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Democracy, State Capacity and Public Finance

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Abstract

The purpose of this paper is to consider the determinants of state capacity investments and public finance in societies with different intensities of democracy. Specifically, we consider the implications of political (dis)parity between the political parties as well as voter groups for state capacity investments, public goods provision, preferential tax policies between the elites and citizens, and the ability of the incumbent government to accrue political rents. The paper provides a unified framework to study the direct and indirect effects of democracy by combining state capacity investment and probabilistic voting. Paradoxically, while stronger electoral contestability leads to higher public good provision and lower political rents, it deteriorates the incumbent's incentive to invest in state capacity. Similarly, when increased political inclusivity between the voters leads to higher public good provision and lower political rents, it will have a negative effect on state capacity. Conversely, if the effect of inclusivity on state capacity investment is positive, then public good provision will decline.

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1 Introduction

The state capacity, or ability, of governments to delivery much desired public goods and services has been the focus of recent research. One of the pertinent issues of the current research is the need to distinguish between states' will and ability to ensure the requisite public goods and services that enable economic growth and necessary development outcomes (see Besley and Persson, 2014; Acemoglu et al., 2011). Prevailing political institutions are assumed to dictate the will, while the ability is determined by the level of investment in state capacity. This raises a subsequent question whether democracy and state capacity are complements or substitutes for the provision of public goods (see Hanson, 2015).

The purpose of this paper is to consider the determinants of state capacity in societies that have different levels of democracy. We address how democracy, or the lack of it, can affect public finance and state capacity investment. The two elements of democracy we focus on are: political inclusivity (between elites and citizens) and electoral contestability (between the incumbent and opposition). With regards to state capacity investment we consider the key elements of fiscal and operational efficiency. In addition, we consider the implications for public finance in terms of public goods provision, preferential tax policies between the elites and citizens, and the ability of the incumbent government to accrue of political rents. As such, the paper provides a unified framework to study the direct and indirect effects of democracy by combining state capacity investment and probabilistic voting.

We extend the existing literature in two main respects. Firstly, we consider two important characteristics of democracy. The varying intensities of democracy are considered in terms of political inclusivity and electoral contestability. The former accounts for the parity of political influence between two stylized groups: elite and (disadvantaged) citizens. The second aspect of democracy is the increased electoral contestability between the parties, which concerns the degree of equality between the incumbent and opposition parties in the election. Secondly, we consider different aspects of state capacity. The first is investment in fiscal efficiency, which concerns the efficiency of tax or revenue collection. This is distinguished from operative efficiency that relates to the cost of public good provision. We consider how the different features of democracy affect fiscal and operative efficiency respectively. Hence, democracy does not affect the policy outcomes only directly but also through the investments in state capacity.

As discussed in Besley and Persson (2014), the types of states, which range from inclusive democracies to weak states, have varying degrees of incentives to invest in state capacity given who they represent and whose interests they exist to serve. It is typically considered that cohesive political institutions are best placed to deliver inclusive outcomes as they are willing to invest in public goods and investing in state capacity (see Besley and Persson, 2011, 2014; Besley and Mueller, 2018). Similarly, Acemoglu et al. (2011) argues that non-democracies or states that are transiting to democracies where the elite controls the will, and wishing to avoid redistributive demands, have inefficient state capacity. While the contrary is true under democracies. More recently, Acemoglu and Robinson (2017) have strongly advocated the need to deepen the understanding of the relationship between the elite and citizens to comprehend better economic and development outcomes.

The main result of the paper is that there is a central trade-off between state capacity investment and efficiency in public finance with respect to democracy. Lower electoral contestability, due to incumbent bias, leads to lower public goods provision but increased political rents and the probability of the incumbent's electoral success. At the same time, lower electoral contestability incentivizes incumbent governments to investment in fiscal efficiency, as it enables higher political rents. Greater political inclusivity leads to higher levels of public goods provisions and lower political rents if and only if the citizens are more responsive to the electoral platforms. Yet, investment in fiscal efficiency increases with political inclusivity if and only if it is the elite that are more responsive to the electoral platforms. The investment in operative efficiency, however, is independent of inclusivity and contestability.

The remainder of the paper is organized as follows: Section 2 outlines and discusses the related strands in the existing literature. Section 3 outlines the model and the analysis and results are presented in Section 4. The concluding remarks and summary are drawn in Section 5. All proofs are in the appendix.

2 Related Literature

The present paper tackles issues that are related to four strands of the exiting literature. Firstly, there is the key issue of what is the scope of state capacity. To put it another way, what are the specific types or elements of the broad concept of state capacity[1]. Besley and Persson (2014) puts forward three different types of state capacity. In the first instances, they argue that governments need to support markets through the enforcement of secure private property rights. This requires a functioning court and legal system manned by highly qualified experts. Hence, legal capacity is an important element of state capacity requiring high levels of investment to establish and maintain. Collective capacity ensures state's ability to mobilize resources into public goods and services. Thirdly, investment in fiscal capacity is needed to enable incumbent governments to raise revenue.

Dincecco and Katz (2014) defined state capacity as the fiscal and administrative power of states. In their empirical analysis, they use various proxies

[1]A more comprehensive review of state capacity concepts and measures can be in a recent survey by Cingolani (2013)

to capture state capacity. The per capita national government revenue is used to proxy state's extractive capacity and non-per capita military expenditure to proxy state's productive capacity. Cárdenas and Tuzemen (2011) similarly use various per capita tax revenues to capture state capacity in their empirical analysis. Additionally, they use the Government Effectiveness Index.

Political scientists tend to focus on the issue of state or government effectiveness. They (see Mann, 1984; Hanson, 2015) try to distinguish between state infrastructure power, or the institutional state capacity, and the state's bureaucratic capacity. Specifically, the Weberian bureaucratic professionalism pertains to the state's ability enforce and implement policies rather than on the nature of bureaucracy. Indeed, state's bureaucratic capacity enables its institutional capacity, where the latter relates to the ability of the state's logistical ability to implement policies. An index used to capture this is the Bureaucratic Quality Index (BQI) from the ICGR dataset (see, for example Hanson, 2015; Knutsen, 2013).

The present analysis distinguishes between the level of public goods provision and the ability to do so. The ability to provide public goods or collective capacity requires fiscal efficiency or ability to raise revenue. It also requires operative efficiency as the state attempts to minimize the cost of providing public goods. Therefore, we consider the determinants of the level of public goods provision separately from state's investment in its ability to undertake this provision: notably fiscal and operative efficiency.

The second strand of the related literature concerns directly with the provision of public goods. Besley and Persson (2011, 2014) make an important distinction when assessing the provision of public goods. They argue that governments may have sufficient knowledge and understanding about the good policies and practices and the will to enact them but lack the ability. The latter clearly refers to state capacity and, therefore, political institutions crucially determine investment in state capacity. Importantly, in a recent paper Acemoglu and Robinson (2017) assert that capacity building by the state is a direct result of demands made on them by the citizenry. Dominant incumbents of 'meek societies' are not incentivised to build capacity.

Related to this is an ongoing debate in the current literature whether democracy and state capacity are complements or substitutes for attaining economic growth and other development outcomes. Hanson (2015) considers the two aspects. On the one hand, democracy can have a positive effect on growth and development outcomes but only in conjunction with state capacity and, therefore, they are complements. Similar to Besley and Persson (2014), democracy has the motivation to provide public goods and services and state capacity is the means, but each effect is constrained without the other. Nevertheless, on the other hand, higher level of state capacity is doing the job of democracy and, therefore, they are substitutes. Indeed, in an influential paper Ross (2006) argued that in democracies public services have no discernibly greater or significant improvement on human outcomes. He argues that democracies do not direct resources to where it is most needed, but it is directed at the middle and upper-classes. Others (see, for example Wintrobe, 2000; Gandhi, 2008) are of the view that increasing state capacity to increase public good provision is also a tool for dictators as it enables to build loyalty. Hanson (2015), following his empirical results, contend that, while democracies give greater incentives to provide public goods, state capacity is an alternative means to providing public goods.

In the present analysis we clearly distinguish between the incentives to invest in state-capacity and to provide public goods. We show that, while democracies are well incentivized to provide public goods, the investment in state-capacity depends more on the incumbent's ability to accrue political rents. This, in turn, prevails when there is a lack of electoral contestability. Similarly, political inclusivity either incentivizes better public finance or greater state capacity investment but not both.

The third strand of the literature considers the different political institutions and how they may determine investment state capacity. As argued above, there is a need to distinguish between will and ability to provide public goods and services. A willing government, according to Besley and Persson (2014), will try to minimize resource misallocation and induce technological change through investing in state capacity. A willing government will also invest in the capacity to raise revenue. Accordingly, the optimal state capacity investment is when the incumbent equates future expected marginal benefits with the present marginal cost of foregoing consumption, which is measured by the shadow price of public funds.

Besley and Persson (2014) argue that cohesive political institutions are the most likely spend most on common interest public goods and, thereby, greater incentive to investment in state capacity. While less cohesive will allow the state to be run in the interest of narrow groups. Interestingly, a similar argument was made by Ross (2006) as to why democracies do not necessarily have an impact. Cárdenas and Tuzemen (2011) too consider the issue of cohesion and find that income and political inequality lowers investment in state capacity. They also consider the scenario of political stability as defined by civil war, as opposed to external wars, and find that politically instability lead to lower state capacity investment. Indeed, in a recent survey Piano (2019) argues that the state capacity literature tends to emphasize the provision of public goods and revenue collection, while disregarding the political competition faced by the incumbent government. They are rarely considered together and their impact on one another. The present paper attempts to fill in this important gap in the literature by considering the effect of electoral competition and levelling the playing field between the incumbent and opponent.

Finally, the fourth strand pertains to the literature that is concerned with economic and political inequality and its impact on economic growth and development outcomes, for example: Acemoglu and Robinson (2000); Acemoglu (2005); Acemoglu and Robinson (2005); Persson and Tabellini (2009);

Acemoglu et al. (2011); Acemoglu and Robinson (2017). We contribute to this literature by considering political inclusivity between the voters and its implications on public finance and state capacity.

To conclude, our analysis is more specific in how democracies are defined or, rather, we consider specific aspects of democracy. Specifically, we consider political inclusivity and electoral contestability - both important hallmarks of democracy. We find that political inclusivity reduces inequality (in terms consumption disparity) and contestability increases public goods provision and overall consumption. Notably, operative efficiency is unaffected by either inclusivity or contestability. The results are more nuanced with respect to fiscal efficiency, since an improvement in the two aspects of democracy can erode the incumbent's incentives to invest in it.

3 Model

The key aspect of the model is the combination of electoral competition and investments in state capacity. This provides us with a unified framework for studying how democracy affects public finance and state capacity. That is, we can study how democracy or the lack of it contributes to political rents, public good provision, and income redistribution as well as gain further insights on the determinants of state capacity.

Before describing the time line, let us first introduce the detailed characteristics of the model and define some terms. The subscripts in our notation, where applicable, refer to the particular group of voters and the superscripts refer to the political party.

Voters. Suppose that there are two groups in the society; the elite (e) and the (disadvantaged) citizens (d). The total population is the sum of people in these two groups: $N = n_e + n_d$. All voters have the same utility function, which has a logarithmic form and is additively separable between private consumption c_i and public good G[2]:

$$u_i = \beta \ln(c_i) + \beta \ln(G).$$

All voters are provided with the same, non-negative G. The voters in group i have fixed per period income w_i and taxes can be targeted. Hence, the private consumption of voter type i is

$$c_i = (1 - t_i)w_i,$$

where $i = e, d$ and $t \in [0, 1]$ is the tax rate.

Political parties. There are two political parties, which we label the incumbent (I) and the opponent (O). At the time of the election, both parties announce their electoral platforms, which are binding and have to be implemented if the party is elected. The platforms consist of tax rates and public good provision. Note that besides electoral issues, lack of democracy may also relate to lack of accountability and transparency, neither of which are considered here.

By setting tax rates t_e^J and t_d^J, the governing party $J = \{I, O\}$ collects tax revenue $\gamma(w_e n_e t_e^J + w_d n_d t_d^J)$, where $\gamma \in (0, 1]$ is fiscal efficiency and measures how much of the taxes are not lost in the process of collecting them. The cost of public good provision to party J is given by $\alpha N G^J$, where α is an inverse measure of operative efficiency. The public good is nonexclusive (i.e. available to all), but subject to crowding (i.e. the cost is proportional to N).

Whichever party wins the election, they will have access to the same state capacity and take γ and α as given when announcing their electoral platforms. However, during their tenure, the incumbent may invest in state capacity, which improves fiscal and/or operative efficiency from $\hat{\gamma}$ and $\hat{\alpha}$ to γ and α. The investment costs are given by $f(\gamma - \hat{\gamma})$ and $g(\hat{\alpha} - \alpha)$, where $f(\cdot)$ and

[2]The coefficients of public and private consumption in the utility function could easily be different, but the common β simplifies notation and provides a helpful rule of thumb that c and G are desired in equal proportion.

$g(\cdot)$ are convex and increasing functions, $f(0) = f'(0) = g(0) = g'(0) = 0$, and $f(1-\hat{\gamma}) = g(\hat{\alpha}) = \infty$. The discount factor is $\delta \in (0,1)$ and the realised γ and α are common knowledge.

If all tax revenue is not spent on financing the public good, then party J receives the surplus in the form of a political rent R^J. Hence, the government's budget constraint is

$$\gamma \sum w_i n_i t_i^J = \alpha N G^J + R^J,$$

where $J = \{I, O\}$. During its tenure, the incumbent uses its earlier political rents, $\hat{R}$, for the state capacity investments. We assume that this budget constraint is not binding in the equilibrium and $\hat{R} > f(\gamma - \hat{\gamma}) + g(\hat{\alpha} - \alpha)$.

Democracy and electoral competition. The election is considered here broadly as the mechanism through which the ruling party is selected and which incorporates varying degrees of democracy. Two aspects of democracy considered in the model are the degree of equality among the voters as well as between the candidates. We consider a probabilistic voting model, in which political influence per capita, π_i, may differ between the two groups of voters in favour of the elite, i.e. $\pi_e \geq \pi_d$, and there is a common bias, $b \geq 0$, in favour of the incumbent I. There is also an individual bias, $\varepsilon \lesseqgtr 0$, which can be either in favour of or against the incumbent and which is the key feature of the probabilistic voting models in general. A member of group i will vote for I if

$$u_i^I - u_i^O + b > \varepsilon,$$

where u_i^J represent the maximal consumption-based utility that the members of group i would enjoy under the policies of party J.

The common bias is known to the parties as well, but only the individuals themselves know ε. The parties treat the individual biases as independent and identically distributed random variables that are drawn from an uniform distribution, which has zero mean and finite variance. Let $F_i(\cdot)$ be the associated cumulative distribution function of members of group i over the range of ε. We assume $F_i(\cdot)$ to be continuous with $F_i(0) = 1/2$. Hence, the probability that a member of group i votes for I is given by $Pr(\varepsilon < u_i^I - u_i^O + b) = F_i(x_i^I)$, where x_i^I denotes the critical value $x_i^I \equiv u_i^I - u_i^O + b$ for group i. Party O gets the vote with probability of $F_i(x_i^O) = F_i(-x_i^I) = 1 - F_i(x_i^I)$.

The density function f_i is constant and negatively linked to the variance of the distribution. We assume that for both groups the variances of the individual biases are sufficiently wide such that corner solutions are ruled out for any common bias b and $F_i(x_i^J) \in (0, 1)$ in equilibrium.

Finally, the probability that party J wins the election is given by

$$P^J = \frac{\sum_i \pi_i n_i F_i(x_i^J)}{\sum_i \pi_i n_i}.$$

This is the same as the expected share of the total political support when some votes count more than the others.

The connections with the earlier theoretical models are as follows. Electoral competition is based on the probabilistic voting models of Lindbeck and Weibull (1987); Dixit and Londregan (1996) and Lizzeri and Persico (2004). Within this framework, the effect of party bias on political rents has been studied earlier by Polo (1998) and the notion of (disparity in) political influence follows from Deacon (2009).

The incorporation of state capacity follows from Besley and Persson (2009) with a few key differences. Like them, we use a two-period model to allow for investment in state capacity as simple a way as possible. The second stage of our model shows the direct, "static" effect of democracy on the policy outcomes, whereas the first stage shows the indirect, "dynamic" effect of democracy on the investments in state capacity and subsequently on the policy outcomes. However, fiscal capacity in our model concerns the state's fiscal efficiency in collecting tax revenue rather than the maximum tax rate, the latter being endogenous to electoral competition in our model.

Furthermore, we do not consider the state's legal capacity to enforce property rights but consider its operative efficiency in the provision of public goods and services instead. Most importantly, electoral competition in our model endogenizes the political control.

Timing.

- Stage 1: The incumbent holds the office and decides how much to invest in future state capacity γ and α.

- Stage 2: A new election takes place. Given γ and α, the parties propose electoral platforms consisting of t_e^J, t_d^J and G^J and determining R^J. The winner's platform is implemented.

We derive the equilibrium electoral platforms by backward induction. The main interest is in how democracy (or the lack of it) affects state capacity and policy outcomes, each of which have several dimensions as defined below.

Democracy. i) Political inclusivity, $\pi_d/\pi_e \leq 1$; ii) Electoral contestability, which inversely related to the incumbent's advantage, i.e. bias b.

State capacity. i) Fiscal efficiency, γ; ii) Operative efficiency, which is inversely related to α.

Public finance and policy outcomes. i) Consumption disparity between the voters, $c_e/c_d \geq 1$; ii) Public good provision, G; iii) Political rents, R.

4 Analysis

4.1 Stage 2

The parties take γ and α as given, since they are chosen by the incumbent in period 1. Hence, party J chooses t_e^J, t_d^J, and G^J to maximise

$$\Pi^J = P^J R^J = \frac{\sum_i \pi_i n_i F_i(x_i^J)}{\sum_i \pi_i n_i} \left(\gamma \sum_i w_i n_i t_i^J - \alpha N G^J \right),$$

where R^J follows from the budget constraint, $x_i^J = u_i^J - u_i^K + b^J$, $J, K = \{I, O\}$, $J \neq K$, $i = \{e, d\}$, and $b^I = b, b^O = -b$. The equilibrium is characterised by the first-order conditions

$$\frac{\partial \Pi^J}{\partial t_i^J} = -\frac{\beta w_i}{c_i^J} \frac{\pi_i n_i f_i}{\sum_i \pi_i n_i} R^J + P^J \gamma w_i n_i = 0, \tag{1}$$

and

$$\frac{\partial \Pi^J}{\partial G^J} = \frac{\beta}{G^J} \frac{\sum_i \pi_i n_i f_i}{\sum_i \pi_i n_i} R^J - P^J \alpha N = 0, \tag{2}$$

where β / c_i^J and β / G^J are the marginal utilities of private and public consumption, and f_i is the density function of ε in group i. The following proposition ensures the optimality of solutions.

Proposition 1. *The Hessian matrix of Π^J is negative definitive in any interior point x_i^J where $F_i(x_i^J) > 0$.*

All proofs are found in the appendix. We obtain the following Lemma from the first order conditions.

Lemma 1. *The equilibrium platforms are characterised by the following relative consumption patterns:*

$$\frac{c_e^J}{c_d^J} = \frac{\pi_e f_e}{\pi_d f_d} \tag{3}$$

and

$$G^J = \frac{\gamma \sum_i c_i n_i}{\alpha N}. \tag{4}$$

Equation (3) in Lemma 1 indicates that the consumption disparity between the elite and citizens is increasing with effective political disparity (or deteriorating inclusivity), which concerns both the relative political influence as well the groups' responsiveness to the policies. Furthermore, consumption disparity is independent of the electoral bias, which, as we will see, affects the groups' absolute level of private consumption. Equation (4) is the usual Samuelsonian condition of efficient public good provision. Hence, the amount public good provided is socially optimal *relative* to private consumption. Since the consumption disparity is independent of group size, we can further observe that the aggregate private consumption,

$$\sum_i c_i n_i = n_e c_e + n_d c_e \frac{\pi_d f_d}{\pi_e f_e},$$

and, by extension, public consumption are lower if the elite has a higher private consumption but are fewer in number.

In the following Lemma, we establish the key comparative statics results, which will be useful for later analysis.

Lemma 2. *The equilibrium tax rates of the incumbent are increasing in the electoral bias while those of the opponent are decreasing:*

$$\frac{\partial t_i^I}{\partial b} > 0, \frac{\partial t_i^O}{\partial b} < 0$$

The combined effect of the two satisfies

$$2\beta\left(\frac{w_i}{c_i^I}\frac{\partial t_i^I}{\partial b} - \frac{w_i}{c_i^O}\frac{\partial t_i^O}{\partial b}\right) < 1.$$

Lemma 2 establishes that the effect of the bias, as expected, is positive on the incumbent's equilibrium tax rate and negative on the opponent's tax rate. In addition, it shows how the bias changes the equilibrium tax rates between the parties relative to each other and helps us to establish that the direct effect of the bias on the voting behavior will not be outweighed by the indirect effect, resulting from the change in the equilibrium platforms. This will be important when considering the effect of the bias on the probability of winning. The relationship between the equilibrium policy outcomes and democracy is as follows.

Proposition 2. *The incumbent's provision of public goods is decreasing with electoral bias while their political rents and probability of winning the election* *are increasing.*

While Lemma 1 shows that the ratio between public and private consumption is socially optimal, Proposition 2 indicates that the incumbent offers less of both types of consumption when electoral bias is increasing. The bias allows the incumbent to overtax (relative to the equilibrium tax rate between identical parties) and enjoy higher rents. The platforms are associated with rents even with perfect electoral contestability and, therefore, the size of rent depends also on the variance of the individual bias. A straightforward corollary of Proposition 2 is electoral bias must, in equilibrium, decrease the opponent's political rents and probability of winning while increasing their proposed public good provision.

Proposition 3. *Public good provision by both parties is increasing and their political rents decreasing with inclusivity (π_d/π_e) if and only if the citizens are more responsive to the electoral platforms ($f_d > f_e$). Inclusivity has no effect on the probabilities of winning the election.*

Since the effect of inclusivity on the parties is symmetrical, they both gain or lose from it equally. For example, they both gain from an increase in political disparity if the elite is less responsive to the platforms. Essentially, as consumption (dis)parity has no direct relevance to the parties, the parties would prefer changes that make the average population less responsive – as it increases the scope for political rents.

4.2 Stage 1

To provide a benchmark for the analysis, we begin by considering the choices made by a Utilitarian social planner. Suppose that in period s the social planner chooses t_e^s and t_d^s to maximise $U^s = \sum_i n_i u_i(c_i^s, G^s)$. When the individuals in both groups are given equal weight, $\pi_e = \pi_d$, we have $c_e^s = c_d^s = c^s$ in the social optimum. As a consequence of the similar private and public log-utilities, we also have $G^s = \gamma^s c^s/\alpha^s$.

Suppose now that the planner can invest some of the tax revenue in state capacity such that the budget constraints in first and second period are $\hat{\gamma}\sum w_i n_i t_i^1 = \hat{\alpha}NG^1 + f(\gamma - \hat{\gamma}) + g(\hat{\alpha} - \alpha)$ and $\gamma \sum w_i n_i t_i^2 = \alpha NG^2$, respectively. Given the budget constraints and the optimal mix between private and public consumption, the social planner therefore chooses γ and α to maximise

$$U^1 + \delta U^2 = N(\beta \ln(c^1) + \beta \ln(G^1)) + \delta N(\beta \ln(c^2) + \beta \ln(G^2)),$$

where the socially optimal private and public consumption are given by

$$c^1 = \frac{\hat{\gamma}\sum_i n_i w_i - f(\gamma - \hat{\gamma}) - g(\hat{\alpha} - \alpha)}{2\hat{\gamma}N}, c^2 = \frac{\sum_i n_i w_i}{2N}$$

$$G^1 = \frac{\hat{\gamma}\sum_i n_i w_i - f(\gamma - \hat{\gamma}) - g(\hat{\alpha} - \alpha)}{2\hat{\alpha}N}, G^2 = \frac{\gamma \sum_i n_i w_i}{2\alpha N}.$$

The first-order conditions with respect to γ and α,

$$-\frac{\beta}{c^1}f' + \delta\frac{\beta N}{\gamma} = 0 \tag{5}$$

and

$$-\frac{\beta}{c^1}g' + \delta\frac{\beta N}{\alpha} = 0, \tag{6}$$

define the socially optimal state capacity investments, since in the absence of cross-effects the second-order conditions are clearly satisfied.

Let us now compare the Utilitarian benchmark to electoral competition. Public good provision under electoral competition with probabilistic voting, non-linear utility, and political rents falls short of the efficient level even with no electoral bias. If $b = 0$, the equilibrium is symmetric and the probability of winning is $P^J = 1/2$. In this case, the first-order conditions (1) and (2) and the budget constraint yield

$$G^J = \frac{\gamma \sum_i n_i w_i}{2\alpha N} \frac{4\beta \sum_i \pi_i n_i f_i}{4\beta \sum_i \pi_i n_i f_i + \sum_i \pi_i n_i}, \tag{7}$$

which is always less than G^2 when f_is are finite and the variance of the individual bias is positive.

Let us now consider the incumbent who can invest some of the political rents it has gained after implementing the previous electoral platform. The new γ and α that materialise after the next election are at the disposal of whoever is the election winner. Hence, the incumbent chooses γ and α to maximise

$$\hat{R} - f(\gamma - \hat{\gamma}) - g(\hat{\alpha} - \alpha) + \delta P^I R^I,$$

where $P^I R^I$ is the expected equilibrium political rent in stage 2. Since P^J is independent of γ and α, the respective first-order conditions are

$$-f' + \delta P^I \frac{\partial R^I}{\partial \gamma} = 0 \tag{8}$$

and

$$g' - \delta P^I \frac{\partial R^I}{\partial \alpha} = 0. \tag{9}$$

The comparison between the Utilitarian benchmark and electoral competition reveals the following.

Proposition 4. *Investment in fiscal efficiency is increasing with electoral bias. There can be underinvestment when the bias is small and overinvestment when it is large. The investment is also increasing with inclusivity, if and only if the disadvantaged is less responsive to the electoral platforms.*

The intuition behind the results is as follows. On one hand, competition between parties decreases the incumbent's incentive to invest in γ. On the other hand, a higher γ enables higher political rents. The former effect diminishes and the latter gain increases with electoral bias. When political disparity increases the incumbent's rent, consequently, it also increases the incentive to invest in fiscal efficiency.

Proposition 5. *There is no investment in operative efficiency and the outcome is independent of electoral bias and political inclusivity.*

While somewhat strong and surprising, the outcome can be fairly easily explained, since operative efficiency does not contribute towards political rents or give any advantage over the opponent. As such, some other factor is required to explain why the incumbent would have an incentive to invest in operative efficiency. This would be the case if, for example, operative efficiency is partially exclusive to the incumbent or the voters are time-inconsistent and reward the incumbent for their past actions.

5 Concluding Remarks

The purpose of the present paper is to study the determinants of state capacity investment and public finance with respect to democracy. The present analysis considers two specific and crucial aspects of democracy. In particular, we consider political inclusivity and electoral contestability – both important hallmarks of democracy. The paper provides a unified framework to the study the direct and indirect effects of democracy by combining state capacity investment and probabilistic voting. We extend the existing literature by, firstly, consider these two crucial aspects of democracy and, secondly, by distinguishing two elements of state-capacity; fiscal and operative efficiency.

We find that greater electoral contestability leads to higher levels of public good provision and lower political rents but it deteriorates the incumbent's incentive to invest in state capacity. Likewise, increased political inclusivity between voters leads to higher public good provision and lower political rents. Nevertheless, it will have a negative effect on state capacity. Conversely, if the effect of inclusivity on state capacity investment is positive, then public good provision will decline. Finally, we find that operative efficiency is unaffected by either inclusivity or contestability.

Appendix A Proofs

Proof of Proposition 1. The Hessian matrix of $\Pi^J(t_i^J, t_j^J, G^J)$ is

$$\mathbf{H} = \begin{pmatrix} f_{ii} & f_{ij} & f_{ig} \\ f_{ij} & f_{jj} & f_{jg} \\ f_{ig} & f_{jg} & f_{gg} \end{pmatrix},$$

where the second partial derivatives are given by

$$\begin{aligned} f_{ii} &\equiv -P_{ii}R^J - 2P_iR_i < 0 & f_{ij} &\equiv -P_iR_j - P_jR_i < 0 \\ f_{jj} &\equiv -P_{jj}R^J - 2P_jR_j < 0 & f_{ig} &\equiv P_iR_g + P_gR_i > 0 \\ f_{gg} &\equiv -P_{gg}R^J - 2P_gR_g < 0 & f_{jg} &\equiv P_jR_g + P_gR_j > 0 \end{aligned} \tag{10}$$

with

$$\begin{aligned} P_i &\equiv \beta\frac{w_i}{c_i^J}\frac{\pi_in_if_i}{\sum_i \pi_in_i} > 0 & P_{ii} &\equiv \frac{w_i}{c_i^J}P_i > 0 & R_i &\equiv \gamma w_in_i > 0 \\ P_j &\equiv \beta\frac{w_j}{c_j^J}\frac{\pi_jn_jf_j}{\sum_i \pi_in_i} > 0 & P_{jj} &\equiv \frac{w_j}{c_j^J}P_j > 0 & R_j &\equiv \gamma w_jn_j > 0 \\ P_g &\equiv \frac{\beta}{G^J}\frac{\sum_i \pi_in_if_i}{\sum_i \pi_in_i} > 0 & P_{gg} &\equiv \frac{1}{G^J}P_g > 0 & R_g &\equiv \alpha N > 0 \end{aligned}$$

and $i, j = \{e, d\}, i \neq j$.

Let D_s be the sth-order principal minor of $\mathbf{H}$. If $D_1 < 0, D_2 > 0$ and $D_3 < 0$, then $\mathbf{H}$ is negative definite. It follows directly from (10) that $D_1 = f_{ii} < 0$.

Note that $F_i(x_i^J) > 0$ and the first-order conditions (1) and (2) imply $R^J > 0$ and that

$$\frac{R^J}{P^J} = \frac{R_i}{P_i} = \frac{R_j}{P_j} = \frac{R_g}{P_g} \tag{11}$$

Using (11), it follows that

$$\begin{aligned} D_2 = \begin{vmatrix} f_{ii} & f_{ij} \\ f_{ij} & f_{jj} \end{vmatrix} &= f_{ii}f_{jj} - (f_{ij})^2 \\ &= P_{ii}P_{jj}\left(R^J\right)^2 + 2(P_{ii}P_jR_j + P_{jj}P_iR_i)R^J > 0. \end{aligned}$$

Finally, we use (11) to simplify the following determinants:

$$\begin{aligned} \begin{vmatrix} f_{jj} & f_{jg} \\ f_{jg} & f_{gg} \end{vmatrix} =& f_{jj}f_{gg} - (f_{jg})^2 \\ =& P_{jj}P_{gg}\left(R^J\right)^2 + 2(P_{jj}P_gR_g + P_{gg}P_jR_j)R^J > 0, \end{aligned} \tag{12}$$

$$\begin{vmatrix} f_{ij} & f_{jg} \\ f_{ig} & f_{gg} \end{vmatrix} = f_{ij}f_{gg} - f_{jg}f_{ig} = f_{ij}P_{gg}R^J > 0, \tag{13}$$

and

$$\begin{vmatrix} f_{ij} & f_{jj} \\ f_{ig} & f_{jg} \end{vmatrix} = f_{ij}f_{jg} - f_{ig}f_{jj} = f_{ig}P_{jj}R^J > 0. \tag{14}$$

By substituting (12), (13) and (14), we obtain

$$\begin{aligned} D_3 =& \begin{vmatrix} f_{ii} & f_{ij} & f_{ig} \\ f_{ij} & f_{jj} & f_{jg} \\ f_{ig} & f_{jg} & f_{gg} \end{vmatrix} = f_{ii}\begin{vmatrix} f_{jj} & f_{jg} \\ f_{jg} & f_{gg} \end{vmatrix} - f_{ij}\begin{vmatrix} f_{ij} & f_{jg} \\ f_{ig} & f_{gg} \end{vmatrix} + f_{ig}\begin{vmatrix} f_{ij} & f_{jj} \\ f_{ig} & f_{jg} \end{vmatrix} \\ =& f_{ii}P_{jj}P_{gg}\left(R^J\right)^2 - 2P_{ii}(P_{jj}P_gR_g + P_{gg}P_jR_j)\left(R^J\right)^2 < 0, \end{aligned}$$

which completes the proof. □

Proof of Lemma 1. Solving Equation (1) simultaneously for both groups yields Equation (3). Then, multiplying the both sides (1) by c_i^J/w_i and summing over both groups yields

$$-\beta\frac{\sum_i \pi_i n_i f_i}{\sum_i \pi_i n_i}R^J + P^J\gamma\sum_i c_i n_i = 0 \leftrightarrow R^J = P^J\gamma\sum_i c_i n_i\frac{\sum_i \pi_i n_i}{\beta\sum_i \pi_i n_i f_i}.$$

By substituting R^J in (2) we obtain Equation (4) $\square$

Proof of Lemma 2. Let $Z \equiv (\pi_j f_j)/(\pi_i f_i)$ and $N_Z \equiv n_i + n_j Z$, where $i, j \in \{e, d\}; i \neq j$. Multiply the first-order condition (1) by $(c_i^J \sum_i \pi_i n_i)/(w_i n_i)$ to get

$$f_J \equiv -\beta\pi_i f_i R^J + \gamma c_i^J \sum_i \pi_i n_i F_i(x_i^J) = 0, \tag{15}$$

where $c_j^J = c_i^J Z, G^J = (\gamma c_i^J N_Z)/(\alpha N)$ and $R^J = \gamma\sum_i n_i w_i - 2\gamma c_i^J N_Z$ as given by Lemma 1. Totally differentiating (15) of both parties yields

$$f_{II}\frac{\partial t_i^I}{\partial b} + f_{IO}\frac{\partial t_i^O}{\partial b} + f_{Ib}\frac{\partial b}{\partial b} = 0$$

$$f_{OO}\frac{\partial t_i^O}{\partial b} + f_{OI}\frac{\partial t_i^I}{\partial b} + f_{Ob}\frac{\partial b}{\partial b} = 0$$

$$\leftrightarrow \begin{pmatrix} f_{II} & f_{IO} \\ f_{OI} & f_{OO} \end{pmatrix}\begin{pmatrix} \frac{\partial t_i^I}{\partial b} \\ \frac{\partial t_i^O}{\partial b} \end{pmatrix} = \begin{pmatrix} -f_{Ib} \\ -f_{Ob} \end{pmatrix}, \tag{16}$$

where

$$f_{II} \equiv -4\beta\gamma w_i \pi_i f_i N_Z - \gamma w_i \sum_i \pi_i n_i F_i(x_i^I) < 0,$$

$$f_{IO} \equiv 2\beta\gamma\frac{c_i^I}{c_i^O} w_i \pi_i f_i N_Z > 0,$$

$$f_{Ib} \equiv \gamma c_i^I \pi_i f_i N_Z > 0,$$

$$f_{OO} \equiv -4\beta\gamma w_i \pi_i f_i N_Z - \gamma w_i \sum_i \pi_i n_i F_i(x_i^O) < 0,$$

$$f_{OI} \equiv 2\beta\gamma\frac{c_i^O}{c_i^I} w_i \pi_i f_i N_Z > 0,$$

and

$$f_{Ob} \equiv -\gamma c_i^O \pi_i f_i N_Z < 0.$$

By using Cramer's rule, we obtain from (16) that

$$\frac{\partial t_i^I}{\partial b} = \frac{\begin{vmatrix} -f_{Ib} & f_{IO} \\ -f_{Ob} & f_{OO} \end{vmatrix}}{\begin{vmatrix} f_{II} & f_{IO} \\ f_{OI} & f_{OO} \end{vmatrix}} \text{ and } \frac{\partial t_i^O}{\partial b} = \frac{\begin{vmatrix} f_{II} & -f_{Ib} \\ f_{OI} & -f_{Ob} \end{vmatrix}}{\begin{vmatrix} f_{II} & f_{IO} \\ f_{OI} & f_{OO} \end{vmatrix}}. \tag{17}$$

Since $-f_{II} > \frac{c_i^O}{c_i^I} f_{IO}$ and $-f_{CC} > \frac{c_i^I}{c_i^O} f_{OI}$, the determinant in the denominators of (17) is positive:

$$\begin{vmatrix} f_{II} & f_{IO} \\ f_{OI} & f_{OO} \end{vmatrix} = f_{II} f_{OO} - f_{IO} f_{OI} > 0.$$

$-f_{CC} > -\frac{2\beta w_i}{c_i^O} f_{Cb}$ and $f_{Ib} \frac{2\beta w_i}{c_i^O} = f_{IC}$ imply that

$$\begin{vmatrix} -f_{Ib} & f_{IO} \\ -f_{Ob} & f_{OO} \end{vmatrix} = -f_{Ib} f_{OO} + f_{IO} f_{Ob} > 0.$$

$-f_{II} > \frac{2\beta w_i}{c_i^I} f_{Ib}$ and $-f_{Ob} \frac{2\beta w_i}{c_i^I} = f_{OI}$ imply that

$$\begin{vmatrix} f_{II} & -f_{Ib} \\ f_{OI} & -f_{Ob} \end{vmatrix} = -f_{II} f_{Ob} + f_{Ib} f_{OI} < 0.$$

Therefore, $\partial t_i^I / \partial b > 0$ and $\partial t_i^O / \partial b < 0$.

Suppose that

$$2\beta \left(\frac{w_i}{c_i^I} \frac{\partial t_i^I}{\partial b} - \frac{w_i}{c_i^O} \frac{\partial t_i^O}{\partial b} \right) > 1,$$

which given by (17) becomes

$$
\begin{aligned}
&2\beta\frac{w_i}{c_i^I}(-f_{Ib}f_{OO}+f_{IO}f_{Ob})-2\beta\frac{w_i}{c_i^O}(-f_{II}f_{Ob}+f_{Ib}f_{OI})=\\
&2\beta\frac{w_i}{c_i^I}(-f_{Ib}f_{OO})-2\beta\frac{w_i}{c_i^O}(-f_{II}f_{Ob})>f_{II}f_{CC}-f_{IC}f_{CI}.
\end{aligned} \tag{18}
$$

After simplifying and dividing both sides by $(\gamma w_i)^2$, (18) reduces to

$$
\left(2\beta\pi_i f_i N_Z+\sum_i \pi_i n_i F_i(x_i^I)\right)\left(2\beta\pi_i f_i N_Z+\sum_i \pi_i n_i F_i(x_i^O)\right)<0,
$$

which is a contradiction. □

Proof of Proposition 2. Since $\partial t_i^I/\partial b > 0$ (Lemma 2) but $\partial G^J/\partial c_i^J > 0$ (Lemma 1), then the decrease in private consumption is combined with a decrease in public good provision, $\partial G^I/\partial b < 0$. Since tax revenue increases but public expenditure decreases, the incumbent's rent increases in the political bias: $\partial R^I/\partial b > 0$.

Totally differentiating the critical value yields

$$
\frac{\partial x_i^I}{\partial b}=\frac{\partial u_i}{\partial c_i^I}\frac{\partial c_i^I}{\partial t_i^I}\frac{\partial t_i^I}{\partial b}+\frac{\partial u_i}{\partial G^I}\frac{\partial G^I}{\partial b}-\frac{\partial u_i}{\partial c_i^O}\frac{\partial c_i^O}{\partial t_i^O}\frac{\partial t_i^O}{\partial b}-\frac{\partial u_i}{\partial G^O}\frac{\partial G^O}{\partial b}+\frac{\partial b}{\partial b} \tag{19}
$$

Due to Lemma 1,

$$
\frac{\partial u_i}{\partial G^J}\frac{\partial G^J}{\partial b}=\frac{\partial u_i}{\partial c_i^J}\frac{\partial c_i^J}{\partial t_i^J}\frac{\partial t_i^J}{\partial b}=-\beta\frac{w_i}{c_i^J}\frac{\partial t_i^J}{\partial b}
$$

and (19) becomes

$$
\frac{\partial x_i^I}{\partial b}=-2\beta\frac{w_i}{c_i^J}\frac{\partial t_i^I}{\partial b}+2\beta\frac{w_i}{c_i^J}\frac{\partial t_i^O}{\partial b}+1>0,
$$

where the inequality is given by Lemma 2. Lastly, $\partial x_i^I/\partial b > 0$ implies that $\partial P^I/\partial b = (\partial P^I/\partial x_i^I)(\partial x_i^I/\partial b) > 0$. □

Proof of Proposition 3. $b = 0$ implies $x_e^J = x_d^J = 0$ in the symmetric equilibrium. Since $c_d^J = c_e^J Z$, $(\partial u_e/\partial x_e^J)(\partial x_e^J/\partial b) = (\partial u_d/\partial x_d^J)(\partial x_d^J/\partial b)$ and $\partial x_e^J/\partial b = \partial x_d^J/\partial b$. Therefore, $x_e^J = x_d^J = x^J$ for all b.

Let $\pi_d = y\pi_e$, where $y \in (0, 1]$ is a measure of inclusivity. Substituting π_d and x^J in (15) for t_e^J yields

$$f_J = -\beta\pi_e f_e(\gamma \sum_i n_i w_i - 2\gamma c_e^J(n_e n_d \frac{f_d}{f_e} y)) + \gamma c_e^J \pi_e(n_e F_e(x^J) + y n_d F_d(x^J)) = 0. \tag{20}$$

Totally differentiating (20) for A and B, where $A, B = \{I, O\}, A \neq B$, yields

$$f_{AA}\frac{\partial t_e^A}{\partial y} + f_{AB}\frac{\partial t_e^B}{\partial y} + f_{Ay}\frac{\partial y}{\partial y} = 0$$

$$f_{BB}\frac{\partial t_e^B}{\partial y} + f_{BA}\frac{\partial t_e^A}{\partial y} + f_{By}\frac{\partial y}{\partial y} = 0$$

$$\leftrightarrow \begin{pmatrix} f_{AA} & f_{AB} \\ f_{BA} & f_{BB} \end{pmatrix} \begin{pmatrix} \frac{\partial t_e^A}{\partial y} \\ \frac{\partial t_e^B}{\partial y} \end{pmatrix} = \begin{pmatrix} -f_{Ay} \\ -f_{By} \end{pmatrix}, \tag{21}$$

where

$$f_{AA} \equiv -\gamma w_e \pi_e(4\beta(f_e n_e + f_d n_d y) + F_e(x^A)n_e + F_d(x^A)n_d y) < 0,$$

$$f_{AB} \equiv 2\beta\gamma\frac{c_e^A}{c_e^B} w_e \pi_e(f_e n_e + f_d n_d y) > 0,$$

$$f_{Ay} \equiv \gamma c_e^A \pi_e n_d(2\beta f_d + F_d(x^A)) > 0,$$

$$f_{BB} \equiv -\gamma w_e \pi_e(4\beta(f_e n_e + f_d n_d y) + F_e(x^B)n_e + F_d(x^B)n_d y) < 0,$$

$$f_{BA} \equiv 2\beta\gamma\frac{c_e^B}{c_e^A} w_e \pi_e(f_e n_e + f_d n_d y) > 0,$$

and

$$f_{By} \equiv \gamma c_e^B \pi_e n_d(2\beta f_d + F_d(x^B)) > 0.$$

By using Cramer's rule, we obtain from (21) that

$$\frac{\partial t_e^A}{\partial y} = \frac{\begin{vmatrix} -f_{Ay} & f_{AB} \\ -f_{By} & f_{BB} \end{vmatrix}}{\begin{vmatrix} f_{AA} & f_{AB} \\ f_{BA} & f_{BB} \end{vmatrix}} \tag{22}$$

From the proof of Lemma 2, we know that $f_{AA}f_{BB} - f_{AB}f_{BA} > 0$. It is also clear from the signs of the terms that $-f_{Ay}f_{BB} + f_{AB}f_{By} > 0$. Hence, $\partial t_e^A/\partial y > 0$.

The effect of y on aggregate private consumption and, by Lemma 1, public good consumption is given by

$$\frac{\partial \sum_i c_i n_i}{\partial y} = -w_e \frac{\partial t_e^A}{\partial y} \frac{f_e n_e + f_d n_d y}{f_e} + c_e^A \frac{f_d n_d}{f_e},$$

which simplifies to

$$\frac{(\gamma w_e \pi_e)^2 c_e^A n_e n_d}{f_e(f_{AA}f_{BB} - f_{AB}f_{BA})}(Cn_e + Dn_d y),$$

with

$$C = 4F_e(x^A)\beta f_d f_e - 4F_d(x^A)\beta f_e^2 + 2F_e(x^B)\beta f_d f_e - 2F_d(x^B)\beta f_e^2$$

$$+F_e(x^A)F_e(x^B)f_d - F_d(x^A)F_e(x^B)f_e$$

and

$$D = 4F_e(x^A)\beta f_d^2 - 4F_d(x^A)\beta f_d f_e + 2F_e(x^B)\beta f_d^2 - 2F_d(x^B)\beta f_d f_e$$

$$+F_d(x^B)F_e(x^A)f_d - Fd(x^A)F_d(x^B)f_e$$

and has the same sign as $(Cn_e + Dn_d y)$.

$$C, D \gtrless 0 \leftrightarrow \frac{F_e(x^J)}{F_d(x^J)} = \frac{x^J f_e + .5}{x^J f_d + .5} \gtrless \frac{f_e}{f_d} \leftrightarrow f_d \gtrless f_e.$$

Hence, $\partial \sum_i c_i n_i / \partial y \gtrless 0 \leftrightarrow f_d \gtrless f_e$. Since $\partial t_i^A / \partial y = \partial t_i^B / \partial y$, there is no change in the critical value and $\partial P^A / \partial y = 0$. □

Proof of Proposition 4. The incumbent's equilibrium rent is $R^I = \gamma \sum_i n_i w_i - 2\gamma c_i^I N_Z$, where c_i^I is independent of γ. Hence, (8) becomes

$$-f' + \delta P^I \frac{R^I}{\gamma} = 0. \tag{23}$$

Since both P^I and R^I are increasing in b, also γ is increasing in b. Comparing (5) and (23) shows that there is underinvestment in fiscal efficiency if

$$\hat{\gamma} N c^1 > P^I R^I$$

and overinvestment when the inequality is reversed. Both outcomes are possible since

$$\lim_{b \to \infty} P^I R^I = \gamma \sum_i w_i n_i > \hat{\gamma} N c^1$$

and

$$b = 0 \to P^I R^I = \frac{1}{2} \frac{\gamma \sum_i w_i n_i \sum_i \pi_i n_i}{4\beta \sum_i \pi_i n_i f_i + \sum_i \pi_i n_i} \equiv PR \text{ and } \lim_{f_i \to \infty} PR = 0 < \hat{\gamma} N c^1.$$

Lastly, if $\partial R^I / \partial y \gtrless 0$, as established in Proposition 2, then $\partial \gamma / \partial y \gtrless 0$. □

Proof of Proposition 5. Since the equilibrium expenditure in public good is in constant proportion to aggregate private consumption and independent of α for any b and π_i, also $\partial R^I / \partial \alpha = 0$ and it is optimal for the incumbent to choose $\alpha = \hat{\alpha}$. □

References

Acemoglu, D. (2005). Politics and economics in weak and strong states. *Journal of Monetary Economics*, 52(7):1199–1226.

Acemoglu, D. and Robinson, J. A. (2000). Why did the west extend the franchise? Democracy, inequality, and growth in historical perspective. *The Quarterly Journal of Economics*, 115(4):1167–1199.

Acemoglu, D. and Robinson, J. A. (2005). *Economic Origins of Dictatorship and Democracy*. Cambridge University Press.

Acemoglu, D. and Robinson, J. A. (2017). The emergence of weak, despotic and inclusive states. Working Paper 23657, National Bureau of Economic Research.

Acemoglu, D., Ticchi, D., and Vindigni, A. (2011). Emergence and persistence of inefficient states. *Journal of the European Economic Association*, 9(2):177–208.

Besley, T. and Mueller, H. (2018). Cohesive institutions and the distribution of political rents: Theory and evidence. In Basu, K. and Cordella, T., editors, *Institutions, Governance and the Control of Corruption*, pages 165–208. Springer.

Besley, T. and Persson, T. (2009). The origins of state capacity: Property rights, taxation, and politics. *American Economic Review*, 99(4):1218–44.

Besley, T. and Persson, T. (2011). *Pillars of Prosperity: The Political Economics of Development Clusters*. Princeton University Press.

Besley, T. and Persson, T. (2014). The causes and consequences of development clusters: State capacity, peace, and income. *Annual Review of Economics*, 6(1):927–949.

Cárdenas, M. and Tuzemen, D. (2011). Under-investment in state capacity: The role of inequality and political instability. Research Working Paper RWP 11-07, Federal Reserve Bank of Kansas City.

Cingolani, L. (2013). The state of state capacity: a review of concepts, evidence and measures. Working Paper Series on Institutions and Economic Growth #2013-053, UNU-Merit.

Deacon, R. T. (2009). Public good provision under dictatorship and democracy. *Public Choice*, 139(1-2):241–262.

Dincecco, M. and Katz, G. (2014). State capacity and long-run economic performance. *The Economic Journal*, 126(590):189–218.

Dixit, A. and Londregan, J. (1996). The determinants of success of special interests in redistributive politics. *The Journal of Politics*, 58(4):1132–1155.

Gandhi, J. (2008). *Political Institutions under Dictatorship*. Cambridge University Press.

Hanson, J. K. (2015). Democracy and state capacity: Complements or substitutes? *Studies in Comparative International Development*, 50(3):304–330.

Knutsen, C. H. (2013). Democracy, state capacity, and economic growth. *World Development*, 43:1–18.

Lindbeck, A. and Weibull, J. W. (1987). Balanced-budget redistribution as the outcome of political competition. *Public Choice*, 52(3):273–297.

Lizzeri, A. and Persico, N. (2004). Why did the elites extend the suffrage? Democracy and the scope of government, with an application to Britain's "age of reform". *The Quarterly Journal of Economics*, 119(2):707–765.

Mann, M. (1984). The autonomous power of the state: its origins, mechanisms and results. *European Journal of Sociology*, 25(2):185–213.

Persson, T. and Tabellini, G. (2009). Democratic capital: The nexus of political and economic change. *American Economic Journal: Macroeconomics*, 1(2):88–126.

Piano, E. E. (2019). State capacity and public choice: a critical survey. *Public Choice*, 178(1-2):289–309.

Polo, M. (1998). Electoral competition and political rents. Working Papers 144, IGIER (Innocenzo Gasparini Institute for Economic Research), Bocconi University.

Ross, M. (2006). Is democracy good for the poor? *American Journal of Political Science*, 50(4):860–874.

Wintrobe, R. (2000). *The Political Economy of Dictatorship*. Cambridge University Press.