2)\right], \tag{10}$$

where

$$\frac{dq_1^E(2)}{d\varepsilon_1} = \frac{4}{3}\frac{\varepsilon_1^{-\frac{1}{3}}}{[(3+8c+4\alpha)\kappa]^{\frac{1}{3}}} > 0.$$

The sign of $\frac{d\tilde{k}_1(q_1^E(2))}{d\varepsilon_1}$ is

$$\text{sign}\left(-2\varepsilon_1\frac{dq_1^E(2)}{d\varepsilon_1} + 1 - q_1^E(2)\right).$$

By substituting the values of $\frac{dq_1^E(2)}{d\varepsilon_1}$ and $q_1^E(2)$, we obtain:

$$\frac{d\tilde{k}_1(q_1^E(2))}{d\varepsilon_1} \gtreqless 0 \Leftrightarrow \varepsilon \lesseqgtr \frac{\sqrt{3(3+8c+4\alpha)\kappa}}{9}.$$

Because $\underline{\varepsilon}' > \frac{\sqrt{3(3+8c+4\alpha)\kappa}}{9}$, $\frac{d\tilde{k}_1(q_1^E(2))}{d\varepsilon_1} < 0$, implying that t_1^E and t_2^E increase in ε_1.

(iii). Consider the case where $\varepsilon > \underline{\varepsilon}'$. Because $q_1^E(2) = 1$ is satisfied,

$$\tilde{k}_1(1) = \bar{k},$$

which is a constant for ε_1. Therefore, t_1^E and t_2^E are constants for ε_1.

(b). From Lemma 5, t_i^E can be rewritten as

$$t_i^E(2) = \frac{1+2\alpha}{1+4c+\alpha}\left[2\bar{k} - \frac{\tilde{k}_i(q_i^E(2)) + \tilde{k}_{-i}(q_{-i}^E(2))}{2+4c+3\alpha}\right] - \frac{2\tilde{k}_i(q_i^E(2))}{2+4c+3\alpha}. \tag{11}$$

Because the first term of (11) is common for t_1^E and t_2^E, only the second term creates a difference between t_1^E and t_2^E. Therefore,

$$t_1^E \gtreqless t_2^E \Leftrightarrow \tilde{k}_1(q_1^E(2)) \lesseqgtr \tilde{k}_2(q_2^E(2)).$$

Furthermore, from Proposition 8 (a), if $\varepsilon_1, \varepsilon_2 < \underline{\varepsilon}'$, $\tilde{k}_i$ increases in ε_i. Therefore, if $\varepsilon_1 < \varepsilon_2 < \underline{\varepsilon}'$, $\tilde{k}_1 < \tilde{k}_2$, which implies that $t_1^E > t_2^E$ holds.

Similarly, if $\varepsilon_1 > \varepsilon_2 > \underline{\varepsilon}'$ and $\varepsilon_2 < \bar{\varepsilon}'$, $\tilde{k}_1 < \tilde{k}_2$, implying $t_1^E > t_2^E$ holds. □

B Online Appendix for “Affluence and Influence Under Tax Competition: Income Bias in Political Attention" (Not for Publication)

This online appendix provides the formal arguments on the arguments in Section 6.

Contents

B.1 Derivation of Candidate A's Winning Probability

First, we consider voting behaviors of the rich. Given (t_A, t_B), a rich resident j votes for candidate A if and only if

$$\zeta_j \leq U(k^R|t_A) - U(k^R|t_B) - \eta.$$

Hence, the proportion of rich voters voting for candidate A given η is

$$\frac{1}{2} + \gamma\left(U(k^R|t_A) - U(k^R|t_B) - \eta\right).$$

Second, we consider the voting behaviors of the poor. With probability q, poor resident j observes (t_A, t_B). In this case, the resident votes for the candidate A if and only if

$$\zeta_j \leq U(k^P|t_A) + U(k^P|t_B) - \eta.$$

On the other hand, with probability $1-q$, he or she cannot observe (t_A, t_B) and votes for candidate A if and only if

$$\zeta_j \leq U(k^P|t^*(q)) + U(k^P|t^*(q)) - \eta \Leftrightarrow \zeta_{ij} \leq -\eta.$$

As described in the model, we assume that γ and ψ are sufficiently small such that every voter's probability of voting for A lies within $(0,1)$. Hence, the fraction of poor votes for candidate A given η is

$$\frac{1}{2} + \gamma\left[q(U(k^P|t_A) - U(k^P|t_B)) - \eta\right].$$

These derivations imply that the probability of candidate A obtaining a majority of votes is

$$\pi(t_A, t_B) := \Pr\left(\underbrace{\frac{1}{2} + \gamma\left(\theta(U(k^R|t_A) - U(k^R|t_B)) + (1-\theta)q(U(k^P|t_A) - U(k^P|t_B)) - \eta\right)}_{\text{\# of the A's votes given } \eta} \geq \frac{1}{2}\right)$$
$$= \frac{1}{2} + \psi\left[\theta(U(k^R|t_A) - U(k^R|t_B)) + (1-\theta)q(U(k^P|t_A) - U(k^P|t_B))\right].$$

B.2 Multidimensional Electoral Competition

Setting: There are two issues (capital taxation and a non-economic issue). Let the policy of the non-economic issue promised by candidate k in country i be $x_{ik} \in \mathbb{R}$. Resident j in country i receives utility $-(x - \hat{x}_j)^2$ when x is implemented on the non-economic issue. Therefore, $\hat{x}_j$ represents resident j's ideal policy. Resident j in country i votes for candidate A if and only if

$$U_i(k_j|\tilde{t}^j_{iA}, \boldsymbol{t}^E_{-i}) - (x_{iA} - \hat{x}_j)^2 \geq U_i(k_j|\tilde{t}^j_{iB}, \boldsymbol{t}^E_{-i}) - (x_{iB} - \hat{x}_j)^2 + \zeta_{ij} + \eta_i.$$

According to empirical studies, the rich and poor have different policy preferences even on non-economic issues (Gilens, 2012). Motivated by this empirical pattern, we assume that the ideal policy of the rich is $\hat{x}^R$, the ideal policy of the poor is $\hat{x}^L$, and $\hat{x}^R \neq \hat{x}^L$.

Let $((t^*_{iA}, x^*_{iA}), (t^*_{iB}, x^*_{iB}))$ be the equilibrium policy platform in country i. Letting the expectation of t_{ik} ($k = A, B$) and x_{ik} for resident j in country i be $\tilde{t}^j_{ik}$ and $\tilde{x}^j_{ik}$, we have the following: when the realized policy platforms are $((t_{iA}, x_{iA}), (t_{iB}, x_{iB}))$, $\tilde{t}^j_{ik} = t_{ik}$ and $\tilde{x}^j_{ik} = x_{ik}$ always holds for the rich resident, whereas for the poor resident,

$$((\tilde{t}_{iA}, \tilde{x}_{iA}), (\tilde{t}_{iB}, \tilde{x}_{iB})) = \begin{cases} ((t_{iA}, x_{iA}), (t_{iB}, x_{iB})) \text{ with probability } q_{ij} \\ ((t^*_{iA}, x^*_{iA}), (t^*_{iB}, x^*_{iB})) \text{ with probability } 1 - q_{ij} \end{cases}.$$

Therefore, the attention level of the poor is common across the two issues.[1]

Electoral competition: As in the main analysis, candidate A in country i chooses a policy platform that satisfies the following first-order conditions:[2]

$$\theta \frac{\partial U_i(k^R | t_{iA}, \boldsymbol{t}^E_{-i})}{\partial t_{iA}} + (1-\theta) q_i \frac{\partial U_i(k^P | t_{iA}, \boldsymbol{t}^E_{-i})}{\partial t_{iA}} = 0;$$

$$-\theta \frac{\partial}{\partial x_{iA}} (x_{iA} - \hat{x}^R)^2 - (1-\theta) q_i \frac{\partial}{\partial x_{iA}} (x_{iA} - \hat{x}^P)^2 = 0.$$

Therefore, the equilibrium tax rate given q_i and $\boldsymbol{t}_{-i}$ is the same as that in the main analysis. Furthermore, the equilibrium value of x given q_i is

$$x^*(q_i) = \frac{\theta}{\theta + (1-\theta) q_i} \hat{x}^R + \frac{(1-\theta) q_i}{\theta + (1-\theta) q_i} \hat{x}^P.$$

This implies that higher q_i reduces the political influence of the rich not only in capital taxation but also in the non-economic issue.

Equilibrium characterization: Considering this effect on electoral competition, the poor determine their level of political attention. The equilibrium is given as follows:

Proposition B.1. *The equilibrium attention level of the poor, $q^E(n)$, is given by*

$$q^E(n) = \min \left\{ \max \left\{ \frac{\left[\left\{ \frac{(k^R - k^P)^2}{[n^2 - 1 + 2n(n-1)\alpha + 2n^2 c]\kappa} + (\hat{x}^R - \hat{x}^P)^2 \right\} 2\theta^2 (1-\theta) \right]^{\frac{1}{3}} - \theta}{1-\theta}, 0 \right\}, 1 \right\}.$$

[1]Suppose that the poor obtain information by subscribing news papers or watching TV news, and q represents the likelihood of reading and watching news. Because news reports information about various issues including both economic and non-economic issues, a higher q increases the probability of understanding each candidate's policy platform in both issues. Therefore, it is reasonable to assume that the attention level of the poor is common across the two issues.

[2]The second-order conditions are trivially satisfied.

Furthermore, the equilibrium tax rate $t^E(n)$ is given by:

$$t^E(n) = \frac{2\left[(1+n\alpha)\bar{k} - \tilde{k}(q^E(n))\right]}{(n-1)(1+\alpha)+2nc},$$

and the equilibrium policy on the non-economic issue $x^E(n)$ is given by

$$x^E(n) = \frac{\theta}{\theta+(1-\theta)q^E(n)}\hat{x}^R + \frac{(1-\theta)q^E(n)}{\theta+(1-\theta)q^E(n)}\hat{x}^P.$$

Proof. By substituting t_i^* in Lemma 4 and x^* in the above into the poor's utility function and taking the first-order condition with respect to q_i, we have

$$\frac{\partial U_i(k^P|t_i^*(q_i;\boldsymbol{t}_{-i}^E),\boldsymbol{t}_{-i}^E)}{\partial q_i} - \frac{\partial}{\partial q_i}\left(\frac{\theta^2}{[\theta+(1-\theta)q_i]^2}\right)\left(\hat{x}^R - \hat{x}^P\right)^2 = \kappa.$$

This is rewritten as

$$\frac{2\theta^2(1-\theta)(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c][\theta+(1-\theta)q_i]^3} + \frac{2\theta^2(1-\theta)(\hat{x}^R-\hat{x}^P)^2}{[\theta+(1-\theta)q_i]^3} = \kappa$$

$$\Leftrightarrow q_i = \frac{\left[\left\{\frac{(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c]\kappa} + (\hat{x}^R-\hat{x}^P)^2\right\}2\theta^2(1-\theta)\right]^{\frac{1}{3}} - \theta}{1-\theta}.$$

If this value lies in $[0,1]$, $q^E(n) = \frac{\left(\frac{2\theta^2(1-\theta)(k^R-k^P)^2}{[n^2-1+2n(n-1)\alpha+2n^2c]\kappa}\right)^{\frac{1}{3}}-\theta}{1-\theta}$. If this value is negative, $q^E(n) = 0$. If this value is greater than one, $q^E(n) = 1$. Therefore, the desired results were obtained. □

Effect of globalization: $q^E(n)$ is weakly decreasing in n; thus, as in the main analysis, globalization reduces the political attention level of the poor. Notably, this reduction of the political attention level magnifies the influence of the rich not only in capital taxation but also in the non-economic issue. Consequently, the equilibrium policy in the non-economic issue, $x^E(n)$, becomes closer to the rich's ideal policy as n increases. Therefore, the negative effect of globalization on the poor is not limited to economic policies. Even for issues that are not related to capital market integration, the poor becomes more underrepresented as a result of the spill-over effect through an endogenous change in political attention.

It is also observed that q^E is increasing in $\hat{x}^R - \hat{x}^P$. Therefore, as policy preferences become more polarized on the non-economic issue, the poor increase the attention level, which reduces the political influence of the rich on capital taxation. Recently, it has been claimed that polarization on cultural issues such as abortion is profound in the US. This result suggests that such polarization may mitigate the effect of globalization on the underrepresentation of the poor in taxation, although polarization itself could have various negative effects.

B.3 Middle-Income Earner

Setting: We suppose that there are three types of voters: high-income earners, middle-income earners, and low-income earners. The capital endowment of each high-income earner is denoted by k^R, that of each middle-income earner is denoted by k^M, and that of each low-income earner is denoted by k^P, where $k_R > k_M > k_P$. The fraction of high-income earners is $\theta_R \in (0,1)$, and that of low-income earners is $\theta_M \in (0,1)$, where $\theta_R + \theta_M < 1$. Therefore, the average capital endowment is given by $\bar{k} = \theta_R k^R + \theta_M k^M + (1-\theta_R-\theta_M)k^P$. We assume that $k^M < \bar{k}$, meaning that the middle and the poor prefer redistribution.

First scenario: In the first scenario, we assume that the middle are familiar with policy issues, and thus they observe policy platforms without any cost. We consider the closed economy model. The probability of candidate A winning the election is

$$\begin{aligned}\pi(t_A,t_B) =& \frac{1}{2} + \psi[\theta_R(U(k^R|t_A) - U(k^R|t_B)) + \theta_M(U(k^M|t_A) - U(k^M|t_B)) \\ &+ (1-\theta_R-\theta_M)q(U(k^P|t_A) - U(k^P|t_B))].\end{aligned}$$

Given this, $t^*(q)$ is given by the solution to maximizing the following weighted utilitarian social welfare function:

$$\begin{aligned}&\frac{\theta_R}{\theta_R+\theta_M+(1-\theta_R-\theta_M)q}U(k^R|t) + \frac{\theta_M}{\theta_R+\theta_M+(1-\theta_R-\theta_M)q}U(k^M|t) \\ &+ \frac{(1-\theta_R-\theta_M)q}{\theta_R+\theta_M+(1-\theta_R-\theta_M)q}U(k^P|t).\end{aligned}$$

Furthermore, this social welfare function is equal to $U(\tilde{k}(q)|t)$, where

$$\tilde{k}(q) := \frac{\theta_R k^R + \theta_M k^M + (1-\theta_R-\theta_M)qk^P}{\theta_R+\theta_M+(1-\theta_R-\theta_M)q}.$$

Letting $\theta_{RM} := \theta_R + \theta_P$ and $k^{RM} = \frac{\theta_R k^R + \theta_M k^M}{\theta_{RM}}$, this is further rewritten as

$$\tilde{k}(q) = \frac{\theta_{RM}k^{RM} + (1-\theta_{RM})qk^P}{\theta_{RM} + (1-\theta_{RM})q}.$$

This is the same as $\tilde{k}(q)$ in the main analysis once θ is replaced by θ_{RM} and k^R is replaced by k^{RM}. Therefore, the same results apply. The same also holds for the tax competition model.

Second scenario: Next, as the second scenario, we suppose that the middle are unfamiliar with policymaking as the poor are. Because both are beneficiaries of redistribution, the middle and the poor jointly determine their q to maximize

$$\theta_M[U(k^M|t^*(q)) - \kappa q] + (1-\theta_R-\theta_M)[U(k^P|t^*(q)) - \kappa q]$$

First, the probability of candidate A winning the election is

$$\pi(t_A, t_B) = \frac{1}{2} + \psi[\theta_R(U(k^R|t_A) - U(k^R|t_B)) + \theta_M q(U(k^M|t_A) - U(k^M|t_B)) + (1-\theta_R-\theta_M)q(U(k^P|t_A) - U(k^P|t_B))].$$

Given this, $t^*(q)$ is given by the solution to maximizing the following weighted utilitarian social welfare function:

$$\frac{\theta_R}{\theta_R + \theta_M q + (1-\theta_R-\theta_M)q} U(k^R|t) + \frac{\theta_M q}{\theta_R + \theta_M q + (1-\theta_R-\theta_M)q} U(k^M|t) + \frac{(1-\theta_R-\theta_M)q}{\theta_R + \theta_M q + (1-\theta_R-\theta_M)q} U(k^P|t).$$

Furthermore, this social welfare function is equal to $U(\tilde{k}(q)|t)$, where

$$\tilde{k}(q) := \frac{\theta_R k^R + \theta_M k^M q + (1-\theta_R-\theta_M)qk^P}{\theta_R + \theta_M q + (1-\theta_R-\theta_M)q}.$$

Letting $k^{MP} := \frac{\theta_M}{1-\theta_R} k^M + \frac{\theta_P}{1-\theta_R} k^P$, this is further written as

$$\tilde{k}(q) := \frac{\theta_R k^R + (1-\theta_R)qk^{MP}}{\theta_R + (1-\theta_R)q}.$$

Given this, q is derived to maximize

$$\max_q \theta_M[U(k^M|t^*(q)) - \kappa q] + (1-\theta_R-\theta_M)[U(k^P|t^*(q)) - \kappa q],$$

which is equivalent to

$$\max_q U(k^{MP}|t^*(q)) - \kappa q.$$

Therefore, the results same as in the main analysis apply once k^P is replaced by k^{RP} and θ is replaced by θ_R. The same also holds for the tax competition model.