Chapter Political Accountability

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1 Introduction

A key feature of representative democracy is that elected politicians are responsible for public administration. Even in countries like Switzerland, in which many decisions are made by referendums, politicians make by far most decisions. Moreover, politicians are usually responsible for the implementation of policies. To perform these tasks properly, the constitution grants power to politicians. If politicians were angels who only use their power and wisdom to serve the people, this delegation of powers would only benefit society. Unfortunately, history shows that politicians are human beings who sometimes abuse their power to mainly serve themselves, relatives, and friends. Delegation of power raises moral-hazard problems.

An important feature of democracy is that politicians only have temporary power. At elections, citizens can take power away and give it to others. This gives two roles of elections: selection and disciplining. Selection involves trying to distinguish honest from corrupt politicians.[1] Disciplining means that politicians get incentives to serve the people. Citizens can give such incentives by reelecting politicians for good outcomes and replacing them for bad outcomes.

Studies that emphasize these two roles of elections view citizens as the superiors of the politicians. Citizens are the principals of the politicians who act as agents. Models that describe the selection and disciplining role of elections are called political-accountability models. Citizens hold reigning politicians accountable for policies and outcomes.

[1] Another form of selection is distinguishing more competent from less competent policitians. The analysis of this form of selection is very similar to the form discussed in this chapter (see Rogoff and Sibert, 1988).

In this section, we present political-accountability models that highlight the selection and disciplining role of elections. We will discuss how selection and disciplining work in practice. We discuss a paper by Ferraz and Finan (2008) that convincingly shows that in Brazil, information about corruption helped voters to replace corrupt politicians. This study demonstrates the selection role of elections. We discuss a paper on Puerto Rico by Bobonis et al. (2016) that shows that local politicians engage in less corruption when they anticipate audits by an independent agency. This paper gives evidence for the disciplining role of elections. However, in many other countries, providing citizens with information about politicians' performance neither affected voting behavior nor improved politicians' performance (Dunning, et al. 2019).

The theoretical models shed light on why elections may help select good politicians and discipline bad politicians in some countries but not in others. Citizens must have a basic understanding of what politicians do and what they can expect from them. Moreover, citizens need credible information about outcomes to be able to evaluate government performance. In Brazil and Puerto Rico, citizens could use information about corruption released by independent auditors. This may explain why studies on these countries found that information impacted voting behavior and policies. In other countries, especially in less developed countries, citizens have often no clue what they can expect from the government. For example, in the early nineties in Uganda, most schools did not know that they were entitled to receive funds from the national government. Reinnika and Svensson (2004) showed that more than 50 percent of the schools did not receive anything. The money disappeared into the pockets of local politicians and bureaucrats. When schools learned that they should receive money, corruption declined. In this chapter, we will show the importance of reliable information for the selection and disciplining role of elections.

A second factor that is important for selection and disciplining is a competitive election. Politicians who do not face competition have more scope for serving their own interest. Strong biases, for example caused by ethnicity, religion or gender, reduce the competitiveness of elections. In the models of this chapter, we assume that elections are fair in the sense that citizens can freely vote for their preferred candidate and that the election outcome will be accepted. In those situations where these assumptions are violated, elections unlikely discipline or enable citizens to

select honest politicians.

The next section of this chapter discusses one of the few systematic studies on the abuse of political power. This study convincingly demonstrates the importance of the topic. In Section 3, we analyze models of political accountability to investigate how elections can help citizens to reduce abuse of political power. We discuss empirical work that shows that information from audits on corruption can help citizens to better distinguish good from bad politicians and to provide incentives to bad politicians to serve the public interest. In Section 4, we show that elections may also enable citizens to give incentives to politicians to promote special interests at the expense of the general interest.

2 A Motivating Study, Evidence on Regional Favoritism

Through selection and disciplining, citizens should induce politicians to promote the general interests. Unfortunately, there are numerous examples of politicians who used their power not to serve the public interest but to serve the interest of a happy few. A sad anecdote is the story of Mobutu, who was President in what was then called Zaire and is now the Democratic Republic of the Congo. Mobutu was born in the remote city Gbadolite. Under Mobutu's presidency, Gbadolite flourished. In comparison with other cities in Zaire, it had an excellent supply of water, electricity, and many other public services. Mobutu built a 100 million castle with marble from Carrara. The small city got an international airport that could accommodate the famous Concorde. Not surprisingly, the rest of Zaire remained poor under Mobutu's presidency.

Although anecdotes of abuse of political power abound, a systematic analysis of the abuse of power is complicated because it comes in so many forms. Hodler and Raschky (2014) overcame this problem by using satellite data on nighttime light intensity to measure regional activity. At the country level, nighttime light intensity is closely related to GDP (Henderson, Storeygard and Weil, 2012). It seems therefore a natural measure of economic activity at the regional level. Hodler and Raschky used this data to investigate a common abuse of power: The inclination

of national political leaders to give favors to the region they were born in, called regional favoritism.

In line with the story about Mobutu, Holdler and Raschky addressed the question if politicians redistribute resources to the region where they were born in. Their analysis is based on a data set that covers almost 40,000 subnational regions in 126 countries. The main variables they use are average nighttime light intensity and a dummy variable for the region where the reigning political leader was born. Controlling for all kinds of other effects, they estimate the effect of this dummy variable on nighttime light intensity. A positive effect is an indication of regional favoritism. Furthermore, they examine to what extent the strength of a country's political institutions and a country's average education level influence regional favoritism. An important advantage of their approach is that their measure of regional favoritism contains various possible favors, from a personal castle to an international airport.

What did Hodler and Raschky find? After two years a new leader takes office, nighttime light is on average almost 4% higher in the region the national political leader was born. The effects vary widely across countries. In countries with the weakest political institutions, nighttime light is 30% higher in the leader's region. In countries with strong political institutions, Hodler and Raschky did not find any evidence of regional favoritism. They also find that regional favoritism is significantly higher in countries with a low average level of education compared to countries with a high average level of education.

All in all, the study by Hodler and Raschky shows that strong political institutions are essential to prevent politicians from abusing their power. Furthermore, their findings highlight the importance of educated people for disciplining politicians. In the next section, we employ a political accountability model to identify the conditions under which elections can prevent. politicians to abuse their power. The ability of citizens to interpret information about government performance is an important element in these conditions.

3 A Model of Political Accountability

The key assumption of any model of political accountability is that the power to make policy decisions is delegated to elected politicians and that this power can be

abused. Politicians are supposed to act in the social interest but may act in their own interest. As discussed above, holding regular elections may limit abuse of power for two reasons. First, elections may enable citizens to send away corrupt politicians and to keep honest politicians. To model the selection role of elections, we need to describe how citizens can use information to distinguish good from bad politicians. Second, elections may provide incentives to politicians not to abuse their power. To model the disciplining role, we need to describe how citizens can use information to punish politicians for abuse of power.

We consider a society that lasts for two periods, $t = 1$ and $t = 2$. At the beginning of the first period, a new politician takes office. We call this politician 'the incumbent'. At the end of period 1, an election is held between the incumbent and a challenger. Based on what the incumbent has done and achieved in period 1, citizens vote for the incumbent or his challenger. The politician who wins the election takes office in period 2.

What Citizens Want

In each period t, the politician holding office makes a decision about a public project x_t, $x_t \in \{0, 1\}$, with x_1 and x_2 being different projects. We denote by $x_t = 1$ that the politician implements the project in period t, and by $x_t = 0$ that he maintains the status quo.

The electorate consists of many citizens, whom all have the same interests. With respect to the projects, each citizen's preferences are represented by the function

$$v = w_1 x_1 + \delta w_2 x_2, \tag{1}$$

where $w_t \in \{-1, 1\}$, and δ is a discount factor that measures how much each citizen values period 2 outcomes relative to period 1 outcomes. We refer to w_t as the state of the world in period t. It captures that the consequences of the project for the citizens are uncertain. Citizens do not know if $w_t = -1$ or $w_t = 1$. They know, however, that with probability ρ, $w_t = 1$, and with probability $1 - \rho$, $w_t = -1$. Equation (1) shows that if $w_t = 1$ citizens benefit from implementation of the project. If $w_t = -1$, $x_t = 1$ hurts citizens. Instead, they benefit from $x_t = 0$. We assume that w_1 and w_2 are independent. This assumption implies that neither x_1 nor w_1 contains information about w_2.

Note that, *a priori*, thus without further information about w_t, citizens prefer $x_t = 1$ if $\rho > \frac{1}{2}$:

$$\begin{aligned} E(w_t) &= \rho - (1-\rho) > 0 \\ &= 2\rho - 1 > 0. \end{aligned}$$

The politician holding office observes w_t. This assumption provides a rationale for representative democracy. Politicians are specialists in public decision-making. They have access to information. Potentially, they can make better decisions about public projects than ordinary citizens.

Thus, citizens want politicians to choose $x_t = 1$ if $w_t = 1$, and to choose $x_t = 0$ if $w_t = -1$. They do not observe w_t, however. Politicians do observe w_t. The problem is that some politicians do not want to choose $x_t = 0$ if $w_t = 1$.

Good and Bad Politicians

History shows examples of politicians, who have used their power to serve society, and examples of politicians who have used their power to serve themselves. To model that a politician can be good or bad, we assume that there are two types of politicians, $T \in \{B, G\}$: Bad politicians, $T = B$, and good politicians, $T = G$. Good and bad politicians differ in their preferences: Good politicians are inclined to make decisions that are good for society. Bad politicians are inclined to make decisions that are good for themselves. We denote by π the probability that a new politician is good: $\Pr(T = G) = \pi$ and $\Pr(T = B) = 1 - \pi$. We say that nature draws a politician from a pool of politicians. In this pool, the share of good policitians equals π. It is like an urn with green (good) and red (bad) balls (politicians) from which a ball (a politician) is drawn.

The preferences of a good politician are described by the utility function

$$u_G = w_1 x_1 + I_1^I k + \delta \left(w_2 x_2 + I_2^I k \right), \tag{2}$$

where $I_t^I = 1$ if the politician is in office in period t. The parameter k denotes the private utility (or rents) a good politician receives from office. It captures, for instance, that holding office brings prestige. Notice that apart from k, the preferences of citizens and good politicians are aligned. In each period t, a good

politician receives utility when the decision about x_t is good for the people.

The preferences of a bad politician are described by the utility function

$$u_B = I_1^I x_1 + I_i^I k + \delta I_2^I (x_2 + k). \tag{3}$$

Equation (3) shows that a bad politician wants to implement the project irrespective of the state of the world, w_t. One possible reason why a bad politician may want to implement the project is that he wants to leave a legacy. He wants to be remembered for great things. Another reason why a bad incumbent may benefit from $x_t = 1$ is that the implementation of a project facilitates corruption. In line with both interpretations, a bad politician does not benefit from $x_t = 1$ if another politician chooses $x_t = 1$. The benefits from $x_t = 1$ accrue only to a bad politician if he holds office. If $w_t = -1$, the interests of a bad politician and citizens conflict: $x_t = 1$ is in the bad politician's interest, while $x_t = 0$ is in the citizens' interests. Like a good politician, a bad politician receives direct utility from holding office, k.

As mentioned before, at the end of period 1, an election is held between the incumbent and a challenger. The challenger is drawn from the pool of candidates. Thus, with probability π he is good, and with probability $1 - \pi$ he is bad. A good incumbent wants to win the election for two reasons: prestige, k, and the possibility that his challenger is bad. A bad incumbent also wants to win the election for two reasons: prestige, k, and the utility he receives from leaving a legacy in period 2.

The incumbent and the challenger are drawn from the same pool of politicians. For the citizens, however, they differ in an aspect that could affect citizens' voting behavior. For example, the incumbent and the challenger may belong to different ethnic or religious groups. We assume that this aspect leads to an electoral bias towards the incumbent or challenger equal to ε. Each citizen's utility function is given by

$$u = v + \varepsilon + \delta I_2^I \varepsilon,$$

where v is given by (1). Citizens receive an additional benefit ($\varepsilon > 0$) or cost ($\varepsilon < 0$) if the incumbent holds office.[2] Importantly, ε is not correlated with the incumbent's

[2]In practice, ε differs across citizens. It is easy to extend the model in this respect. A median voter model would result, in which citizens are ranked on ε. The citizen with the median value of ε would be decisive.

or challenger's type. Through ε, we model that candidates do not always have equal chances in elections. Candidates' features that are irrelevant for public decision-making, such as gender, race or religion, may affect election outcomes. In some countries, the incumbent can make it hard for the challenger to campaign. This also leads to unequal chances ($\varepsilon > 0$). In our model, ε represents all possible features that give the incumbent or challenger an advantage in the election. Citizens and politicians know ε.

Information and the Media

In models of political accountability, information plays an important role. Citizens need information to evaluate politicians performance. We assume that after the incumbent has chosen x_1 but before the election is held, citizens learn the state w_1 with probability q. With probability $1-q$, citizens do not learn w_1. We denote by W, the information citizens possess about the state. Let $W = w_1$, if the media has reported the state, and $W = \varnothing$ if it has not reported the state. Hence, $W \in \{-1, 1, \varnothing\}$. Neither the incumbent nor the challenger can affect the probabilities q and $1-q$.

In practice, citizens receive information about incumbent performance through various kinds of media sources. In the current model, the parameter q can be regarded as a measure of the quality of the media. Both theoretical and empirical research show that the media is very important for the working of democracy. Its role deserves a prominent place in a political-economic model. To keep the analysis simple, we treat the media as passive and exogenous in this section. Most importantly, if it reports, it reports truthfully. Chapter X is entirely devoted to the role of the media in democracies.

We summarize the model of political accountability in 8 steps.

The Basic Model of Political Accountability

1. Nature chooses the incumbent's type, $T \in \{B, G\}$, from a pool of politicians, with $\Pr(T = G) = \pi$. Only the incumbent knows his type.

2. Nature chooses $w_1 \in \{-1, 1\}$, with $\Pr(w_1 = 1) = \rho$, and reveals it to the incumbent but not to citizens.

3. The incumbent chooses $x_1 \in \{0, 1\}$.

4. With probability q, the media learns w_1 and discloses this information, $W = w_1$. With probability $1-q$, the media and citizens do not learn anything about w_1, $W = \varnothing$.

5. Elections are held between the incumbent and a challenger. The challenger is drawn from the pool of politicians. Conditional on W, citizens either vote for the incumbent or for the challenger.

6. Nature chooses $w_2 \in \{-1, 1\}$ with $\Pr(w_2 = 1) = \rho$, and reveals it to the elected politician but not to citizens.

7. The elected politician chooses $x_2 \in \{0, 1\}$.

8. The utility of each citizen equals $u = w_1 x_1 + \varepsilon + \delta\left(w_2 x_2 + I_2^I \varepsilon\right)$.
   The utility of a good politician, $T = G$, equals $u_G = w_1 x_1 + I_1^I k + \delta\left(w_2 x_2 + I_2^I k\right)$.
   The utility of a bad politician, $T = B$, equals $u_B = I_1^I (x_1 + k) + \delta I_2^I (x_2 + k)$.
   The utility of a good challenger equals $u_G^C = w_1 x_1 + \delta\left(w_2 x_2 + I_2^C k\right)$, where $I_2^C = 1$ if the challenger wins the election, and $I_2^C = 0$ if the challenger loses the election.
   Finally, the utility of a bad challenger equals $u_B^C = \delta I_2^C (x_2 + k)$.

In a two-period political-accountability model, the interesting actions occur in period 1. In period 2, the elected politician does not need to be concerned how his decision affects his chances of re-election. As a result, it is optimal for the elected politician to just choose his most desired policy. Hence, in period 2 a good politician chooses $x_2 = 1$ only if $w_2 = 1$, and a bad politician always chooses $x_2 = 1$.

Decision Making and Welfare in the Absence of Elections

To investigate the possible roles of election, as a benchmark, we now determine decision-making and welfare in the absence of elections. To this end, suppose that at the beginning of the game, a politician is drawn from the pool of politicians and stays in office for both periods. Clearly, if nature draws a good politician, the

project decision matches the state in both periods. If, by contrast, nature draws a bad politician, the project will be implemented in both periods. Consequently, the *ex ante* probability that the project decision is in society's interest equals $\pi + (1-\pi)\rho$ in each period. In the absence of elections, society's expected utility equals

$$\begin{aligned} u^{NE} &= \pi\rho(1+\delta) + (1-\pi)[\rho - (1-\rho)](1+\delta) \\ &= [\pi\rho + (1-\pi)(2\rho - 1)](1+\delta) \end{aligned} \tag{4}$$

We take u^{NE} as a measure of welfare in the absence of elections. Note that our measure of welfare does not include citizens' bias ε. Whether it should be included depends on the cause of the bias. If, for instance, $\varepsilon > 0$ results from a preference for stability, or $\varepsilon < 0$, results from a preference for change, ε should be included in a measure of welfare. By contrast, if $\varepsilon > 0$ results from oppression of political challengers by ruling elites, it should not be included.

Our model of political accountability allows us to study two potential roles of elections: selection and disciplining. We say that "elections serve selection" if the probability of a good politician in period 2 exceeds the probability of a good politician in period 1, π. The benefits of better selection are in period 2. We say that "elections discipline" if the probability that in period 1 the politician's project decision matches the state is greater than $\pi + (1-\pi)\rho$. The benefits of disciplining are in period 1.

3.1 Selection

In this section, we exclusively focus on the selection role of elections. We consider equilibria in which in period 1 both types of politicians act in line with their types: good politicians choose $x_1 = 1$ only if $w_1 = 1$, and bad politicians always choose $x_1 = 1$. Thus, in this section, the election does not affect incumbent behavior in period 1. As we show later, this equilibrium requires that politicians do not care much about the future and receive low rents from office. We examine how at the election, citizens can use information about x_1 and possibly w_1 to increase the probability of a good politician in period 2.

Citizen i's strategy describes whether he votes for the incumbent, conditional on his information about x_1, w_1, and the equilibrium strategies of the two types

of politicians. We assume that each citizen votes as if his vote determines the election outcome. This is called pivotal voting. Pivotal voting implies that given the available information, each citizen votes for the politician who delivers highest utility in period 2. In the present model, pivotal voting is a weakly dominant strategy. To see this, note that in case citizen i's vote does not affect the election outcome, voting for the alternative that yields the highest expected utility never hurts. In case i's vote is decisive, voting for the alternative that yields the highest utility is a best response. Hence, regardless how other citizens vote, voting for the alternative that yields highest utility never reduces a citizen's expected utility.

When deciding what to vote, each citizen forms expectations about what to expect from the incumbent and challenger in period 2. The challenger is drawn from the pool of politicians. He is good with probability π and bad with probability $1-\pi$. He delivers an expected utility

$$\pi\rho + (1-\pi)\left[\rho - (1-\rho)\right] = \pi\rho + (1-\pi)\left(2\rho - 1\right). \tag{5}$$

Citizens have more information about the incumbent than about the challenger. They observed his decision on x_1 and possibly the state w_1. We denote by $\hat{\pi}\left(x_1, W\right)$ the (posterior) probability that the incumbent is good, conditional on x_1 and citizens' information about the state, W: $\hat{\pi}\left(x_1, W\right) = \Pr\left(T = G | x_1, W\right)$. For example, when the incumbent implemented the project, and citizens learnt from the media that $w_1 = 1$, $\hat{\pi}\left(1,1\right)$ is the posterior probability that the incumbent is good. Using this notation, we can write the expected utility of each citizen when the incumbent wins the election, conditional on x_1 and W as:

$$\hat{\pi}\left(x_1, W\right)\rho + \left[1 - \hat{\pi}\left(x_1, W\right)\right]\left(2\rho - 1\right) + \varepsilon. \tag{6}$$

It follows that voting for the incumbent is optimal if (5) greater than (6), implying

$$\varepsilon > (1-\rho)\left[\pi - \hat{\pi}\left(x_1, W\right)\right] \tag{7}$$

The left-hand side of (7) denotes the exogenous bias towards the incumbent ($\varepsilon > 0$) or challenger ($\varepsilon < 0$). This bias is unrelated to the incumbent's type and decisions. The right-hand side can be interpreted as an endogenous bias towards the incum-

bent or challenger that results from the incumbent's decision on x_1 and citizens' information about the state. The higher is the right-hand side, the stronger is the bias towards the challenger.

Equation (7) shows that the higher is ρ, the less important is the difference between bad and good politicians for period 2 outcomes. The reason is that the higher is ρ, the higher is the probability that both types choose $x_2 = 1$. If $\rho = 1$, the exogenous bias towards the incumbent alone determines the election outcome.

Given that we assume a setting where politicians make decisions on x_1 in line with their types, there are four possible outcomes just before the election takes place.

1. Outcome $x_1 = 0$. As bad politicians never maintain the status quo, $x_1 = 0$ is clear evidence that the politician is good. Information about the state gives no additional information: $\hat{\pi}(0, -1) = \hat{\pi}(0, \varnothing) = 1$. Notice that in the setting where politicians act in accordance with their types the media never reports that $w_1 = 1$ when $x_1 = 0$. It follows from (7) that the incumbent wins the election if
$$\varepsilon > (1 - \rho)(\pi - 1).$$

2. Outcome $x_1 = 1$ and $W = -1$. In this case, citizens know that the politician is bad, $\hat{\pi}(1, -1) = 0$, as only bad politicians choose $x_1 = 1$ if $w_1 = -1$. The incumbent wins the election if
$$\varepsilon > (1 - \rho)\pi.$$

3. Outcome $x_1 = 1$ and $W = 1$. As both good and bad politicians choose $x_1 = 1$ if $w_1 = 1$, citizens do not learn anything new about the incumbent's type in this case. Consequently, the posterior probability that the incumbent is good is equal to the prior probability that the incumbent is good, $\hat{\pi}(1, 1) = \pi$. The incumbent wins the election if
$$\varepsilon > 0.$$

4. Outcome $x_1 = 1$ and $W = \varnothing$. In this case, the posterior probability that the

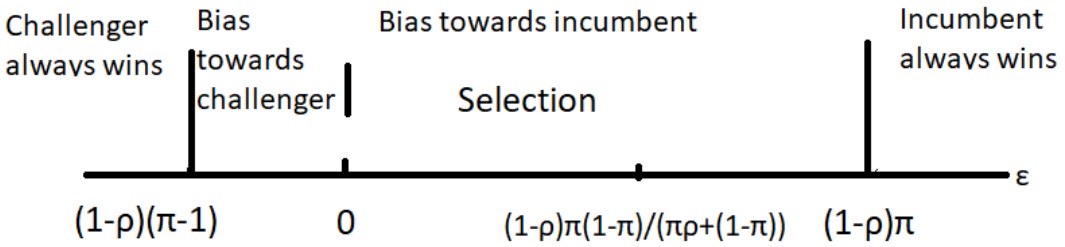

Figure 1: Ranges of ε for which the incumbent is re-elected

politician is good equals

$$\hat{\pi}(1,\varnothing) = \frac{\pi\rho(1-q)}{\pi\rho(1-q)+(1-\pi)(1-q)} = \frac{\pi\rho}{\pi\rho+(1-\pi)} < \pi. \tag{8}$$

Equation (8) results from applying Bayes' rule. The numerator of (8) gives the probability that a good politician chooses $x_1 = 1$ and that the media reports $\varnothing$. This requires (i) a good politician, which occurs with probability π, (ii) $w_1 = 1$, which occurs with probability ρ, and (iii) the media reporting no information, which occurs with probability $(1-q)$. The denominator gives the probability that $x_1 = 1$ and the media reports no information. The term $(1-\pi)(1-q)$ gives the probability that $x_1 = 1$ and $W = \varnothing$ when a bad politician is in office. Equation (8) shows that without information about the state, $x_1 = 1$ reduces the posterior probability that the incumbent is good. As bad politicians *always* choose $x_1 = 1$ and good politicians choose $x_1 = 1$ *with probability* ρ, $x_1 = 1$ is a "suspicious" policy. Note that the lower is ρ, the less likely it is that a good politician chooses $x_1 = 1$. Consequently, $\hat{\pi}(1,\varnothing)$ decreases in ρ. The incumbent wins the election if

$$\varepsilon > \frac{(1-\rho)\pi(1-\pi)}{\pi\rho+(1-\pi)}.$$

Figure 1 depicts ranges of ε for which the incumbent is re-elected. If $\varepsilon >$

$(1-\rho)\,\pi$, the incumbent is always elected. The bias towards the incumbent is so large, that even when citizens learn that the incumbent is certainly bad, he is re-elected. If $\frac{(1-\rho)\pi(1-\pi)}{\pi\rho+(1-\pi)} < \varepsilon < (1-\rho)\,\pi$, the challenger is elected in case of convincing evidence that the incumbent is bad. However, weak evidence that the incumbent is bad, $x_1 = 1$ in combination with $W = \varnothing$, is not enough to send the incumbent home. If $0 < \varepsilon < \frac{(1-\rho)\pi(1-\pi)}{\pi\rho+(1-\pi)}$, weak evidence against the incumbent is enough for the electorate to send him home. In case of no evidence in favor or against the incumbent, he is re-elected. If there is a weak bias *against* the incumbent, $(1-\rho)\,(\pi-1) < \varepsilon < 0$, only evidence that he is certainly good brings him office. Finally, in case of a strong bias against the incumbent, $\varepsilon < (1-\rho)\,(\pi-1)$, no selection takes place. The challenger always wins the election.

One interpretation of ε is that it is a measure of the competitiveness of an election. A strong bias towards one of the candidates makes an election less competitive. In a non-competitive political environment (an absolute value of ε that is very large), neither positive news ($x_1 = 0$) nor negative news ($x_1 = 1$ with $W = -1$) affect the environment. Figure 1 shows that selection requires a competitive environment.

You can check that the posterior probabilities that the incumbent is good do not depend on the quality of the media, q. Does this mean that the quality of the media is not important for the selection role of elections? The answer to this question is no. The reason is that the quality of the media affects the probabilities of the four possible events. In two cases this is important for the election outcome. First, when a bad politician observed $w_1 = -1$ and chose $x_1 = 1$. In that case, a higher value of q makes it more likely that the bad incumbent is unmasked. Second, when a good politician observed $w_1 = 1$ and chose $x_1 = 1$. Then, the incumbent wanted the media to find out that $w_1 = 1$. In the present model, q is not important for keeping good politicians when $x_1 = 0$. The electorate infers from $x_1 = 0$ that the incumbent is good. For this inference, citizens do not need information from the media about the state of the world.

To investigate the selection role of elections, we have assumed an equilibrium, in which bad politicians choose $x_1 = 1$, irrespective of w_1, and good politicians choose $x_1 = 1$ only if $w_1 = 1$. Clearly, these strategies are optimal responses if politicians do not care about the future ($\delta = 0$). If politicians care much about the future, they choose policies to increase their chances of reelection. Acting in line with their types

is no longer part of an equilibrium. In particular, bad politicians get incentives to pretend to be good.[3] In other words, elections start to discipline the politician in office in period 1, the topic of the next section.

Who has the strongest incentive to make a decision on x_1 that is inconsistent with his type, the bad or the good politician? You can verify that in the present equilibrium, the answer to this question is the bad politician. If $w_1 = -1$, by choosing $x_1 = 0$ he gives up the benefit of leaving a legacy in period 1 but is certain to be re-elected. Denote by $u_T(x_1|w_1)$ the expected utility of an incumbent of type T, who chooses x_1 after having observed w_1. When $w_1 = -1$, a bad politician prefers $x_1 = 1$ to $x_1 = 0$ if and only if

$$\begin{aligned} u_B(1|-1) &> u_B(-1|-1) \\ 1+k &> k+\delta(1+k) \\ \delta &< \frac{1}{(1+k)} \end{aligned} \tag{9}$$

If condition (9) holds, citizens' vote strategies (7) do not induce bad or good politicians to make decisions on x_1 to increase their chances of reelection. As a result, the sole role of elections is selection.

Exercise 1 *Determine the condition under which a good politician wants to deviate from a strategy to implement the project if and only if* $w_1 = 1$.

Exercise 2 *Suppose that politicians receive high rents from office (high* k*). Determine the equilibrium strategies of both types of politicians.*

Proposition 1 summarizes the main results of this section.

Proposition 1 *Suppose that* $\delta < \frac{1}{1+k}$. *Then, an equilibrium of the political accountability model exists, in which a good politician chooses* $x_1 = 1$ *if and only if* $w_1 = 1$, *and a bad politician always chooses* $x_1 = 1$. *In this equilibrium, the ex ante probability that in period 2 the politician is good exceeds* π. *A higher quality media improves selection.*

[3] When δ and k are large, a good incumbent also has an incentive to make decisions with a view on increasing his chances of reelection. When $w_1 = 1$, he may want to choose $x_1 = 0$, as this leads to reelection if $W = \varnothing$. You can verify that bad politicians want to deviate for wider ranges of δ and k than good politicians.

3.2 Evidence For the Selection Role of Elections

Proposition 1 describes an equilibrium in which elections enable citizens to increase the probability that good politicians govern. In this equilibrium, policy outcomes can be ranked on the basis of the information they contain about the politician's type: outcome $x_1 = 0$ contains good information about the incumbent, outcome $x_1 = 1$ with $W = 1$ contains neutral information, outcome $x_1 = 1$ with $W = \varnothing$ raises suspicion, and outcome $x_1 = 1$ with $W = -1$ contains bad information about the incumbent. When elections serve the selection of good politicians, citizens punish incumbents for bad or suspicious outcomes and reward them for good outcomes. We have shown that a high-quality media is important for citizens to distinguish good from bad outcomes. This section discusses an empirical study by Ferraz and Finan (2008) that examines the effects of publicly revealed audits on election outcomes in Brazil.

In 2003, the Brazilian government launched an anti-corruption program to fight corruption at the municipality level. The program was based on randomly auditing the expenditures of municipalities. If a municipality was selected to be audited, a team investigated how the municipality used federal funds. The outcomes of each audit was posted on the internet and released to the media. Ferraz and Finan (2008) used the outcomes of these audits to construct an indicator of corruption. They find that some municipalities were far more corrupt than others.

In 2004, elections for mayors in municipalities were held. Ferraz and Finan investigated the effects of corruption as revealed by the audits on the election outcomes. To estimate these effects, they used that municipalities were selected for an audit through lotteries. The randomness in the timing of the audits with respect to the election enabled Ferraz and Finan to make causal inferences: 168 of the municipalities were audited *before* the elections, while 205 municipalities were audited *after* the elections. Only citizens living in municipalities in the first group could base their vote decisions on information about corruption revealed by the audits. By comparing the election outcomes between municipalities with similar corruption levels that were audited before and after the elections, Ferraz and Finan could investigate whether citizens rewarded mayors in cities with no or little corruption and punished mayors in cities with high corruption.

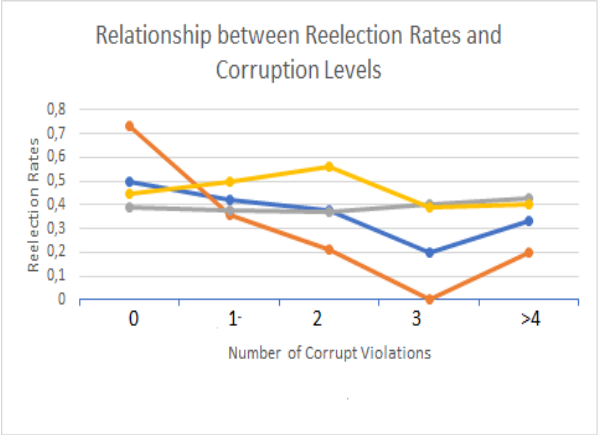

Figure 2: Blue Line: Preelection audit - No Radio
Orange Line: Preelection audit - Radio
Grey Line: Postelection audit - Radio
Yellow Line: Postelection audit - No Radio

Concerning local politics in Brazil, radio is the main source of information. Citizens would most likely learn the outcomes of an audit through the radio. The number of local radio stations varies across municipalities. In the empirical analysis, Ferraz and Finan used the number of local radio stations to measure the quality of the media. In line with the theoretical analysis of the previous section, they expected that the higher was the quality of the media, the better citizens were able to punish corrupt behavior.

Figure 2 plots the reelection rates of mayors against the number of corrupt violations found in the audit. On the basis of the timing of the audits and the existence of local radio stations, four situations are distinguished. The yellow and grey lines show that reelections rates did not depend on reported number of corrupt violations if the municipalities were audited *after* the elections. The absence of any relationship between reelection rates and corruption suggests that in the absence of audits, citizens have little information about how corruption practices. This indicates that the role of the media in *detecting* corruption was limited.

The orange and blue lines depict the relationships between the number of corrupt violations and reelection rates when municipalities were audited before the elections. When the audit did not find any corrupt violation, reelection rates were

high. Reelection rates dropped sharply when one, two, or three corrupt violations were found. These findings are consistent with our theoretical model. Citizens reward incumbents for good performance and punish them for bad performance. A comparison between the orange and blue lines shows that the effects of the number of corrupt violations were especially stark in municipalities with local radio stations. This highlights the role of media in releasing information.

The study by Ferraz and Finan convincingly demonstrates the selection role in the elections of mayors in Brazil. The study shows the importance of information for selection. The audits provided information. Local radio stations were important for conveying information about corruption to citizens. In Section 3.4, we discuss empirical studies on the selection and disciplining role of election for other countries.

Exercise 3 *Poblete-Cazenave (2021) uses data on Brazilian elections and audits to analyze how positive and negative audits affect campaign spending of the incumbent and challenger. Argue why and how audits may affect campaign spending.*

3.3 Disciplining

This section exclusively focuses on the disciplining role of elections. We eliminate the selection role by assuming that all politicians are bad, $\pi = 0$. It directly follows from this assumption that the politician who wins the election chooses $x_2 = 1$. The election can only serve to achieve better outcomes in period 1. Citizens disciplining politicians means that citizens coordinate on a voting rule that gives incentives to the incumbent to serve the interest of the people in period 1. A voting rule can be interpreted as a norm that is set by the electorate. Politicians obeying the norm are reelected, while politicians violating the norm are replaced.

By allowing citizens to coordinate on a voting rule, we depart from the assumption of pivotal voting. As discussed in the previous section, pivotal voting means that when voting, each citizen assumes a situation where his vote is decisive. In the current context where all politicians are bad, pivotal voting would mean that each citizen bases her vote on ε. In this section, we show that under certain conditions citizens can discipline the incumbent in period 1. Our finding that by following a voting rule citizens *can* discipline politicians does not mean that citizens *do* discipline politicians. For disciplining to work, a sufficient number of citizens should

actually follow the voting rule. In our model, ε represents a bias towards the incumbent or challenger. The larger is the absolute value of ε, the less likely citizens are to follow the voting rule. For the moment, we just assume that citizens coordinate on a voting rule. At the end of this section, we return to the question of how ε may influence the scope for disciplining politicians.

Citizens want the incumbent to choose $x_1 = 1$ only if $w_1 = 1$. One part of any "good" voting rule is that good behavior is rewarded. Thus, a good voting rule stipulates that citizens should vote for the incumbent if $x_1 = 1$ and $w_1 = 1$, and if $x_1 = 0$ and $w_1 = -1$. Another part of a good voting rule is that bad behavior is punished. Thus, if $x_1 = 1$ and $w_1 = -1$, or if $x_1 = 0$ and $w_1 = 1$, citizens should vote for the challenger.

What should citizens do when they have not received information about the state, $W = \varnothing$? As the incumbent is bad, he is inclined to leave a legacy, $x_1 = 1$. A voting rule should discourage the incumbent from choosing $x_1 = 1$ when $w_1 = -1$. In other words, punishing the incumbent for a suspicious policy is also part of a good voting rule. It is less clear how citizens should respond to $x_1 = 0$ and $W = \varnothing$. Reelecting the incumbent in this event may give too strong incentives to the incumbent to choose $x_1 = 0$. This may distort incentives if $w_1 = 1$. However, electing the challenger in this event may give too strong incentives to the incumbent to choose $x_1 = 1$.

Based on what citizens should vote if $x_1 = 0$ and $W = \varnothing$, we examine two voting rules.

Voting Rule 1

1. Suppose $W = w_1$. Then, vote for the incumbent if $x_1 = 1$ and $w_1 = 1$ or if $x_1 = 0$ and $w_1 = -1$. Vote for the challenger otherwise.

2. Suppose $W = \varnothing$. Then, vote for the incumbent if $x_1 = 0$. Vote for the challenger if $x_1 = 1$.

Voting Rule 2

1. Suppose $W = w_1$. Then, vote for the incumbent if $x_1 = 1$ and $w_1 = 1$ or if $x_1 = 0$ and $w_1 = -1$. Vote for the challenger otherwise.

2. Suppose $W = \varnothing$. Then, vote for the challenger.

Voting Rule 2 is more demanding than Voting Rule 1. It requires evidence that the incumbent has made the proper decision also if $x_1 = 0$.

Analysis of Voting Rule 1

We first identify the conditions under which Voting Rule 1 disciplines the incumbent. Does Voting Rule 1 induce the incumbent to choose $x_1 = 1$ only if $w_1 = 1$? First, suppose that the incumbent observes that $w_1 = 1$. Choosing $x_1 = 1$ yields a higher utility than choosing $x_1 = 0$ if

$$\begin{aligned} u_B(x_1 = 1|w_1 = 1) &> u_B(x_1 = 0|w_1 = 1) \\ 1 + k + \delta q(1 + k) &> k + \delta(1 - q)(1 + k) \quad (10) \\ q &> q_{VR1} = \frac{1}{2} - \frac{1}{2\delta(1 + k)} \quad (11) \end{aligned}$$

The left-hand side of (10) gives the incumbent's expected utility when he chooses $x_1 = 1$, given $w_1 = 1$. The right-hand side of (10) gives the incumbent's expected utility when he chooses $x_1 = 0$, given $w_1 = 1$.

Two features of (10) are worth noting. First, $x_1 = 1$ yields a higher period 1 utility than $x_1 = 0$. Second, $x_1 = 1$ leads to a higher probability of reelection than $x_1 = 0$ if $q > \frac{1}{2}$. The reason for the latter result is that when choosing $x_1 = 1$ if $w_1 = 1$ reelection requires that the media reports that $w_1 = 1$, while if $x_1 = 0$ and $w_1 = 1$, reelection requires that the media does not report the state. Hence, $x_1 = 0$ leads to a higher probability of winning the election than $x_1 = 1$ if $q < \frac{1}{2}$.

Together both features of (10) imply that $q > \frac{1}{2}$ is a sufficient condition for (10) to hold. Inequality (11) gives the necessary condition for a bad incumbent to choose $x_1 = 1$ when $w_1 = 1$. If q exceeds threshold q_{VR1}, it is optimal for the incumbent to choose $x_1 = 1$ when $w_1 = 1$. The more the incumbent cares about the future, δ, and the higher are the rents from office, k, the more willing he is to give up leaving a legacy in period 1.

Now suppose that the incumbent observes $w_1 = -1$. Then, choosing $x_1 = 0$

yields a higher expected utility than $x_1 = 1$ if

$$\begin{aligned} u_B(x_1 = 0|w_1 = -1) &> u_B(x_1 = 1|w_1 = -1) \\ k + \delta(1 + k) &> 1 + k \qquad (12) \\ \delta &> \delta_{VR1} = \frac{1}{1+k} \qquad (13) \end{aligned}$$

Condition (13) shows that the politician is willing to give up leaving a legacy, if he cares sufficiently about the future and rents from office are high enough. Voting Rule 1 disciplines when $w_1 = -1$ if the incumbent is willing to give up a legacy. This should be compensated by a sufficiently higher period 2 payoff. This requires that k and δ are sufficiently large. Note that when $w_1 = -1$, $x_1 = 0$ ensures office. By contrast, by choosing $x_1 = 1$, the incumbent is sure to give up office. Thus, when $w_1 = -1$, under voting rule 1, the incumbent's decision on x_1 determines his fate at the election. The media does not play a role. This explains why q does not affect the threshold (13).

We have shown that if (11) and (13) hold, Voting Rule 1 induces a bad politician to choose $x_1 = 1$ only if $w_1 = 1$. If $q > \frac{1}{2}$, (13) is a sufficient condition for Voting Rule 1 to discipline the incumbent. His desire to keep office makes him willing to serve the public interest in period 1. If q is (very) small, a desire for office may backfire. Higher values of δ and k make condition (11) more restrictive. Then, when $w_1 = 1$, $x_1 = 0$ yields a higher payoff to the incumbent than $x_1 = 1$.

Proposition 2 *Consider the model of political accountability with only bad politicians, $\pi = 0$. Suppose that citizens follow Voting Rule 1. Then, the election disciplines the incumbent if $q > q_{VR1} = \frac{1}{2} - \frac{1}{2\delta(1+k)}$ and $\delta > \delta_{VR1} = \frac{1}{1+k}$. Higher values of δ and k weaken the incumbent's incentive to choose $x_1 = 1$ if $w_1 = -1$ but strengthen his incentive to choose $x_1 = 0$ when $w_1 = 1$ for low values of q.*

Voting Rule 2

We now identify the conditions under which Voting Rule 2 disciplines the incumbent. Under Voting Rule 2, citizens reelect the incumbent when they have observed that the incumbent properly based his decision about x_1 on w_1. In the absence of evidence, $W = \varnothing$, the incumbent loses the election. When the incumbent observes $w_1 = 1$, he has no incentive to choose $x_1 = 0$. $x_1 = 1$ means leaving a legacy and

does not eliminate the chances of winning the election. $x_1 = 0$ gives nothing, neither a legacy nor a chance of keeping office.

When the incumbent observes $w_1 = -1$, he faces a trade-off. Choosing $x_1 = 0$ means giving up a legacy in period 1 but leads to office if the media reveals $W = -1$. By choosing $x_1 = 1$, the incumbent gives up office, but leaves a legacy. Inequality (14) gives the condition under which the election disciplines the incumbent.

$$\begin{aligned} u_B(x_1 = 0|w_1 = -1) &> u_B(x_1 = 1|w_1 = -1) \\ k + \delta q(1+k) &> 1 + k \\ q_{VR2} &> \frac{1}{\delta(1+k)} \text{ or } \delta_{VR2} > \frac{1}{q(1+k)} \end{aligned} \tag{14}$$

Condition (14) shows that Voting Rule 2 can discipline if the quality of the media is sufficiently high and the incumbent cares sufficiently about holding office. The intuition is clear. Voting Rule 2 stipulates that reelection requires that citizens get evidence that x_1 was properly based on w_1. For reelection, the incumbent needs good media.

Proposition 3 *Consider the model of political accountability with only bad politicians, $\pi = 0$. Suppose that citizens follow Voting Rule 2. Then, the election disciplines the incumbent if $q_{VR2} > \frac{1}{\delta(1+k)}$. Better media and higher values of δ and k weaken the incumbent's incentive to choose $x_1 = 1$ if $w_1 = -1$.*

With the help of Figure 3.3 we compare the conditions for which the voting rules discipline. Voting Rule 2 disciplines for the area above the red curve. It depicts condition (14) for $q = 0.6$. The higher is q, the lower is the position of the red curve. The black curve depicts condition (13) relevant for voting rule 1. It is independent of q, and lies always below the red curve. It is therefore less restrictive. For $q > \frac{1}{2}$, condition (11) always holds. Hence, for $q > \frac{1}{2}$, Voting Rule 1 disciplines for a wider range of parameters than Voting Rule 2. If $q < \frac{1}{2}$, condition (11) is relevant. In Figure 3.3, the green line depicts this condition for $q = 0.1$. For $q < 0.5$, δ and k should lie *below* the green curve. Thus, for $q = 0.1$, Voting Rule 1 disciplines if δ and k are in the area between the green and black curves.

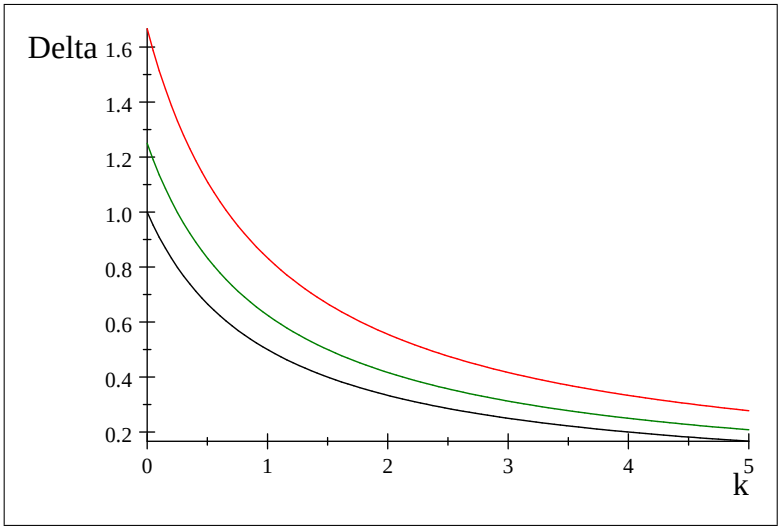

Figure The black curve depicts $\delta = \frac{1}{1+k}$. The red curve depicts $\delta = \frac{1}{q(1+k)}$ for $q = 0.6$. The green curve depicts $\delta = \frac{1}{(1-2q)(1+k)}$ for $q = 0.1$.

Figure 3.3 gives two reasons why the quality of the media is important for disciplining incumbents. First, for $q > \frac{1}{2}$, a higher q makes the condition for Voting Rule 2 to work less restrictive. As discussed above, under Voting Rule 2, reelection requires that the media reveals information about the state. Voting Rule 2 needs a high-quality media. Second, a high-quality media makes condition (11) for Voting Rule 1 redundant. If $q > \frac{1}{2}$ under Voting Rule 1, the incumbent has no incentive to choose $x_1 = 0$ if $w_1 = 1$.

For combinations of δ and k below the black curve, citizens cannot discipline. The incumbent always act in line with his type. It is the area in which citizens can use election to select, provided that also good politicians exist.

So far, we have assumed that citizens coordinate on a specific voting rule. Disciplining requires that a sufficient number of citizens follow the voting rule. As discussed at the beginning of this section, forward-looking citizens base their votes on ε, not on the voting rule. For the voting rule to be part of an equilibrium, a citizen must receive a reward from following it. Disciplining is a public good. All citizens benefit from it. Therefore, you can think of a reward for following the voting rule as pride for contributing to a public good. For high values of ε, this reward is not enough: ε determines the election outcome. The election is not competitive. For low values of ε, pride for contributing to a public good may be enough for following the voting rule. As the selection role of election, the disciplining role requires competitive elections.

3.4 Evidence for the Disciplining Role of Election

The political-accountability model of the previous section generates two testable predictions. First, voters reward politicians for good outcomes and punish them for bad outcomes. Note that a similar prediction results from a model that describes the selection role of elections. Second, a desire to keep office induces politicians to serve the interest of the people. In this section, we discuss empirical studies that test both hypotheses. We first discuss an influential study by Bobonis et al. (2016), who investigated the extent to which anticipated audits discipline mayors in Puerto Rico. Next, we discuss a study by Grossman and Michelitch (2018) , who estimated the effects of disseminating information about government performance on voting behavior and policies in Uganda.

Audits in Puerto Rico

Since 1953, the Office of the Comptroller of Puerto Rico (OCPR) has carried out audits on municipalities in Puerto Rico. An audit consists of an investigation of accounts and documents, and an inspection of the existence and quality of public work constructions and public services. An audit ends with a report that is disseminated to the public. Bobonis et al. (2016) constructed a measure of corruption based on findings published in the audit reports. For all 78 municipalities they measured corruption between 1987 and 2005.

In Puerto Rico, the timing of the audits was known in advance. Local politicians could anticipate audits and thus adjust their policies to them. Bobonis et al. (2016) make a distinction between "timely audits" and "untimely audits". Mayors are elected for a period of four years. Untimely audits occur in the first and second year of a mayor's term. The authors expect that the outcomes of those audits do not affect outcomes of the upcoming elections. Timely audits occur in the third and four year of a mayor's term. Potentially, these audits affect election outcomes. By estimating the effect of the outcomes of audits on the election outcome, Bobonis et al. can test the hypothesis that citizens reward good performance (little or no corruption) and punish bad behavior (high corruption). In line with the second hypothesis of the model of the previous section, the authors expect that mayors who anticipate timely audits refrain from corruption. When the same mayors anticipate untimely audits, however, they expect mayors not to reduce corruption. As the data cover 18

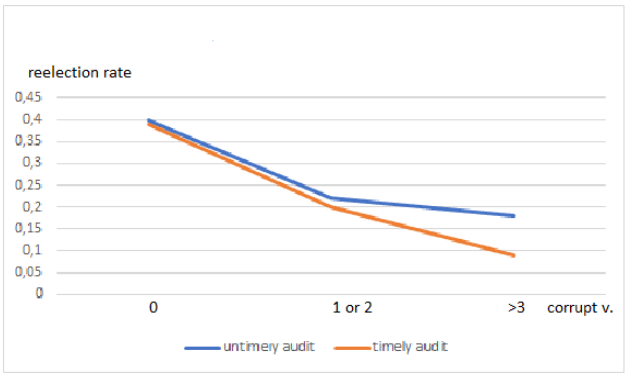

Figure 3: Relationhsip between number of corrupt violations and reelection rate.

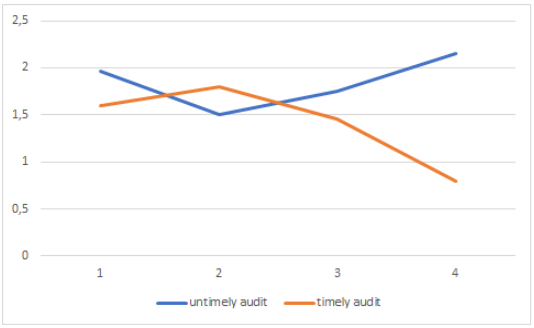

Figure 4: . The number of corrupt violations over the electoral cycle.

years and 78 municipalities, by comparing the effects of timely and untimely audits on the number of corrupt violations, the authors can test the second hypothesis.

We start with presenting the relationship between the number of corrupt violations and the probability of reelection.

Figure 3 shows that the reelection rate decreases in the number of corrupt violations. This supports the first hypothesis that citizens reward politicians for good behavior and punish them for bad behavior. The relationship is starker for timely audits than for untimely audits. Information early in a mayor's term is less important than information at the end of his term.

Figure 4 plots the average number of violations over the electoral cycle in case of timely and untimely audits. For untimely audits, the number of violations do not decrease just before the elections. Untimely audits do not discipline politicians.

However, for timely audits, the number of corrupt violations decreases in the period the elections. These empirical results support the second hypothesis of the disciplining version of the political accountability model that politicians who anticipate timely audits engage in less corruption. Figure 4 shows that elections discipline politicians in the years before the election, not after the elections.

Although the data demonstrates that citizens reward good behavior and punish bad behavior, the study does not find any evidence for the selection role of elections. Reelected and new politicians engaged in corruption early in their terms. All mayors seem equally corrupt. Some mayors engaged in corruption just before the election were held. Perhaps those mayors did not care about the future. It is also possible that those mayors underestimated the effects of corruption on voting behavior.

Exercise 4 *In Brazil, audits are random, while in Puerto Rico, they are known in advance. Argue why random audits are better to study the selection role of elections, while pre-announced audits are better to study the disciplining role of elections.*

Evidence from field experiments in developing democracies

Economic models about politics are often implicitly based on the assumption that all players, citizens, politicians and the media understand the game. In fact, in our political-accountability models, citizens have a lot of knowledge. They know the tasks politicians perform. They know that politicians should make decisions to serve the interest of the people but may make decisions to serve their private interest. They know that they can coordinate on a voting rule that gives incentives to politicians. We often take for granted that all players - more or less - possess this information. However, especially in low-income countries without independent media sources, it is unlikely that citizens know the game, let alone can evaluate outcomes. In Brazil and Puerto Rico, independent auditors collect and disseminate information. Such audits are not conducted everywhere.

Based on the idea that democracy can only work when citizens are informed about government performance, several programs have been launched in developing democracies to create better informed electorates. One example is Uganda where in 2009, several stakeholders launched a program to improve local politicians' performance. Training sessions for politicians were organized, in which politicians' duties

were discussed and advice was given how best to perform these duties. In addition, scorecards were introduced to measure how well politicians performed their tasks. The total scores ranged from 0 to 100 and were soley based on adminstrative data. The scores of some, but not all, politicians were disseminated early in their terms. Anticipating citizens or challengers responses to the scores, these politicians had time to adapt their behavior. Grossman and Michelitch (2018) present evidence that only in *competitive* elections, politicians whose scorecards were disseminated improved their performance. This finding highlights the importance of ε in the theoretical model. The selection and disciplining role of election require electoral pressure, that is, a low value of $|\varepsilon|$.

The studies on Brazil, Puerto Rico and Uganda provide evidence that information about politicians' performance affected election outcomes, and that politicians respond to information. It is worth emphasizing that other attempts to improve political accountability by information campaigns are less successful. Seven independent research teams coordinated on field experiments in six developing countries to investigate if citizens and politicians respond to information about incumbents' performance. The average effect of the information treatment on vote choice across the studies was zero (Dunning et al., 2019). This raises the question of why information treatments improves political accountability in some cases, but not in others?

4 The Tyranny of the Majority

A serious danger of a dictator is that he can make decisions that hurt the people but yield private benefits. In this section, we show that a danger of democracy is that a majority can exploit a minority. This exploitation may prevent the provision of public goods from which all citizens benefit.

In many political-accountability models, elections enable citizens to discipline bad, or immoral, politicians. In these models, citizens are the "good guys." In the model of the present section, the electorate consists of two groups with different interests. As in the previous section, citizens can use the election to give incentives to the politician to promote the general interest. However, unlike the previous section, a majority of the citizens can also give incentives to the politicians to promote the

interest of the majority. The key message of this section is that for democracy to work properly, majorities should take the interests of minorities into account.

Following Nannicini et al. (2013), we distinguish between civic and uncivic citizens. Civic citizens follow a voting rule that evaluates politicians on what they have done for society at large. This voting rule captures a culture where the interests of minorities count. Uncivic citizens condition their votes on own welfare. Citizens may provide incentives to the incumbent to promote special interests at the expense of the general interest.

As before we employ a two-period model. We consider a society that consists of two groups, the *Ins* and the *Outs*. The share of *Ins* in the population equals $\sigma > \frac{1}{2}$. At the beginning of the game, the income of each citizen equals y. To keep things as simple as possible, we assume that in period 2, the politician who has won the election does not make any decision. He just receives rents from office, which gives him utility k. Because of these rents, the incumbent wants to stay in power. To reduce notation, we abstract from discounting the future, $\delta = 1$. In period 1, the incumbent makes two decisions. First, as in the previous section, he makes a binary decision on a public good, $x_1 = 0$ or $x_1 = 1$. In the present model, the consequences of x_1 are known. $x_1 = 1$ gives a benefit to each citizen equal to η. If the incumbent provides the public good, $x_1 = 1$, the tax-rate increases by τ_{PG}.

Second, the government can impose a flat tax, τ_{ID}, on income to finance a transfer to the *Ins*. The income of a member of the *Ins* equals $(1-\tau)\, y + \frac{\tau_{ID} y}{\sigma} - \frac{1}{2}\lambda\tau^2$ ($\lambda > 0$) with $\tau = x_1\tau_{PG} + \tau_{ID}$, and $-\frac{1}{2}\lambda\tau^2$ denotes the distortionary cost of taxation. The term $\frac{\tau_{ID} y}{\sigma}$ denotes the transfer to the *Ins*. The income of a member of the *Outs* equals $(1-\tau)\, y - \frac{1}{2}\lambda\tau^2$. We assume that $\tau_{PG} y + \frac{1}{2}\lambda\tau_{PG}^2 < \eta$. The left-hand side of this inequality shows the cost of taxation if $\tau_{ID} = 0$. η denotes the benefit of the public good. Thus, this assumption means that if $\tau_{ID} = 0$, each citizen benefits from $x_1 = 1$. The utility function of an *In* and *Out* are given by

$$u_{in} = (1-\tau)\, y + \frac{\tau_{ID} y}{\sigma} - \frac{1}{2}\lambda\tau^2 + \eta x_1 \tag{15}$$

and

$$u_{out} = (1-\tau)\, y - \frac{1}{2}\lambda\tau^2 + \eta x_1,$$

respectively. We assume that the incumbent solely cares about holding office.

At the end of period 1, elections are held between the incumbent and a challenger. In period 2, the politician who has won the election takes office. We investigate two "democratic cultures." In the first culture, society consists of civic citizens. At the election, citizens try to give incentives to the incumbent with an eye on what is good for society. In the second culture, citizens are uncivic. In the context of our model, this means that the *Ins* try to give incentives to the incumbent to do what is good for them, meanwhile the *Outs* also want to give incentives to the incumbent to do what is good for them. However, as the *Outs* form the minority, they have no electoral power.

Civic citizens

Civic citizens want the incumbent to provide the public good and not to redistribute income. To give incentives to the incumbent to actually choose $x_1 = 1$ and $\tau_{ID} = 0$, citizens should vote for him when he generates these outcomes, and vote for the challenger otherwise. Under this voting rule, for any $k > 0$, the incumbent is willing to serve the interest of the people. The intuition is straightforward. In the present setting, the incumbent does not care about policy outcomes. He only cares about the election outcome. As a result, he is willing to do whatever voters want, provided that this leads to a higher probability of winning the election. Things are slightly different, if the incumbent can use policy decision for his own benefit. Suppose that abuse of power yields a payoff to the incumbent equal to $\bar{u}$. Then, citizens can discipline the incumbent if $k > \bar{u}$.

The result that civic citizens can discipline politicians if they care sufficiently about office is similar to the results presented in Proposition 3.

Uncivic citizens

Uncivic citizens want the government to serve their narrow interests. As the *Ins* form the majority group, for policy outcomes it is especially important what they want. By coordinating on a voting rule, the *Ins* can determine what the incumbent should do to keep office.

We first determine the optimal tax rate, τ_{ID}, from the perspective of an *In*. It results from maximizing $(1-\tau)\, y + \frac{\tau_{ID} y}{\sigma} - \frac{1}{2}\lambda\tau^2 + \eta x_1$, with respect to τ_{ID}. Using

that $\tau = \tau_{ID} + x_1\tau_{PG}$, we obtain

$$\begin{aligned} -y + \frac{y}{\sigma} &= \lambda\left(\tau_{ID} + x_1\tau_{PG}\right) \\ \tau^*_{ID} &= \frac{1-\sigma}{\sigma\lambda}y - x_1\tau_{PG}. \end{aligned} \tag{16}$$

Equation (16) shows that $x_1 = 1$ reduces redistribution. The reason is that the tax to finance the public good increases the marginal cost of taxation. Futhermore, (16) shows that τ_{ID} decreases in σ. The reason for this result is that if σ is high the tax collected by $\tau_{ID}y$ is distributed over more citizens. Consequently, each citizen receives less.

We now determine if, given (16), the *Ins* want the incumbent to provide the public good. If $x_1 = 0$, the utility of an *In*, $u_i\left(x_1, \tau_{ID}\right)$, equals

$$u_{in}\left(0, \tau_{ID}\right) = \left(1 - \frac{(1-\sigma)}{\sigma\lambda}y\right)y + \frac{(1-\sigma)}{\sigma^2\lambda}y^2 - \frac{1}{2}\lambda\left(\frac{(1-\sigma)}{\sigma\lambda}y\right)^2$$

If $x_1 = 1$, the utility of an *In* equals (note that $\tau = \frac{(1-\sigma)}{\sigma\lambda}y$ both if $x_1 = 0$ and if $x_1 = 1$)

$$u_{in}\left(1, \tau_{ID}\right) = \left(1 - \frac{(1-\sigma)}{\sigma\lambda}y\right)y + \eta + \left(\frac{(1-\sigma)}{\sigma^2\lambda}y - \frac{\tau_{PG}}{\sigma}\right)y - \frac{1}{2}\lambda\left(\frac{(1-\sigma)}{\sigma\lambda}y\right)^2$$

One can check that

$$u_{in}\left(1, \frac{(1-\sigma)}{\sigma\lambda}y - \tau_{PG}\right) - u_{in}\left(0, \frac{(1-\sigma)}{\sigma\lambda}y\right) = \frac{\sigma\eta - y\tau_{PG}}{\sigma}$$

Hence, the *Ins* want the incumbent to provide the public good if

$$\frac{\tau_{PG}y}{\sigma} < \eta. \tag{17}$$

The left-hand side of inequality (17) is the cost of providing the public good borne by the *Ins*. If $\tau_{ID} = 0$, the cost of the public good equals $\tau_{PG}y + \frac{1}{2}\lambda\left(\tau_{PG}\right)^2$. Hence,

$\tau_{ID} > 0$ may prevent the provision of a socially desireable public good if

$$\begin{aligned} \tau_{PG} y + \frac{1}{2}\lambda \left(\tau_{PG}\right)^2 &< \frac{\tau_{PG} y}{\sigma} \text{ or} \\ \tau_{PG} &< \frac{1-\sigma}{\sigma\lambda} 2y \end{aligned} \tag{18}$$

Condition (18) shows that if $\sigma < 1$, there always exists a range of parameters for which uncivic *Ins* prevent the provision of a socially desirable good. The intuition for this condition is that for $\sigma = 1$, no redistribution takes place. Consequently, the only issue at stake is whether the incumbent should provide the public good or not. Without redistribution, the interests of the *Ins* and *Outs* are fully aligned. If citizens are uncivic and $\frac{1}{2} < \sigma < 1$, at least some redistribution occurs. This raises the marginal cost of taxation, which makes the provision of the public good less attractive.

Proposition 4 *Suppose that the incumbent only cares about office. Then,*
(i) civic citizens can give incentives to the incumbent to provide the public good;
(ii) uncivic Ins can induce the incumbent to redistribute income from the Outs to them. This redistribution jeopardizes the provision of social desirable public goods.

In practice, it is hard to distinguish a civic electorate from an uncivic one. Nannicini et al. (2013) used blood donations per capita as a measure of social capital in Italian districts. They use this measure as a proxy for how "civic" citizens in a district are. Nannicini et al. (2013) regard the decision to donate blood as an altruistic decision. In their view, citizens who donate must be civic. They use this measure of social capital, apart from several control variables, to explain misconduct of representatives. As a measure of misconduct, Nannicini et al. (2013) used alleged criminal offenses against electoral representatives. They present regressions that indicate that in districts where more people donate blood politicians receive less offenses. This result is consistent with the spirit of the model above that only civic citizens can properly discipline politicians.

5 Summary

In this section, we have discussed two roles of elections: selection and disciplining. Selection requires that politicians differ. Some politicians generate better outcomes than others. We have analyzed a model in which some politicians want to serve the people's interests while other politicians want to serve their own interests. Citizens use information about outcomes to assess whether politicians are good or bad. Disciplining politicians means that citizens give incentives to politicians to promote the interests of the people. Disciplining amounts to rewarding politicians for good outcomes and punishing them for bad outcomes.

For both selection and disciplining to work, the availability of reliable information about politicians' performance is crucial. In Brazil and Puerto Rico, independent audits provide information about corrupt violations. In Brazil, this information helps citizens to select less corrupt politicians. In Puerto Rico, citizens use information to discipline politicians. Besides reliable information, the selection and disciplining role of elections require that elections are competitive.

Most political-accountability models focus on situations where politicians may abuse their power against the interests of the people. In the last model of this section, we have seen that a majority of citizens may also use elections to exploit a minority. Such "uncivic" behavior jeopardizes the provision of public services from which everybody benefits.