External Shocks and Anticipatory Pandering

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July 29, 2021

Abstract

Some external shocks are out of the control of elected politicians, even if they can still anticipate their occurrence better than the general public. How can politicians use these types of anticipated external shocks to their benefit? How do they change their pandering incentives? And how does a rational voter incorporate these seemingly irrelevant external shocks in their voting decision? We build on the political accountability model of Canes-Wrone Herron Shotts, adding the ability to the voter to observe their utility, which is affected by external shock. The shock is observed by the incumbent politician but not the voter. We show that the incumbent's policy choice affects his reelection prospects through a direct channel - a different voting strategy for different policy choice - and indirect channel - policy choice affects voting decision through the voter's utility. A combination of these two channels shapes strategic incentives for the incumbent politician. Our analyses show that for high or low enough magnitude external shocks, a politician's ability to anticipate them eliminates his pandering incentives in equilibrium. For medium negative shocks, pandering could be a "gamble for resurrection," while for medium positive shocks, it acts as an "insurance" to guarantee the reelection. We show that both of these pandering regions emerge in equilibrium. A politician's ability to anticipate external shocks eliminates some unnecessary pandering in equilibrium and for some realizations of the external shock also improves the selection. However, the politician's knowledge of the shock, overall, decreases the voter's welfare in equilibrium.

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1 Introduction

At the end of 2014, Georgia's national currency – the Georgian Lari (GEL) - started a sharp devaluation against the US Dollar. Apart from the major long-term negative macroeconomic consequences for the country, many Georgians also experienced an immediate hit to their financial well being. A significant part of the population had their income in domestic currency but the bank loans in USD, making it challenging to repay their debt. The mentioned circumstances influenced voters' behavior – they turned them against the active government, and the ruling party started losing the supporters. In reality, there was very little government could do to stop the devaluation of GEL for two reasons: (1) the USD started increasing its value relative to all currencies, not only GEL, (2) the currency exchange rate and the inflation level is monitored by the National Bank of Georgia (NBG), which is an independent institution, functioning apart from political interference. So the voters held the government responsible for the financial problems caused by external shocks that were not under the elected government's control. This is just one example, of these widespread phenomenon, and there is empirical evidence showing that voting behavior often depends on circumstances that affect the voters' well being but are not a consequence of the incumbent's political decisions. For instance, natural disasters often decrease incumbent's support,[1] and consequences of the federal government's policy are sometimes attributed to local politicians, etc. [2]

Even if the government could not do much to prevent currency devaluation, one could argue that they at least could see it coming. If executives could anticipate this negative external shock, it could affect their decisions about other relevant policy choices. An external shock essentially affects the incumbent's relative popularity, and if he can anticipate what the voter's predisposition is, he could certainly use it to advance his reelection goals. As for the voter, when she gets a noisy signal by observing her own utility, but cannot disentangle the effects of the external shock and an unrelated policy choice, she rationally incorporates it in her voting decision (even when the politician cannot control the effects of the external shock). How anticipating different external shock levels would shape politicians' incentives, whether it would make them more truthful or more deceiving (pander) by hiding behind the external shock effects, is nontrivial. We construct a theoretical model to capture these strategic interactions and investigate equilibrium behavior.

We take a classical two-period pandering setup with a representative voter and add both external shocks to the voter's utility and the voter's ability to observe her own utility. In-

[1] Abney and Hill (1966), Achen and Bartels (2002,2016).

[2] Sances (2017).

cumbent politicians can anticipate these external shocks (which may be positive or negative), which will have significant positive or negative consequences on the voter's well being. Even though such shocks might not be under the direct control of the local politicians (as in the currency devaluation example discussed above), the voters who observe their utility usually are not well informed to distinguish external shock's effect and might misassociate it as a signal of the performance of the incumbent politician. Having prior information about the external shock thus enables politicians to anticipate the hostile or favorable mood of the electorate before making any policy decisions.

If the incumbent politician also possesses some expertise to make a policy choice, then he has a mechanism to manipulate voter's electoral decision through pandering. Pandering is a well-studied phenomenon when the politician deviates from the optimal behavior with the sole purpose of winning over the electorate and retaining office. This paper analyzes the intersection of these two informational advantages by the incumbent politician: (1) anticipated external shock that enables him to somewhat predict the voter's prior disposition, and (2) policy expertise that creates the possibility of winning over the electorate through pandering.

In this paper, we show that there are two main channels through which the incumbent's policy decision affects his reelection prospects in equilibrium:

- Direct effect: the voter gives different reelection criteria based on policy choice;
- Indirect effect: policy choice affects the utility of the voter and thus her voting behavior.

We show that when the external shock is high in magnitude (either positive or negative), neither of these two effects matter, and the incumbent's policy choice has absolutely no impact on his reelection probability. Therefore, the incumbent politician never panders when faced with significant external shocks. Conversely, if the shock is low enough in magnitude, the policy choice only affects reelection probability through its impact on the voter's utility. Since the private signal is informative and following it maximized the policy's success, the incumbent never panders when the anticipated shock is low.

There are only two possible scenarios where the anticipated external shock might encourage the incumbent to pander: positive and negative medium magnitude shocks. Pandering incentives are somewhat different between these two cases. When the incumbent politician is faced with a medium negative shock, he knows that he is most likely to lose office because of these unfortunate external circumstances (even if he chooses the correct but unpopular policy). The only possibility of retaining the office is choosing the popular policy even if it goes against his private signal. Therefore, for these external shock values, pandering is a "gamble for resurrection" for an otherwise doomed incumbent. On the other hand, when a

politician anticipates a medium positive shock, his reelection prospects are rather good. In fact, he might get reelected even after choosing the wrong but popular policy. Therefore, in this case, pandering is insurance in case of wrong policy choice (following the wrong private signal). We show that pandering plays both of these roles in equilibrium. Moreover, in both scenarios discussed, pandering succeeds in its mission only when the incumbent's private signal is incorrect. This explains why the pandering equilibrium only arises when low-type politicians are sufficiently incompetent; otherwise, our model's only equilibrium is truthful.

We do the welfare comparison between the equilibria of the baseline and the main model, in order to show the effect that the politician's anticipation of the external shock has on the voter's welfare. Our analysis shows that the politician's ability to anticipate external shocks always weakly harms the voter. The difference in welfare is mainly due to the different equilibrium pandering levels as well as different voting rule for the second period incumbent. For certain realizations of the external shock, the politician's anticipation of external shocks benefits the voter by eliminating "unnecessary pandering" in equilibrium. For medium-low external shocks, this model generates even higher utility than the truthful equilibrium of the baseline model due to the better selection of the candidates for the second period. However, the politician's knowledge of the external shock harms the voter due to worse selection even for some realizations of the external shock where the equilibrium pandering level is decreased.

Multiple empirical papers and one recent theory paper by Ashworth, Bueno de Mesquita, and Friedenberg (2018) investigate the link between electoral behavior and external shocks. This paper moves one step ahead by showing the effects of external shocks that are entirely out of control of elected politicians, whether it is because preventative measures are not possible, too costly, or under the jurisdiction of other institutions (like the exchange rate and the National Bank in our earlier example). We show that even in that case, the voter's behavior is rationally affected by the external shock since she cannot disentangle its effect on her own welfare from the effect of an unrelated policy choice. This is the first paper to concentrate on the politician's strategic incentives in such a setting, and its main contribution is to explain how an informed politician's incentives change with different anticipated external shocks and how it affects their pandering behavior.

1.1 Literature Review

This paper is closely related to the voting literature and especially the ones discussing the politician's pandering behavior (Canes-Wrone, Herron, and Shotts (2001); Ashworth and Shotts (2010); Maskin and Tirole (2004); Besley (2006)). We borrow the definition and basic setup from Canes-Wrone, Herron, and Shotts (2001), who define pandering as a politi-

cian's behavior to go against optimal action since "an executive's reelection prospects may depend on catering to voters who are potentially ill-informed about public policy." In the standard setup the incumbent has better private information ("policy expertise" (Gilligan and Krehbiel 1987)), and the voter's prior beliefs are biased towards one "popular" policy decision. These factors together create the possibility of pandering. Two of our setup's main difference are that the voter can observe her own utility, and that this utility is affected by an external shock unrelated to the politician's action. This makes the voter's utility an imperfect signal of the incumbent's performance. Therefore, in our model, the voter has more information than just the policy choice: she can infer the politician's performance through her own observed utility. Moreover, besides policy expertise, the politician is also better aware of the external shocks, enabling them to use this information to their benefit.

Since the voter makes a voting decision based on her own utility (as well as the observed policy choice), this paper is also related to the literature of economic voting (Kramer (1971); Erikson (1989); Peltzman (1987); Ebeid and Rodden (2006), etc.). Moreover, since the incumbent has no direct impact on the external shock but might be judged by its effect on the voter's utility, our paper also relates to multiple empirical papers examining the electoral effects of the external shocks and the voter rationality. This literature usually concentrates on two types of shocks: natural disasters (Achen and Bartels (2002, 2016), Fowler and Hall(2017); Abney and Hill (1966); Gasper and Reeves (2011); Huber, Hill, and Lenz, (2012)) or international economic shocks (Ebeid and Rodden (2006); Wolfers (2002); Sances (2017)). Our model is better suited to exemining the second type of external shocks; For example, politicians can somewhat anticipate the upcoming global economic trends and their effect on the country's economic growth. [3]

While some papers show that exogenous shocks do not influence incumbents' reelection prospects (Abney and Hill (1966)) the main consensus in this literature is that link between electoral behavior and negative external shocks does exist (Wolfers (2002); Healy et al. (2010); Achen and Bartels (2016)). As briefly discussed earlier, the closest work to our paper is a recent theory paper by Ashworth, Bueno de Mesquita, and Friedenberg (2018) showing that external shocks "can affect electoral outcomes, even if voters are rational and have instrumental preferences." However, the main idea behind their results is that even though external shocks (like natural disasters) are not under the direct control of the incumbent, politicians can still "soften" the damage (with better emergency preparedness, infrastructure, etc.). Consequently, overall welfare gives the voter some indication of the incumbent's performance (and type). Like their model, the representative voter in our pa-

[3]It is harder to believe that politicians anticipate natural disasters and hide the information from the citizens to use it for their electoral benefits.

per rationally considers their welfare change since it contains information on the incumbent politician's performance, but the mechanism behind is rather different. In our setup, politicians can not influence the occurrence or the impact of the external shock. However, the representative voter's utility consists of both politician's policy performance and unrelated external shock, therefore making it a noisy signal of incumbent's performance and their type. More importantly, their paper mainly concentrates on explaining the rationality behind the voter's behavior, while our paper studies how anticipated external shocks affect an incumbent politician's pandering incentives.

The remainder of this paper is organized as follows: Section 2 introduces the formal model and shows some preliminary analysis; Section 3 discusses the baseline model without private information about the external shock and characterizes its equilibrium. Section 4 analyses the main model with external shock, introduces an equilibrium and discusses the players' main strategic incentives for different external shock realizations. Section 5 shows the welfare comparison between the baseline and the main models. Section 6 concludes.

2 Model

2.1 Formal Description

We consider a two period model with an election at the end of the first period. There are two candidates - an Incumbent (I) and Challenger (C) - and one representative voter (V). We assume that voters have common interests, and therefore they are reduced to one representative voter. In each period, there are two possible states of the world $\omega \in \{A, B\}$ and two possible policy choices $y \in \{A, B\}$. The voter's prior is that state A is more likely; specifically $P(\omega = A) = \alpha > 0.5$. This means that the voter who wants the policy to match the state is ex-ante inclined towards the policy choice A. Because the voter is ex-ante inclined towards A, we refer to A as the "popular" policy. In each period, the incumbent politician has to choose a policy $y \in \{A, B\}$. The voter always observes the policy choice.

Types

Politicians get private signals about the state of the world $s \in \{A, B\}$. There are two types of politicians based on the strength of the private signal they receive:

- A High type politician (I=H) who knows the state with certainty, i,e $P(s = \omega | I = H) = 1$.

- A Low type (I=L) politician who gets a noisy but informative signal. If this type of politician wants to match the state, he will follow his signal. Formally $P(s = \omega | I = L) = q > \alpha$.

The voter does not observe the politician's type and the prior belief that the politician (either incumbent or challenger) is a high type is $P(I = H) = p$.

Utilities

There is no discounting. As for the utilities, politicians are policy motivated but only if they are in the office, i.e. in each period, only the incumbent politician gets utility:

$$u_p = \begin{cases} 1 & \text{if } \omega = y \text{ and in office} \\ 0 & \text{otherwise} \end{cases}$$

The voter always wants to match the state. Her per-period utility is:

$$u_v = \mathbb{1}\{\omega = y\} + \epsilon$$

where ϵ has a symmetric distribution with mean 0. One can interpret this as an external economic shock that is not affected by the incumbent's policy choice. For example, political instability or an economic recession in partner countries (with large amounts of trade or remittances) will usually negatively influence the country's economic performance.

The distribution of ϵ is common knowledge. The incumbent politician knows the exact realization of ϵ and therefore can use it to increase his chances of reelection. As already discussed, ϵ can be interpreted as an external shock on the country's economy of which the government has a clear understanding, but ordinary citizens merely feel its overall effect on their well being. We assume ϵ is drawn from the triangular distribution between $[-1, 1]$.[4] The probability density function (PDF) of ϵ is triangle :

$$f(\epsilon) = \begin{cases} 0 & if \quad \epsilon < -1 \quad or \quad \epsilon > 1 \\ -|\epsilon| + 1 & otherwise \end{cases}$$

The voter can see her own utility u_v,but does not know the realization of the external shock ϵ. Therefore, she can only form beliefs about the incumbent's performance, and consequently his type, based on her observed utility, her prior belief about the external shock ϵ, and the incumbent's policy choice.

[4]This assumption will be later relaxed to generalize the result for the distribution with full support.

Sequence of the Game

- Nature determines each politician's type, the first period state ω, the incumbent's signal s and the first period external shock ϵ;
- Candidates observe their own type, the signal about the state s and ϵ;
- The incumbent I chooses a policy for the first period y;
- The voter V observes the policy y and her own utility u_v;
- The voter V chooses to either reelect the incumbent I or elect the challenger C;
- Nature selects the state for period 2 ω' and the signal for elected candidate according to his type s';
- Second state external shock ϵ' is realized;
- The officeholder observes signal s' and ϵ' and chooses the policy for the second period y';
- The voter V and the officeholder get their utilities.

Strategies

The incumbent's action in the first period and of the elected candidate in the second period is to choose a policy y for that respective period. Let $\sigma_s^I(\epsilon)$ for $s \in \{A, B\}$ and $I \in \{L, H\}$ denote probabilities of choosing the popular policy A in the first period for each type and signal of the politician and realization of the anticipated shock.

As for the voter, she has to choose which candidate to vote for in the election. This decision will also depend on the chosen policy and the realization of her utility. Let $V_y^{u_v}$ with $y \in \{A, B\}$[5] denote the probabilities of reelecting the incumbent after each possible information set of the voter (chosen policy and observed utility).

2.2 Discussion

In this paper, we consider forms of external shocks that are entirely out of control of the incumbent politician. In some cases, the politician's preventative measures (which can also signal his competence) might soften the impact of external shocks. But in this analysis, we consider external shocks that are either too unpredictable or costly to prevent that even "good" politicians would not implement actions against them,[6] or prevention just does not

[5] We slightly abuse notation and use $V_{y=A}^{\epsilon}$ instead of $V_{y=A}^{u_v=\epsilon}$

[6] In this paper, we do not model the prevention, but one could construct another model where the incumbent could "mute" the effect of external shocks by paying some cost ex-ante. If this cost is too high,

fall in the jurisdiction of the incumbent politician (for instance if we model election for local politicians and the shock is supposed to be dealt with on a federal level). This is done to eliminate any direct information signaling about incumbents type based on the magnitude of the shock.

Suppose we think of external shock as some global economic trend (as in the case of USD revaluation in 2014, change in oil prices, etc.), military actions or political instability in a trading partner country, or even certain natural phenomena (like a heatwave affecting the agriculture sector). In that case, the government usually has better information than the general public and can somewhat predict their occurrence due to the numerous resources such as advisers, corresponding agencies with field experts, etc. Even if it is too late for the preventative measures or simply not under the incumbent politician's jurisdiction, the executive can respond to these predicted external shocks on the voter's utility while making other policy choices.

Another particular assumption of the model is regarding the type of politicians' utility. Politicians get utility of 1 if and only if they are in the office and the chosen policy matches the state of the world. This type of utility is standard in the pandering literature and gives politicians two motives: (1) matching the state and (2) getting re-elected. Our goal is to show under what conditions each of these two factors is more important in guiding politicians' behavior. Another way to model the politicians' utility would be making him policy-motivated and adding fixed office-holding benefits. Note that both of those structures result in similar strategic incentives for the politician (with different weights). Choosing our model's utility structure makes calculations easier since politicians do not care about matching the state when they are out of the office. This is also a sufficient condition to eliminate unusual and unlikely equilibria were the low-type politician would rather lose the election to be replaced with the high type executive in the second period.

The incumbent and the challenger in our model are ex-ante identical as they have the same probability of being a high type. Adding the additional parameter to differentiate the incumbent and the challenger moves mixing regions in equilibrium, but essentially, the equilibria and strategic incentives do not change.

2.3 Preliminary Analysis

In the second period, absent the reelection motives, the officeholder's sole desire is to match the state given his information set. In our model, the incumbent politician has two sources of information: his private signal s about the correct state of the world, and his private

and high magnitude shocks happen with low probability, the incumbent would never implement preventative measures and we would be back to our setup.

information about the realization of the external shock ϵ. Since even the signal of low-type politician is informative ($q > \alpha$) and the external shock ϵ is uncorrelated with the true state of the world, an elected politician always follows their informative private signal in the second period. Given this politician strategy, the voter's second period expected utility (since $E(\epsilon) = 0$) for the high type is 1 and for the low type is q. Consequently, the voting behavior at the end of the first period will be entirely guided by the voter's posterior belief about the incumbent's type.

In the first period, the incumbent politician faces a tension between his desire to match the state in the first period and his reelection incentives. This choice is trivial for a high-type politician: he always follows his private signal in the first period since no reelection incentive is worth sacrificing the immediate first-period utility with certainty. Formally, in equilibrium $\sigma^H_{s=A} = 1, \sigma^H_{s=B} = 0$ for any ϵ.[7]

We further differentiate the regions of ϵ in equilibrium based on the behavior of the low-type politician. We borrow the definition of pandering and truthfulness from Canes-Wrone, Herron, and Shotts (2001).

Definition 1. *(i) We call a region of ϵ truthful if $\sigma^H_{s=A} = \sigma^L_{s=A} = 1$ and $\sigma^H_{s=B} = \sigma^L_{s=B} = 0$ for all values of ϵ in the region, (ii) we call the region of ϵ pandering if $\sigma^H_{s=A} = \sigma^L_{s=A} = 1, \sigma^H_{s=B} = 0$ and $\sigma^L_{s=B} \in (0, 1]$ for all values of ϵ in given region.*

In the truthful regions, both types of politicians follow their signal even when it contradicts the voter's prior belief. In a pandering region a high-type politician follows his private signal, a low-type politician follows his signal if it does not contradict his prior beliefs and he panders after seeing unpopular signal B. For simplicity, in later sections, we denote σ to be the probability of choosing popular policy A by the low type incumbent who receives unpopular signal $s = B$, i.e., $\sigma \equiv \sigma^L_{s=B}$.[8]

3 Baseline Model - Incumbent does Not Observe ϵ

First, we consider a baseline model where the incumbent does not know ϵ and has the same prior belief as the voter. Therefore, the incumbent makes a policy choice only based on his private signal s. The voter still observes her own utility and the policy choice.

[7] Observe that low-type politician always choosing the popular policy cannot be an equilibrium, since, in that case, the policy choice B would be a perfect signal for being the high type and ensure reelection, giving the low type strict incentive to follow their private signal when it indicates policy B.

[8] When the politician observes external shock, these strategies will be the functions of ϵ.

3.1 The Voter's Problem

In the second period, all politicians follow their own signal, and therefore, the voter always reelects the incumbent if her posterior belief about the politician being a high-type is at least p. Moreover, we have already established that a high-type politician always follows his private signal in the first period.

The voter has two sources of information to update her posterior beliefs about the likelihood that the incumbent is high ability: her own utility u and the policy choice y. Using Bayes' rule, the voter's posterior beliefs μ_x^u for $x \in \{A, B\}$ are:

$$\mu_x^u \equiv P(I = H|u, y = x) = \frac{P(u|H, y = x)P(H|y = x)}{P(u|H, y = x)P(H|y = x) + P(u|L, y = x)P(L|y = x)}$$

The voter reelects the incumbent if and only if this posterior belief is higher than p. We can think of this as a two-level updating of the voter's posterior belief. First, she updates based on the observed policy choice. If the politician is truthful, then choosing the popular policy A is more likely to come from the high-type politician, and therefore it increases her posterior belief ($P(I = H|y = A) > P(I = H|y = B)$). When the low type politician starts to pander, the popular policy choice becomes a weaker indication of being a high type. For a certain pandering level the two policy choices result in the same posterior beliefs (absent information from her utility).

The second part of updating is based on the observed utility of the voter. Observing the utility, the voter gets a signal about the probability of the state being matched, through which she updates her posterior belief about the incumbent being a high type. Fixing the policy choice y, when the voter observes her own utility u she knows one of these two scenarios occurred:

1) The incumbent politician matched the state. From the utility structure, this would imply $u = 1 + \epsilon \implies \epsilon = u - 1$;

2) The incumbent politician mismatched the state. Similarly, this would mean $u = 0 + \epsilon \implies \epsilon = u$;

This would mean that based solely on the observed utility, the voter's belief that the incumbent matched the state $P(\omega = y|u)$ equals $P(\epsilon = 1 - u)$. Given the prior belief about the external shock ϵ, for $u \in [0, 1]$[9], the probability that the state was matched increases in u. Therefore, a higher utility is a stronger signal for a matched state, which in turn increases

[9]When $u > 1$, the voter knows with certainty that the state was matched since $\epsilon < 1$. Similarly, $u < 0$ is the perfect signal of mismatched state.

the voter's posterior belief about the incumbent ability. For $u = u_x^*$, the voter is indifferent between voting for either candidate. Thus, in equilibrium, after observing the policy choice $x \in \{A, B\}$, the voter reelects the incumbent when her utility is more than u_x^* and elects the challenger otherwise. A combination of all the incentives discussed above gives us the following lemma:

Lemma 2. *When the incumbent does not anticipate the external shock, the voter's strategy is a best response iff she reelects the incumbent when* $\left[y = A \text{ and } u > u_A^*\right]$ *or* $\left[y = B \text{ and } u > u_B^*\right]$ *and votes for the challenger otherwise.*

Figure 1 visually represents the form of the voter's strategy discussed in Lemma 2.

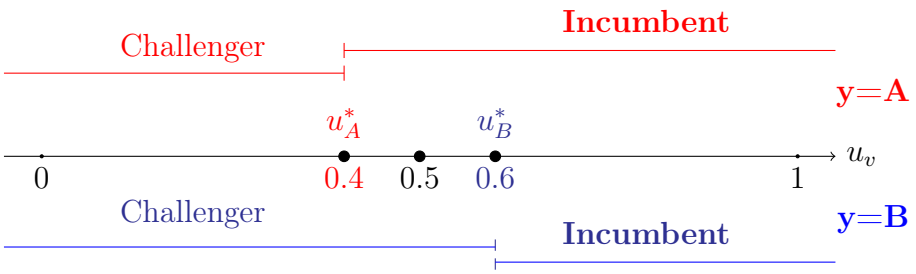


Figure 1: *This graph shows the voting strategy in truthful equilibrium when* $\alpha = 0.6$

Note that, in a truthful equilibrium, these cut-offs only depend on α—the prior probability of the popular state.[10] In case of pandering we also have $u_A^* < u_B^*$- the voter is more "forgiving" when the incumbent politician makes the "popular" policy choice, which is the main driving force of pandering.

Corollary 3. *In equilibrium, the low type incumbent always follows the signal that favors the popular policy* $s = A$.

The corollary follows directly from the discussion above. The incumbent politician always has two forces driving his behavior: (1) matching the state to get high first-period utility, and (2) maximize his reelection prospects. When the low type politician gets signal $s = A$, he strictly wants to follow it since both incentives work in the same direction: choosing policy $y = A$ guarantees a better reelection rule $u_A^* < u_B^*$ and a higher chance of matching the state.

[10] Moreover, in that case $u_B^* = \alpha >= u_A^* = 1 - \alpha$.

3.2 The Incumbent's Problem and the Equilibrium

We have already established three facts about the incumbent's equilibrium strategy: (1) the second-period officeholder always follows his signal; (2) A high type politician always follows his signal even in the first period; (3) A low type politician always follows the popular signal $s = A$ in the first period. Now we discuss the strategic incentives of the low type incumbent who receives the unpopular signal $s = B$. His expected utility from following this signal is:

$$EU_B^B = P(\omega = B|s = B)\Bigg(1 + P\Bigg(\epsilon > u_B^* - 1\Bigg)P(\omega = s)\Bigg) + P(\omega = A|s = B)\Bigg(0 + P\Bigg(\epsilon > u_B^*\Bigg)P(\omega = s)\Bigg)$$

The first part of this expected utility represents the matched state: the incumbent gets first-period utility 1 as well as second period expected utility $P(\omega = s)$ if he is reelected (with probability $P[\epsilon > u_B^* - 1]$). The second part is expected utility in case of a mismatched state: the incumbent gets utility 0 in the first period but still might get second-period utility if he still reelected (with lower probability $P[\epsilon > u_B^*]$). Similarly, we can calculate the low type politician's expected utility from choosing policy A after receiving private signal $s = B$:

$$EU_B^A = P(\omega = A|s = B)\Bigg(1 + P\Bigg((1 + \epsilon) > u_A^*\Bigg)P(\omega = s)\Bigg) + P(\omega = B|s = B)\Bigg(0 + P\Bigg(\epsilon > u_A^*\Bigg)P(\omega = s)\Bigg)$$

One can clearly see where the pandering incentives come from the equations of expected utility. On the one hand, after seeing signal B the low type incumbent wants to choose unpopular policy $y = B$ since it maximizes his chance of getting first-period utility. On the other hand, whether he matches state or not, second-period reelection probabilities are higher if he panders (since $u_A^* < u_B^*$). The interaction of these two incentives guides the politician's equilibrium behavior.

We can calculate the equilibrium level of pandering $\tilde{\sigma}$ by setting $EU_B^B = EU_B^A$. Analysis shows that $\tilde{\sigma}$ is strictly decreasing in the competence level of the low type incumbent q. This means that increasing the quality of the low type politician decreases the probability of pandering. This effect is mainly due to the higher expected loss from disobeying the signal s. However, with higher q the voter's reelection cutoffs for different policies converge to each other. Moreover, since $EU_B^B - EU_B^A$ is increasing in σ, we can easily calculate values for q where a truthful equilibrium exists.

Proposition 4. *When the incumbent does not know the realization of the external shock ϵ,*

we have two possible equilibria [11]

1) If $q > \tilde{q}$ only truth equilibrium exists.

2) If $q < \tilde{q}$, L type politician panders after observing $s = B$ with probability $\tilde{\sigma}$

In both types of equilibria, the voter's strategy is to reelect the incumbent iff ($y = A$ and $u > u_A^*$) or ($y = B$ and $u > u_B^*$).

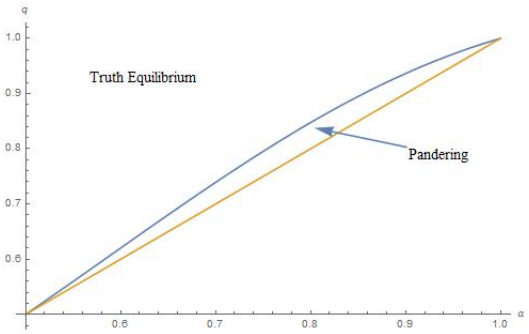


Figure 2: This graph shows regions of different types of equilibria when the voter observes her own utility. For a relatively high competent level of the incumbent, the cost of pandering is too high, and there exists truth equilibrium. For relatively low level q, information of the voter and her voting strategy is not enough to make politicians behave truthfully, and L type starts pandering after $s = B$.

In the pandering equilibrium, reelection cutoffs of the voter (u_A^* and u_B^*) depend on the prior probability of the popular state α as well as the competence level of the low type politician q. The voter is still more likely to reelect the incumbent after a popular policy choice ($u_A^* < u_B^*$) creating pandering incentives. Moreover, the difference between the equilibrium cutoffs ($u_B^* - u_A^*$) increases with more informative private signal of the low type politician (higher q). This result is driven by the effect of q on the equilibrium pandering level. For more competent low type politicians, equilibrium pandering level decreases (eventually switching to the truthful equilibrium for $q > \tilde{q}$) since pandering becomes more costly. With lower pandering level, the popular policy choice becomes stronger signal for politician's high type while the unpopular policy choice leads to lower posterior belief about the incumbent being a high type. Consequently, higher q decreases the equilibrium pandering level and causes divergence in equilibrium reelection cutoffs of the voter.

Next, we consider the main model where the incumbent anticipates the exogenous shock.

[11] Proofs of the Propositions as well as the exact values of the parameters are given in the Appendix.

4 The Main Model - Anticipated External Shocks

For the main model's equilibrium, we consider a specific type of "cutoff" reelection strategy of the voter derived from the logic above.[12] This equilibrium strategy of the voter has the following form:

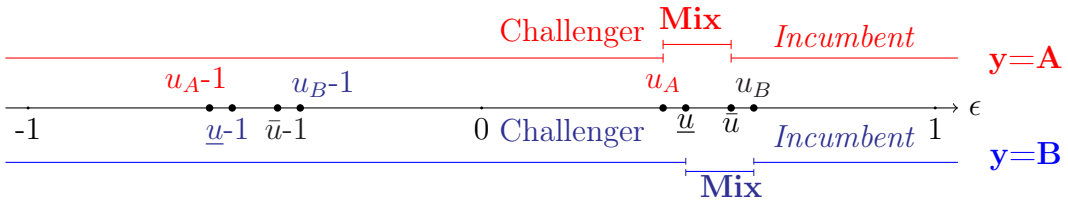


Figure 3: *This graph shows the 'cutoff' strategy of the voter in equilibrium, depending on the policy choice and her own utility*

If the voter sees the popular policy choice $y = A$ (red lines of the graph above), then:

- Elect the Challenger if the observed utility is low enough ($u \leq u_A$).
- Mix between voting for the Incumbent and the Challenger for an intermediate level of utility ($u_A < u \leq \bar{u}$).
- Reelect the Incumbent if the observed utility is high enough ($u > \bar{u}$).

Similarly, if the voter sees unpopular policy choice $y = B$ (red lines of the graph above), then:

- Elect the Challenger if the observed utility is low enough ($u \leq \underline{u}$).
- Mix between voting for the Incumbent and the Challenger for an intermediate level of utility ($\underline{u} < u \leq u^B$).
- Reelect the Incumbent if the observed utility is high enough ($u > u^B$).

4.1 Equilibrium

Similar to the baseline model, a truthful equilibrium with a simple cutoff reelection strategy exists only for sufficiently high competence levels of the low type politician. Intuitively, when the low type's signal is more precise, his pandering cost is high enough to make him truthful. For lower levels of q, we get equilibrium where the voter uses a modified cutoff strategy with the mixing regions discussed above. Moreover, the incumbent politician panders if he

[12] Note that we are describing equilibrium and we do not show the uniqueness yet

faces medium positive or negative shocks, and he is truthful everywhere else. In the next section, we explain the rationale behind the equilibrium behavior of each player. Proposition 4 formally states the full equilibrium of this game with an anticipated external shock.

Proposition 5. *When the incumbent anticipates the external shock ϵ, there exists the following equilibrium:*

1) If $q > \bar{q}$ the politician is always truthful, and the voter reelects the incumbent iff ($y = A$ and $u > u_A = 1 - \alpha$) or ($y = B$ and $u > u_B = \alpha$).

2) If $q < \bar{q}$:

The Incumbent:

- *A low type incumbent who receives private signal $s = B$ and anticipates a positive external shock panders with probability $\sigma^*_+(\epsilon) > 0$[13] when $\underline{u} < \epsilon < u_B$;*
- *A low type incumbent who receives private signal $s = B$ and anticipates a negative external shock panders with probability $\sigma^*_-(\epsilon) > 0$[14] when $u_A - 1 < \epsilon < \bar{u} - 1$.*

Otherwise the incumbent is truthful.

The Voter: After the popular policy choice $y = A$:

- *The voter elects the challenger for low enough utility ($V^*_A = 0$ if $u_v < u_A$);*
- *The voter mixes between the incumbent and the challenger with probability $V^*_A \in (0, 1)$ for intermediate levels of utility ($u_A < u_v < \bar{u}$);*
- *The voter reelects the incumbent for high enough utility ($V^*_A = 1$ if $u_v > \bar{u}$).*

After the unpopular policy choice $y = B$:

- *The voter elects the challenger for low enough utility ($V^{u*}_B = 0$ if $u_v < \underline{u}$);*
- *The voter mixes between the incumbent and the challenger with probability $V^*_B \in (0, 1)$ for intermediate levels of utility ($\underline{u} < u_v < u^B$) ;*
- *The voter reelects the incumbent for high enough utility: ($V^*_B = 1$ if $u_v > u_B$).*

The exact equilibrium values (pandering and voting strategies) are given in the Appendix. The graph below shows the equilibrium behavior of the low-type incumbent after observing unpopular signal $s = B$.[15]

[13] $\sigma^*_+(\epsilon)$ is increasing for $\underline{u} < \epsilon < \bar{u}$ and decreasing for $\bar{u} < \epsilon < u_B$.

[14] $\sigma^*_-(\epsilon)$ is increasing for $u_A - 1 < \epsilon < \underline{u} - 1$ and decreasing for $\underline{u} - 1 < \epsilon < \bar{u} - 1$.

[15] For illustrative purposes, the graph is constructed for the specific parameter values $\alpha = 0.6, q = 0.67$.

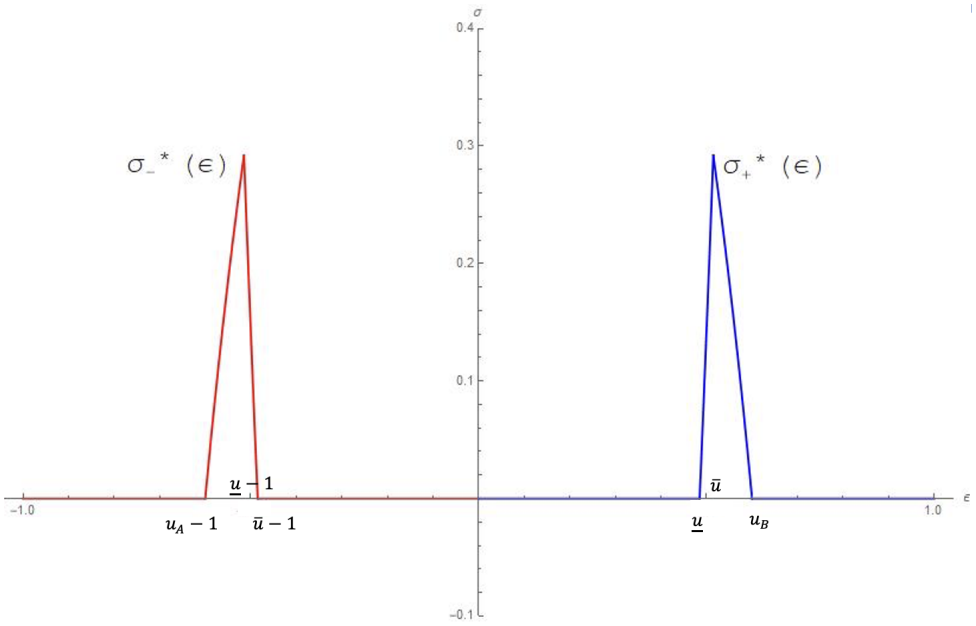


Figure 4: This graph shows the equilibrium level of pandering of the low-type incumbent after observing the unpopular signal $s = B$ depending on the realization of the external shock. The red line shows pandering after a negative shock (gamble for resurrection), and the blue line shows pandering after a positive shock (insurance). The graph is constructed for the specific parameter values $\alpha = 0.6, q = 0.67$

4.2 Incumbent's Problem

For high type incumbent and a low type with popular private signal $s = A$, nothing changes, and they are still truthful. Given the form of the voting strategy described above, we now discuss a low type incumbent's problem who receives the unpopular private signal $s = B$ for different realizations of the external shock ϵ.

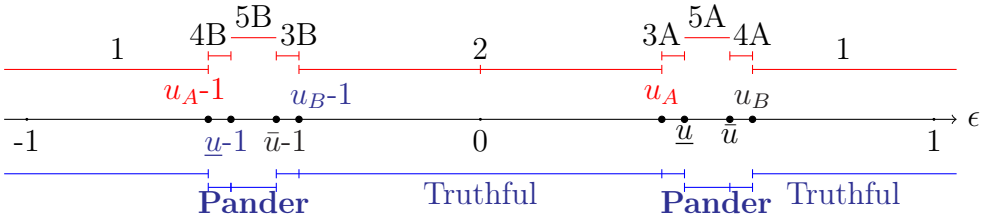


Figure 5: *This graph shows equilibrium strategy of the L type incumbent with unpopular signal $s = B$, depending on realization of the external shock ϵ*

If the low type incumbent sees unpopular private signal $s = B$, his expected utility of

following this signal and choosing policy B equals:

$$EU_B^B = P(\omega = B|s = B)(1 + V_B^{1+\epsilon} q) + P(\omega = A|s = B)(0 + V_B^{\epsilon} q)$$

If instead he panders by choosing the popular policy A, he gets:

$$EU_B^A = P(\omega = A|s = B)(1 + V_A^{1+\epsilon} q) + P(\omega = B|s = B)(0 + V_A^{\epsilon} q)$$

Therefore, the net expected benefit of following unpopular signal $s = B$ is:

$$EU_B^B - EU_B^A = \underbrace{\Big(P(\omega = B|s = B) - P(\omega = A|s = B)\Big)}_{1} +$$
$$\underbrace{\Big(P(\omega = B|s = B)V_B^{1+\epsilon} + P(\omega = A|s = B)V_B^{\epsilon}\Big)q}_{2} -$$
$$\underbrace{\Big(P(\omega = A|s = B)V_A^{1+\epsilon} + P(\omega = B|s = B)V_A^{\epsilon}\Big)q}_{3}$$

The first part represents the first period benefit of following signal $s = B$. The second part represents the future net benefits of following signal B, since q is the future expected utility of being reelected. The third part is the future benefit of pandering, and again q is again the future expected benefit of being reelected. The difference between the second and the third part shows the second period benefit of pandering for the low type politician with unpopular signal. This pandering benefit is especially large when the policy choice plays a rather important direct role for reelection. For example, the pandering incentives are high if the voter reelects the incumbent after the popular policy choice (but not after the unpopular policy choice) even with the mismatched state $V_A^{\epsilon} = 1$,. Another such example is when the unpopular policy choice always leads to losing office even with matched state $V_B^{1+\epsilon} = 0$. These two cases drive the two distinct motives of pandering in the equilibrium we discuss below. Now, we consider the incumbent's problem in more detail for different regions of ϵ on Figure 5.

High Magnitude Shocks - Policy Chose has no Impact on Reelection

When the incumbent politician anticipates high magnitude shock, either positive or negative (Region 1 in Figure 5), his reelection probability is predetermined - for large negative (positive) shocks, the incumbent always loses (retains) office whether or not the state is matched.

For these values of ϵ, policy choice has no direct or indirect impact on the incumbent's reelection prospects. Since first period utility is always higher when following the informative private signal ($P(\omega = B|s = B) > P(\omega = A|s = B)$), the incumbent is always truthful in this region.

Low Magnitude Shocks - Only Matching the State Matters for Reelection

When the politician foresees a low magnitude external shock (Region 2 in Figure 5), he only gets reelected if the state of the world is matched. These small shocks translate into utilities close to 0 and 1, giving a strong enough signal to the voter that the incumbent matched or mismatched the state, so that she votes solely based on this observed utility u_v. Therefore, policy choice has an only indirect effect on reelection probability through its impact on the voter's utility. Given the utility levels, different policy choices do not lead to different reelection behavior. Since even a low type incumbent's private signal is informative, following it would therefore maximize both his first period benefit and his second period reelection probability. Therefore, this region is truthful in equilibrium.

Medium-Low Level Shocks can Still Result in Truthful Behavior Even with Different Election Rules for Different Policies

For medium-low magnitude shocks (Regions $3A$ and $3B$ in Figure 5)[16] the policy choice has both direct and indirect effects on reelection probabilities. For positive shocks ($3A$), matching the state leads to reelection of the incumbent with certainty. However, if the state is mismatched, different policy choices lead to different electoral behavior: the voter reelects the incumbent after the popular policy choice $y = A$ with probability $V_A^\epsilon > 0$, while she never elects the challenger after observing the unpopular policy $y = B$; This creates pandering incentives for the low type incumbent.

For positive medium-low magnitude external shocks ϵ, pandering is insurance against a possible mistake. When the low type incumbent receives the private signal $s = B$ and follows it ($y = B$) he loses office if the state is mismatched. If he, instead, chooses the popular policy $y = A$ he may still be reelected if the state is mismatched (since $V_A^\epsilon > 0$). The reelection probability $V_A{}'$ that would make the incumbent indifferent between following the unpopular signal or pandering in this region equals:

$$V_A' = \frac{(1+q)(P(\omega = B|s = B) - P(\omega = A|s = B))}{P(\omega = B|s = B)q}$$

[16]Note that Regions $3A, 3B, 4A, 4B, 5A, 5B$ always exist since we have $1 - \alpha = u_A < \underline{u} < \bar{u} < u_B = \alpha$.

Since higher values of V_A discourage the incumbent from being truthful, being truthful will be a best response only for $V_A < V_A'$. We later compare this reelection probability to the one from Region $4B$ to show that in equilibrium the incumbent is indeed truthful in Region $3A$.

For negative medium-low magnitude external shocks (Region $3B$ in Figure 5), the mismatched state leads to losing office after either policy choice. However, if the state is matched, the voter always reelects the incumbent after the popular policy choice $y = A$, and only sometimes reelects the incumbent after the unpopular policy choice $y = B$ (with probability $V_B^{1+\epsilon}$). This again creates different pandering incentives for the low type incumbent compared to the previous case.

For these values of the external shock, pandering is a gamble for resurrection. In this region, the low type incumbent who follows his unpopular signal almost always loses the office (he is dismissed after the mismatched state and only sometimes reelected after the matched state with probability $V_B^{1+\epsilon} < 1$). If instead he panders and chooses the popular policy $y = A$, he guarantees himself reelection after the matched state. The reelection probability $V_B^{'}$ that makes the low type incumbent indifferent between following the unpopular signal or pandering equals:

$$V_B^{'} = \frac{P(\omega = A|s = B)(1 + q) - P(\omega = B|s = B)}{P(\omega = B|s = B)q}$$

Since V_B encourages the incumbent to be truthful, he will be truthful only for $V_B > V_B'$. Note that in this region $V_B^{1+\epsilon}$ is the same variable as V_B^{ϵ} in Region $4A$. We later compare $V_B^{'}$ to the reelection probability from Region $4A$ to show that in equilibrium the incumbent is indeed truthful in Region $3B$.

Medium-High Level Shocks Lead to Pandering in Equilibrium

Similar to the previous case, a medium-high positive shock (Region $4A$ in Figure 5) causes an incentive to pander as insurance against a possible mistake. Choosing the popular policy $y = A$ guarantees reelection, while choosing the unpopular policy $y = B$ might lead to losing office after the mismatched state. The reelection probability V_B^* that makes a low type incumbent with the unpopular signal indifferent between choosing either policy is:

$$V_B^* = \frac{P(\omega = A|s = B)(1 + q) - P(\omega = B|s = B)}{P(\omega = A|s = B)q}$$

$P(\omega = B|s = B) > P(\omega = A|s = B) \implies V_B^* > V_B^{'}$ meaning that any reelection probability that makes the incumbent pander after a negative medium-low shock from region $3B$ is not high enough to make him truthful after the corresponding positive medium-high shock from

region $4A$. Thus, region $4A$ is a pandering region in equilibrium, while region $3B$ is a truthful region.

For negative medium-high shocks (Region $4B$ in Figure 5), pandering is a gamble for resurrection. For these values of ϵ, choosing the policy $y = B$ leads to losing office with certainty. Choosing the popular policy $y = A$, might lead to reelection with probability $V_A > 0$ if the policy choice succeeds. The reelection probability V_A^* that makes the low type incumbent indifferent between following the unpopular signal and pandering is:

$$V_A^* = \frac{P(\omega = B|s = B) - P(\omega = A|s = B)}{P(\omega = A|s = B)q}$$

Note that $V_A' > V_A^* \implies (1+q)P(\omega = A|s = B) - P(\omega = B|s = B) > 0$. This condition is always satisfied for $V_A^* < 1$. Therefore, if the incumbent panders after positive medium-low external shock from region $3A$, the reelection probability V_A^* is higher than what makes him truthful after the corresponding medium-high negative shock from region $4B$. Since this reelection probability discourages the incumbent from being truthful, $3A$ is a a truthful region and $4B$ is a pandering region in equilibrium .

Medium level Shocks Lead to Pandering with Mixed Reelection Probabilities after Both Policy Choices

When $\underline{u} < \epsilon < \bar{u}$ (Region 5A in Figure 5), the voter always reelects the incumbent if the state was matched regardless of the policy choice ($1 + \epsilon > u_B > \bar{u}$). If instead, the state is mismatched, then the voter mixes by voting for the incumbent with probabilities V_A^ϵ and V_B^ϵ after the respective policy choices. When the low type incumbent receives the unpopular signal $s = B$, if he follows it and chooses the policy $y = B$ he gets:

$$EU_B^B = P(\omega = B|s = B)(1 + q) + P(\omega = A|s = B)(0 + V_B^\epsilon q)$$

If instead he panders and chooses the popular policy $y = A$, he gets:

$$EU_B^A = P(\omega = A|s = B)(1 + q) + P(\omega = B|s = B)(0 + V_A^\epsilon q)$$

In equilibrium, since this is a pandering region, the low type incumbent who observes the unpopular private signal $s = B$ is indifferent between choosing either policy, i.e., $EU_B^B = EU_B^A$. Simplifying this condition we get:

$$P(\omega = B|s = B)V_A^\epsilon - P(\omega = A|s = B)V_B^\epsilon = \frac{(1+q)}{q}(P(\omega = B|s = B) - P(\omega = A|s = B))$$

Observe that both reelection probabilities $(V_A^\epsilon, V_B^\epsilon)$ play a role in satisfying this indifference condition.

When $\underline{u}-1 < \epsilon < \bar{u}-1$ (Region $5B$ in Figure), the voter always dismisses the incumbent if the state was mismatched, regardless of the policy choice ($\epsilon < 0 < u_A > \underline{u}$). If instead, the state is matched, then the voter reelects the incumbent with probabilities $V_A^{1+\epsilon}$ and $V_B^{1+\epsilon}$ after the respective policy choices. When the low type incumbent receives the unpopular signal $s = B$, if he follows it and chooses the policy $y = B$ he gets:

$$EU_B^B = P(\omega = B|s = B)(1 + V_B^{1+\epsilon}q) + P(\omega = A|s = B)0 = P(\omega = B|s = B)(1 + V_B^{1+\epsilon}q)$$

If instead he panders and chooses the popular policy $y = A$, he gets:

$$EU_B^A = P(\omega = A|s = B)(1 + V_A^{1+\epsilon}q) + P(\omega = B|s = B)0 = P(\omega = A|s = B)(1 + V_A^{1+\epsilon}q)$$

In equilibrium, since this is a pandering region, the low type incumbent who receives the signal $s = B$ is indifferent between choosing either policy, i.e., $EU_B^B = EU_B^A$. Simplifying this condition we get:

$$P(\omega = B|s = B)V_B^{1+\epsilon} - P(\omega = A|s = B)V_A^{1+\epsilon} = \frac{1}{q}((P(\omega = A|s = B) - P(\omega = B|s = B))$$

Note that $(V_B^{1+\epsilon}, V_A^{1+\epsilon})$ are the same reelection probabilities in this region as $(V_A^\epsilon, V_B^\epsilon)$ from Region $5A$. Indifference conditions of the low type incumbent in regions $5A$ and $5B$ define the values for reelection probabilities the voter uses in equilibrium. This is a rather intricate region with the incumbent pandering after both positive and negative external shocks. Such equilibrium structure is possible because of the overlapping regions of the voter's mixing strategies after the two policy choices (for $u \in (\underline{u}, \bar{u})$ the voter uses mixing reelection strategies after both popular and unpopular policy choices).

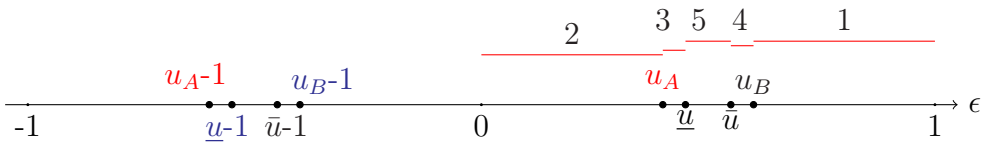
To sum up, for high levels of positive (negative) external shocks, the incumbent knows that he will always get reelected (dismissed), therefore, his policy decision has no direct or indirect effect on the voting behavior. This eliminates pandering incentives for the low type politician for such external shock levels, making him truthful in equilibrium. The second truthful region of the equilibrium is after the low levels of external shocks. However, the rationale behind inducing the truthful behavior is very different from the previous case. In this region, the external shocks have a rather insignificant effect on the voter's utility, and matching the correct state becomes the decisive factor for reelection. Since following the

incumbent's private signal maximizes the probability of matching the state, the low type incumbent politician is truthful for these realizations of the external shock. Note that in this region policy choice has no direct effect on the voter's behavior - different policy choices lead to the same election decision for a fixed utility. Rather, the policy choice indirectly affects the voting strategy through its effect on the voter's utility.

Pandering incentives are only activated after medium level external shocks (positive and negative). For medium positive external shocks, the incumbent anticipates a favorable predisposition of the voter and knows he is likely to be reelected. In this case pandering almost guarantees the reelection and acts as an insurance. In contrast, for medium negative external shocks, the incumbent foresees an unfavorable position of the voter, thinking he is most likely to lose the office. Pandering in this region is a "gamble for resurrection." In our model's equilibrium, the pandering region emerges after both types of medium magnitude shocks.

4.3 The Voter's Problem

When the utility is large enough, $u_v > 1$, she knows with certainty that the correct policy was chosen (but she does not know the type of the incumbent). Since the incumbent and the challenger are drawn from the same pool and the matched state increases the voter's posterior belief that the incumbent is a high type, matching the state always leads to the reelection of the incumbent. Therefore, a voter who observes $u_v > 1$ always reelects the incumbent. If the utility is negative, $u_v < 0$, the voter knows that the state was mismatched. This is a perfect signal that the incumbent is a low type (only the low type incumbent mismatches the state since the high type politician knows the correct state with certainty and always follows his private signal). In equilibrium, there are two more regions of the voter's utility where the voter knows that the incumbent is always truthful (Figure 6):



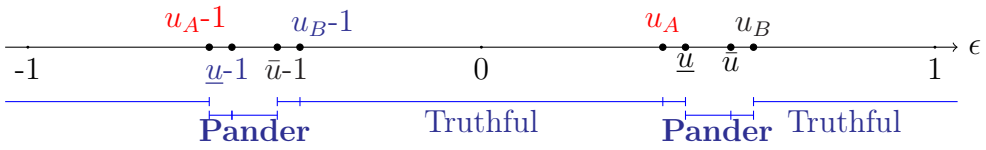


Figure 6: *This graph shows regions for the equilibrium strategy of the voter, depending on the observed utility (above) and the equilibrium strategy of the low type politician with unpopular signal $s = B$, depending on the realization of the external shock ϵ (below)*

As we already discussed, the high type politician is always truthful in equilibrium. The voter can infer the low type incumbent's behavior from the observed utility and the policy choice.

For High or Low Positive Utility Levels, the Voter Always Knows the Politician was Truthful

For high positive observed utility $u_B < u_v < 1$ (Region 1 in Figure 6), the voter knows that either (1) the state was matched and $\epsilon = u_v - 1 \in (u_B - 1, 0)$ or (2) the state was mismatched and $\epsilon = u_v \in (u_B, 1)$. In both cases, the low type incumbent is truthful in equilibrium.

Similarly, for low positive observed utilities $0 < u_v < u_A$ (Region 2 in Figure 6), the voter knows that either the state was matched and $\epsilon = u_v - 1 \in (-1, u_A - 1)$ or the state was mismatched and $\epsilon = u_v \in (0, u_A)$. In either case, the incumbent is truthful in equilibrium.

With the knowledge that the low type politician is truthful, the voter updates her posterior beliefs and votes for the incumbent when $P(H|u, y = B) \geq p$ iff $u > \alpha$. Intuitively, the voter sees two signals for the politician's type: the utility $u_v = u$ and the policy choice y. When the voter observes that $u > \alpha$ and knows that the incumbent was truthful, the utility is a stronger indicator of the high type of the politician than the policy choice. Consequently, even the unpopular policy choice leads to the reelection of the incumbent. Similarly, when the utility is low enough $u < 1 - \alpha$ and voter knows the incumbent was truthful, it is a strong indicator of the mismatched state and therefore the incumbent's low type. As a result, the voter elects the challenger even after the popular policy choice $y = A$.

For Medium-Low and Medium-High Positive Utilities, the Voter does Not Know whether or not the Low Type Incumbent was Truthful

For medium-low positive utility $u_A < u_v < \underline{u}$ (Region 3 in Figure 6), the voter deduces that either the state was matched and the low type incumbent was pandering,[17] or the state was

[17]If the state is matched $\epsilon = u_v - 1$. In which case, $u_A - 1 < \epsilon < \underline{u} - 1$ and from the previous part, the incumbent is pandering.

mismatched and the incumbent was truthful.[18]

Based on this knowledge, the voter updates her posterior beliefs $P(H|u, y = A)$ and $P(H|u, y = B)$. For these observed utility levels, the voter is mixing between voting for the incumbent and the challenger after observing the popular policy choice $y = A$. The equilibrium level of pandering $\sigma^*_-(\epsilon = u_v - 1)$ in this region satisfies $P(H|u, y = A) = p$. Since in equilibrium the voter always votes for the challenger after observing the unpopular policy choice $y = B$ and the utility from this region, we also have $P(H|u, y = B) < p$. This condition derives the threshold $\underline{u}$ in equilibrium. Intuitively, when the observed utility increases, the equilibrium level of pandering $\sigma^*_-(\epsilon = u_v - 1)$ increases as well.[19] With higher levels of pandering, the probability that the low type incumbent chooses the unpopular policy decreases, and therefore $P(H|u, y = B)$ increases. When the utility level surpasses $\underline{u}$, the voter no longer wants to vote for the challenger after observing $y = B$ ($P(H|u, y = B) > p$). Consequently, for higher utility levels we move to the region where the voter is mixing after observing either policy choice (Region 5).

Similarly, after observing medium-high positive utility $\bar{u} < u_v < u_B$ (Region 4 in Figure 6), the voter knows that either the state was matched and the low type incumbent was truthful,[20] or the state was mismatched and the incumbent was pandering.[21]

Based on this knowledge, the voter updates her posterior beliefs $P(H|u, y = A)$ and $P(H|u, y = B)$. In equilibrium, the voter is mixing between voting for the incumbent and the challenger after observing the unpopular policy choice $y = B$ and the utility level from this region. The equilibrium level of pandering $\sigma^*_+(\epsilon = u_v)$ is chosen to satisfy this indifference condition $P(H|u, y = B) = p$. Moreover, for the utility levels from this region, the voter elects the challenger after observing the popular policy choice $y = A$ in equilibrium. Therefore, we must have $P(H|u, y = A) > p$ for the equilibrium pandering level $\sigma^*_+(\epsilon = u_v)$. This condition is always satisfied for $u > \bar{u}$. Intuitively, with the lower levels of the utility in this region, the equilibrium pandering level increases.[22] When the pandering level increases, the popular policy choice $y = A$ becomes the weaker signal for the incumbent's high type, eventually decreasing $P(H|u, y = A)$ below p when the utility level reaches $\bar{u}$.

[18]The state was mismatched and $\epsilon = u_v$. In which case, $u_A < \epsilon < \underline{u}$ and the low type incumbent is truthful.

[19]The higher utility is a better signal for the high type of the incumbent and it should be balanced with the higher level of pandering to make the voter indifferent between voting for either candidate after the popular policy choice $y = A$

[20]If the state was matched then $\epsilon = u_v - 1$. In which case, $\bar{u} - 1 < \epsilon < u_B - 1$ and from the equilibrium strategy, the incumbent is truthful.

[21]If the state was mismatched then $\epsilon = u_v$. In which case, $\bar{u} < \epsilon < u_B$ and the L type incumbent is pandering with probability σ^*_+.

[22]The lower utility level decreases the posterior belief of the voter about the incumbent's type, the higher equilibrium pandering level balances it out making sure $P(H|u, y = B) = p$

For Medium Positive Utility, the Voter Knows in Equilibrium that the Low Type Politician Pandered

After observing medium positive utility $\underline{u} < u_v < \bar{u}$ (Region 5 in Figure 6), the voter knows that either the state was matched and the low type incumbent was pandering with probability $\sigma_-^*(\epsilon = u_v - 1)$[23] or the state was mismatched and the low type incumbent was again pandering but with probability $\sigma_+^*(\epsilon = u_v)$.[24] Based on this knowledge, the voter's posterior beliefs about the incumbent being a high type after each policy choice are:

$$P(H|u, y = A) = \frac{f(u-1)p\alpha}{f(u-1)\alpha p + f(u-1)\alpha(1-p)(q+(1-q)\sigma_-^*) + (1-\alpha)f(u)(\sigma_+^* q + (1-q))(1-p)}$$

$$P(H|u, y = B) = \frac{f(u-1)p(1-\alpha)}{f(u-1)(1-\alpha)p + f(u-1)(1-\alpha)(1-p)q(1-\sigma_-^*) + \alpha f(u)(1-q)(1-\sigma_+^*)(1-p)}$$

Since the voter uses mixing reelection strategy after both policy choices in this region, $\sigma_-^*(\epsilon = u_v - 1)$ and $\sigma_+^*(\epsilon = u_v)$ are chosen to make the voter indifferent between voting for the incumbent or the challenger after each policy choice. Therefore, these equilibrium pandering levels solve $P(H|u, y = A) = p = P(H|u, y = B)$.

5 Welfare Analysis

Next, we do the welfare comparison between the equilibria of the baseline and the main models. In both cases, the voter is able to observe her own utility and the policy choice. However, in the main model, the incumbent politician can also anticipate the magnitude of the external shock. Even though the incumbent cannot change the impact of the external shock, he still uses it to advance his reelection prospects. From the structure of the equilibrium we discussed, it is not trivial to predict the overall impact of the incumbent anticipating the external shock on the voter's welfare.

[23] If the state was matched then $\epsilon = u_v - 1$. In which case, $\bar{u} - 1 < \epsilon < \underline{u} - 1$ and from the previous part the incumbent would pander with probability σ_-^*.

[24] If the state was mismatched then $\epsilon = u_v$. In which case, $\underline{u} < \epsilon < \bar{u}$ and the incumbent is again pandering but with probability σ_+^*.

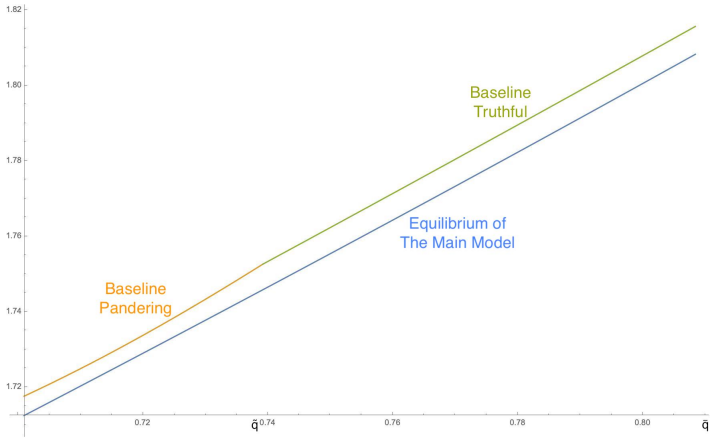


Figure 7: This graph shows the equilibrium level of the voter's welfare in the baseline and the main model, for different competence levels q of the low type incumbent. The graph is constructed for the specific parameter values $p = 0.5$, $\alpha = 0.7$.

The graph above shows numerical calculations of the voter's equilibrium welfare for the two models for specific values of the parameters.

Conjecture 6. *The voter's equilibrium welfare weakly decreases with the incumbent's ability to anticipate the external shock.*

The relationship shown on the graph is general in the entire parameter space.[25] Overall, the voter is better off in the baseline model when the incumbent cannot anticipate the upcoming external shock. In order to better understand the forces driving this result, we discuss a few facts from the comparison of the two models.

Observation 1. Everything else fixed, more pandering decreases the voter's welfare.

There are two effects of pandering on the voter's welfare: the effect on first period utility, and the effect on selection for the second period. As pandering requires the incumbent to act against his informative signal, its effect on first period utility is always negative. The higher the strength of the low type incumbent's signal q, the greater is the expected damage that pandering incurs on the voter's first period utility.

As for selection, the only advantage of pandering is when the failed attempt of pandering leads to the dismissal of the low type politician from the office and therefore to higher second period expected utility for the voter. Observe that this only happens after the mismatched

[25]The expressions for the expected welfare in the equilibria of two models are too complex to do the comparison by hand, but this result can be obtained using Mathematica.

first period policy ("failed pandering"). Given the utility structure of the voter, she would never want to sacrifice her first period utility for a potentially better politician in the second period. Therefore, if the voting strategy is fixed, more pandering is worse for the voter's welfare.

Given this observation, in order to better understand the welfare result stated above we next investigate how anticipating the external shock changes the pandering level, and what is the impact of a more elaborate equilibrium voting rule in the main model.

On one hand, when the incumbent anticipates the external shock, it eliminates "unnecessary"[26] pandering in equilibrium for certain realizations of the external shock ϵ . These are all the truthful regions in the equilibrium discussed in the previous chapter (either large or small shocks, both negative and positive sides).

Corollary 7. *For large enough or low enough external shocks in magnitude both positive and negative (Regions* 1 *and* 2 *in Figure* 8*), anticipating external shocks weakly increases the voter's expected welfare in equilibrium.*

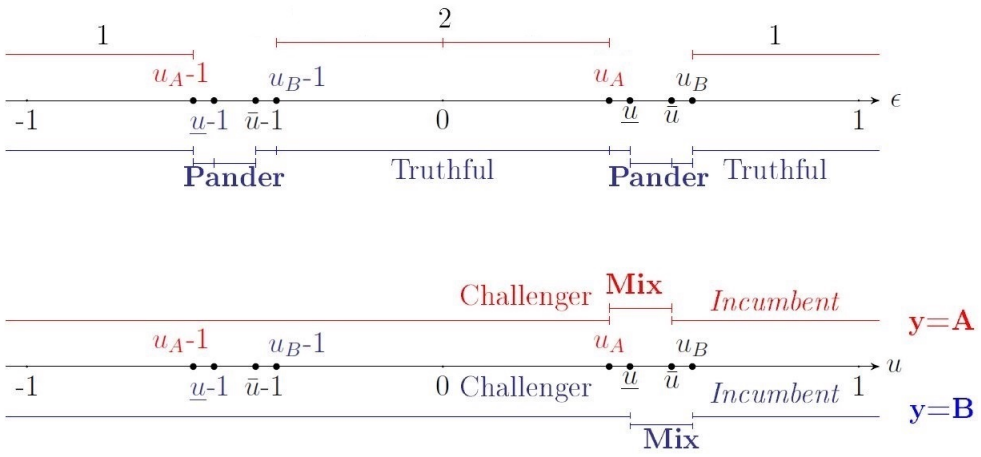


Figure 8: The voter benefits from the incumbent's knowledge of the external shock.

Trivially, for $q > \tilde{q}$ the baseline model has a truthful equilibrium so the welfare of the voter is the same in the two models. However, when the baseline model has a pandering equilibrium ($q < \tilde{q}$), anticipation of external shocks eliminates pandering for these realizations of ϵ. Moreover, for this region voting behavior in equilibrium is the same for the two models:

[26]We call it unnecessary since, for these realizations of ϵ, pandering cannot increase the probability of reelection. Therefore, while the incumbent would still pander in the baseline model equilibrium (for certain values of q), he will always be truthful after anticipating such external shocks in the main model equilibrium.

always choose the challenger for high negative shocks, always vote for the incumbent for large positive shocks and reelect the incumbent iff he matches the true state (based on observed utility of the voter) after low magnitude shocks.[27] Therefore, it falls directly from the previous observation that the voter will benefit from the incumbent's knowledge of the external shock for these regions.

Earlier we mentioned that besides the pandering level, a different reelection rule also affects the expected welfare of the voter in equilibrium. For this reason, for medium levels of the external shock where the incumbent does not pander in equilibrium of the main model (Region 3 in Figure 9), the voter gets higher expected welfare even comparing to the truthful equilibrium of the baseline model.

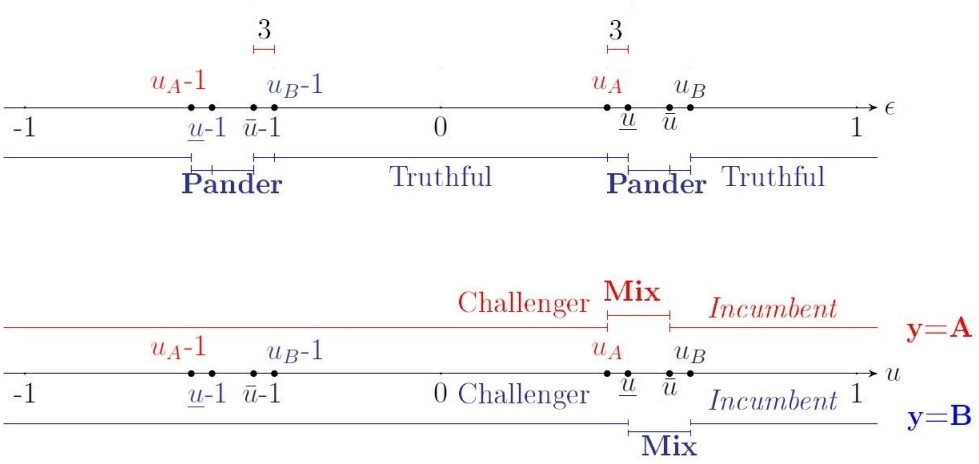


Figure 9: The voter benefits from the incumbent's knowledge of the external shock even comparing to the truthful equilibrium of the baseline model.

Observation 2. For medium realizations of the external shock that lead to a truthful behavior in the equilibrium of the main model (Region 3 in Figure 9), the voter's expected utility is higher even comparing to the truthful equilibrium of the baseline model.

This result is easy to see for positive medium level shocks $\epsilon \in (u_A, \underline{u})$. When this type of shock is realized everyone who matches the state is reelected in equilibria of both the main and the baseline models. When the state is mismatched (which only happens when the incumbent is a low type), in the truthful equilibrium of the baseline model, the low type incumbent, who chooses the popular policy, is always reelected since $u_v = 0 + \epsilon > u_A$. However, for the

[27] The equilibrium cutoffs from the baseline model always satisfy $1 - \alpha = u_A < u_A^* < \underline{u}$ and $\bar{u} < u_B^* < u_B = \alpha$

same value of ϵ, in the main model equilibrium, the incumbent is only reelected with some probability $V_A^* < 1$. Therefore, for these levels of the external shock, the truthful low type incumbent has less chance of reelection after choosing a popular policy in the main model equilibrium. This is the region showing the benefit of the anticipated external shock on the voter's welfare through reelection rule rather than a change in pandering level.

These are the only regions of the external shock that give an advantage to the anticipated external shocks. For other values of ϵ, the politician's knowledge of the upcoming shock decreases the equilibrium expected level of the voter's welfare. Even when the equilibrium level of pandering after a certain level of ϵ is lower in the main model equilibrium, worse selection leads to a lower level of expected welfare (for that region). This is easy to see for $\epsilon \in (\bar{u}, u_B^*)$[28]. For some of these values of ϵ, the politician's knowledge of the external shock decreases the equilibrium pandering level but leads to a worse selection for the second period. The low type incumbent who chooses the policy $y = B$ but fails to match the correct state loses the office in the baseline model ($u_v = 0 + \epsilon < u_B^*$) but gets reelected with probability V_B^* in the equilibrium of the main model. This leads to the worse selection for the second period and overall it decreases the voter's welfare even with a lower level of pandering.

To sum up, the voter's equilibrium expected utility is higher for the main model for all truthful regions and lower for all pandering regions. The difference does not solely depend on the equilibrium pandering level but also on the reelection rule for the second period. By eliminating pandering and imposing a different election rule, the model with an anticipated external shock performs even better than the baseline model equilibrium for certain levels of external shock. In other regions, the politician's knowledge of the external shock harms the voter's welfare by increasing the pandering level or generating worse second period selection even with lower pandering. Overall, despite some commonality in the voter's and the politician's motives (matching the state), when the incumbent can anticipate the external shock, the equilibrium expected welfare of the voter decreases.

6 Conclusion

In this paper we show how anticipation of an external shock affects the politician's strategic decision to pander and the voter's welfare. Our findings suggest that, in equilibrium, the incumbent only panders when he expects a medium external shock. Comparing our equilibrium to the baseline model where the incumbent does not observe the external shock shows that giving information about ϵ to the politician eliminates pandering for some realizations of the external shock, but overall it harms the welfare of the voter.

[28]Where u_B^* is the equilibrium cutoff of the baseline model and $u_B^* < u_B = \alpha$

There are two main channels through which the incumbent's policy choice affects his reelection prospects:

- Direct - the voter can make different voting decisions for different policy choices for a fixed observed utility.
- Indirect - the incumbent's policy choice affects the utility of the voter, which in turn is used in the voting decision.

When the shock is too big (either positive or negative), the incumbent's policy choice has no direct or indirect effect on the voting decision - the voter disregards the policy choice and both matched or unmatched states lead to the same voting behavior. A large enough positive shock guarantees the incumbent reelection whether or not he matches the state (similarly, a low enough negative shock leads to the certain loss of office). Therefore, the incumbent's policy choice only affects his first period utility and results in him being truthful.

For low magnitude external shocks (either negative or positive), the incumbent's reelection outcome is not determined but rather depends on matching the state. Similarly, the voter's policy choice has no direct effect on reelection. Given the state is matched or mismatched, the voting behavior does not vary based on the observed policy choice. However, the indirect effect is still present in this case - the incumbent is reelected iff he matches the state. Even though the voter does not explicitly see the matched state, the observed utility is a good indicator of it for small shocks. Consequently, the incumbent's only objective (both for the first-period utility and the reelection prospect) is matching the state, which is more likely to be achieved following his informative private signal. As a result, the incumbent is always truthful when he sees a low magnitude external shock.

Pandering incentives of the politician are activated only for moderate external shocks. In this region, both of the channels discussed above are present. Policy choice affects the utility of the politician by changing his reelection prospects, and it also has an immediate impact on the reelection probability even with fixed policy outcome (success or failure). In equilibrium, the incumbent panders after both moderate positive and negative shocks. In our equilibrium, pandering is an insurance in case of a mistake under favorable external circumstances (positive ϵ) or a gamble for resurrection under unfavorable circumstances (negative ϵ).

Welfare analysis shows that the politician's ability to anticipate the external shock harms the voter. In the main model equilibrium, the voter benefits from eliminating the unnecessary pandering regions after either large or insignificant external shocks. However, the politician's anticipation of the external shock sometimes leads to higher levels of pandering for medium level shocks, harming the expected utility of the voter. Even when the pandering level is

decreased, the worse selection of the second period representative gives a disadvantage to the equilibrium of the main model. Overall, the voter's expected welfare in equilibrium weakly decreases with the politician's ability to anticipate the external shock.

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Appendix

Lemma 2

When the incumbent does not anticipate the external shock, the voter's strategy is the best response iff she reelects the incumbent when $\left[y = A \text{ and } u > u_A^*\right]$ or $\left[y = B \text{ and } u > u_B^*\right]$ and votes for the challenger otherwise.. Where:

$$u_A^* = \frac{1 - q - \alpha + q\alpha + q\sigma - q\alpha\sigma}{1 - q + q\sigma - \alpha\sigma}$$
$$u_B^* = \frac{\alpha - q\alpha - \alpha\sigma + q\alpha\sigma}{1 - q + q\sigma - \alpha\sigma}$$

Proof. As discussed in text, this lemma simply follows from the bias rule. After observing utility u and policy choice $y \in \{A, B\}$ posterior belief of the voter about the incumbents type is:

$$P(I = H|u, y = A) = \frac{P(u|H, y = A)P(H|y = A)}{P(u|H, y = A)P(H|y = A) + P(u|L, y = A)P(L|y = A)} =$$
$$= \frac{f(u-1)\alpha p}{f(u-1)\alpha(p + (1-p)(q + (1-q)\sigma)) + f(u)(1-\alpha)(\sigma q + (1-q))(1-p)}$$
$$P(I = H|u, y = B) = \frac{P(u|H, y = B)P(H|y = B)}{P(u|H, y = B)P(H|y = B) + P(u|L, y = B)P(L|y = B)} =$$
$$= \frac{f(u-1)(1-\alpha)p}{f(u-1)(1-\alpha)(p + (1-p)q(1-\sigma)) + f(u)\alpha(1-\sigma)(1-q)(1-p)}$$

The incumbent is reelected iff

$$P(I = H|u, y = A) > p \implies u > \frac{1 - q - \alpha + q\alpha + q\sigma - q\alpha\sigma}{1 - q + q\sigma - \alpha\sigma} \equiv u_A^*$$
$$P(I = H|u, y = B) > p \implies u > \frac{\alpha - q\alpha - \alpha\sigma + q\alpha\sigma}{1 - q + q\sigma - \alpha\sigma} \equiv u_B^*$$

□

Proposition 4

When the voter observes her own we have two possible equilibria:

1) If $q > \tilde{q}$ truth equilibrium.

2) If $q < \tilde{q}$, L type politician panders after observing $s = B$ with probability $\tilde{\sigma} = \frac{(-1+q)}{(q-\alpha)} + \sqrt{\frac{(q\alpha^2 - 2q^2\alpha^2 + q^3\alpha^2 - 2q\alpha^3 + 4q^2\alpha^3 - 2q^3\alpha^3 + q\alpha^4 - 2q^2\alpha^4 + q^3\alpha^4)}{((q-\alpha)^2(q^2 + q^3 - 2q\alpha - q^2\alpha - q^3\alpha + \alpha^2 + q\alpha^2 - q^2\alpha^2 + q^3\alpha^2))}}$

Where:

$$\tilde{q} = \frac{0.5(-1+2\alpha^2-\alpha^3)}{1-\alpha+\alpha^2} + 0.5\sqrt{\frac{1.+4\alpha-8\alpha^2+6\alpha^3+4\alpha^4-4\alpha^5+\alpha^6}{(1-\alpha+\alpha^2)^2}}$$

In both type of equilibrium, the voter's strategy is to re-elect the incumbent iff ($y = A$ and $u > u_A^*$) or ($y = B$ and $u > u_B^*$)

Proof. The voter's strategy in equilibrium to re-elect the incumbent follows directly from Lemma 7. We have already established that H type incumbent and L type incumbent who sees popular private signal $s = A$, always follow their signal. Now we show that L type incumbent who sees unpopular signal $s = B$ does not have profitable deviations in two cases considered above.

1) $q > \tilde{q}$. $\tilde{q}$ is the value for which $EU_B^B - EU_B^A$ is positive even for $\sigma = 0$ (and $EU_B^B - EU_B^A$ is increasing in σ). Therefore, for given reelection strategy of the voter, L type politician who sees the unpopular signal does not have incentive to deviate and pander.

1) $q < \tilde{q}$. In this case voter's strategy is to reelect incumbent iif ($y = A$ and $u > u_A^*(\tilde{\sigma})$) or ($y = B$ and $u > u_B^*(\tilde{\sigma})$). Given this strategy of the voter, L type incumbent with $s = B$ signal gets utility $EU_B^B(u_B^*(\tilde{\sigma}))$ if he is truthful and $EU_B^A(u_A^*(\tilde{\sigma}))$ if he panders. Since $\tilde{\sigma}$ is chosen to equate these two expected utilities, incumbent has no incentive to deviate.

□

Proposition 5

When the incumbent anticipates the external shock ϵ, we can have the following equilibrium:

1) If $q > \bar{q}$ the politician is always truthful, the voter reelects the incumbent iff ($y = A$ and $u > u_A = 1 - \alpha$) or ($y = B$ and $u > u_B = \alpha$).

2) If $q < \bar{q}$:

The Incumbent:

- A low type incumbent who receives private signal $s = B$ and anticipates a positive external shock panders with probability $\sigma_+^*(\epsilon) > 0$ when $\underline{u} < \epsilon < u_B$;
- A low type incumbent who receives private signal $s = B$ and anticipates a negative external shock panders with probability $\sigma_-^*(\epsilon) > 0$ when $u_A - 1 < \epsilon < \bar{u} - 1$.

Otherwise the incumbent is truthful.

The Voter: After popular policy choice $y = A$:

- The voter elects the challenger for low enough utility: $V_A^* = 0$ if $u_v < u_A$;
- The voter mixes between the incumbent and the challenger with probability $V_A^* \in (0,1)$ for intermediate levels of utility $u_A < u_v < \bar{u}$;
- The voter reelects the incumbent for high enough utility: $V_A^* = 1$ if $u_v > \bar{u}$.

After unpopular policy choice $y = B$:

- The voter elects the challenger for low enough utility: $V_B^* = 0$ if $u_v < \underline{u}$;
- The voter mixes between the incumbent and the challenger with probability $V_B^* \in (0,1)$ for intermediate levels of utility $\underline{u} < u_v < u^B$;
- The voter reelects the incumbent for high enough utility: $V_B^* = 1$ if $u_v > u_B$.

Where:

$$\underline{u} = \frac{-q + 2q\alpha - \alpha^2}{-q - \alpha + 2q\alpha} \quad \bar{u} = \frac{-\alpha + \alpha^2}{-q - \alpha + 2q\alpha}$$

$$V_A^* = \begin{cases} \frac{q-\alpha}{q\alpha - q^2\alpha} & \text{for} \quad u \in (u_A, \underline{u}) \\ \frac{0.5q^4(1-\alpha)^2 + q^3(0.5-0.5\alpha) + q^2(-0.5+0.5\alpha)\alpha}{q^3(-1+\alpha)(-0.5q-0.5\alpha+q\alpha)} & \text{for} \quad u \in (\underline{u}, \bar{u}) \end{cases} \qquad V_B^* = \begin{cases} \frac{q-\alpha-q\alpha+q^2\alpha}{-q^2-q\alpha+2q^2\alpha} & \text{for} \quad u \in (\underline{u}, \bar{u}) \\ \frac{q-\alpha-q\alpha+q^2\alpha}{-q\alpha+q^2\alpha} & \text{for} \quad u \in (\bar{u}, u_B) \end{cases}$$

$$\bar{q} = \frac{0.5(-1+\alpha)}{\alpha} + 0.5\sqrt{\frac{1-2\alpha+5\alpha^2}{\alpha^2}}$$

$$\sigma_-^*(\epsilon) = \begin{cases} \frac{(p-p^2-pq+p^2q-p\alpha+p^2\alpha+pq\alpha-p^2q\alpha-p(1+\epsilon)+p^2(1+\epsilon)+pq(1+\epsilon)-p^2q(1+\epsilon))}{(-1.\text{`}p\alpha(1+\epsilon)+p^2\alpha(1+\epsilon)+pq\alpha(1+\epsilon)-p^2q\alpha(1+\epsilon))} & \text{for} \quad \epsilon \in (u_A - 1, \underline{u} - 1) \\ \frac{(\alpha+q\alpha+\alpha^2-1.\text{`}q\alpha^2+q(1+\epsilon)-q^2(1+\epsilon)+\alpha(1+\epsilon)-3q\alpha(1+\epsilon)+2q^2\alpha(1+\epsilon))}{(-q^2(1+\epsilon)+2q^2\alpha(1+\epsilon)+\alpha^2(1+\epsilon)-2.q\alpha^2(1+\epsilon))} & \text{for} \quad \epsilon \in (\underline{u} - 1, \bar{u} - 1) \end{cases}$$

$$\sigma_+^*(\epsilon) = \begin{cases} \frac{(\alpha^3(0.25\alpha-0.25\epsilon)+q^3(0.5-\alpha)^2(-1+\epsilon)+q\alpha(\alpha(0.5\text{`}-\alpha-0.25\alpha^2)+(-0.25+0.25\alpha+0.75\text{`}\alpha^2)\epsilon)+q^2(0.25-1\alpha+0.5\alpha^2+\alpha^3+(-0.25+1.25\text{`}\alpha}{((0.5\alpha^2-q\alpha^2+q^2(-0.5+1\alpha))(\alpha^2(0.5-0.5\epsilon)+q(0.5-1\alpha+(-0.5+\alpha)\epsilon)))} \\ \quad \text{for} \quad \epsilon \in (\underline{u}, \bar{u}) \\ \frac{(p\alpha-p^2\alpha-pq\alpha+p^2q\alpha-p\epsilon+p^2\epsilon+pq\epsilon-p^2q\epsilon)}{(p\alpha-p^2\alpha-pq\alpha+p^2q\alpha-p\alpha\epsilon+p^2\alpha\epsilon+pq\alpha\epsilon-p^2q\alpha\epsilon)} \quad \text{for} \quad \epsilon \in (\bar{u}, u_B) \end{cases}$$

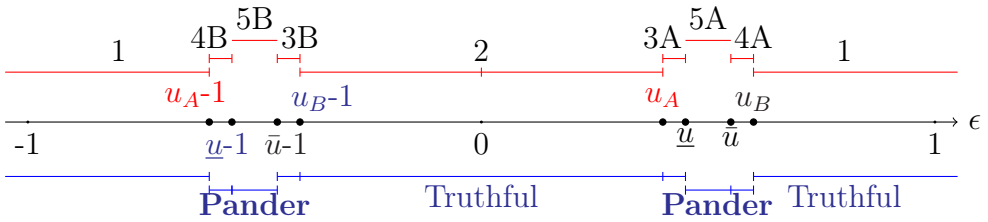


Figure 10: *This graph shows equilibrium strategy of the L type incumbent with unpopular signal $s = B$, depending on realization of the external shock ϵ*

Proof. Much of this proof is always done in the main text. In order to prove the given strategy

profile is actually an equilibrium, we should show that neither player(the incumbent or the voter) has an incentive to deviate given strategy of the other one.

The Incumbent

In the second period, absent reelection motives, the incumbent always follows his private signal since $q > \alpha$. We have also shown that the high type incumbent as well as the low type incumbent with popular signal $s = A$ are always truthful in the first period and thus have no profitable deviation. We need to show the same for the low type incumbent with the unpopular signal $s = B$.

Region 1 As discussed in the main text, for such extreme realizations of the external shock, the incumbent is either always reelected or always dismissed and his policy choice has no impact on his reelection probability. Since his private signal is informative, the low type incumbent with the unpopular signal always follows it to match the state and get a better first period utility. In this case, the low type incumbent has no profitable deviation.

Region 2 For small external shocks, given equilibrium strategy of the voter, the incumbent is reelected iff he matches the state. Since his private signal is informative, the low type incumbent is truthful and has no profitable deviation.

Region 3A For medium-low positive shocks, the incumbent is always reelected after matching the state. If the state is mismatched he is reelected with probability V_A^* after $y = A$ and dismissed after $y = B$. In the main text, we already showed that $V'_A > V_A^*$[29] where V'_A makes the low type indifferent between being truthful and pandering. Since less reelection probability after $y = A$ encourages the incumbent to be truthful, he has no profitable deviation.

Region 3B For medium-low negative shocks, the incumbent is always dismissed after a mismatched state. If the state is matched he is always reelected after the popular policy choice $y = A$ and sometimes reelected with probability V_B^* after the unpopular policy choice. We have shown in the text that $V_B^* > V'_B$[30] where V'_B makes the incumbent indifferent between being truthful and pandering. Since reelection probability after B encourages the incumbent to be truthful, he has no profitable deviation.

[29] V_A^* is the equilibrium reelection probability for this region.
[30] V_B^* is the equilibrium reelection probability for this region.

4A and 4B In these regions equilibrium levels of reelection V_A and V_B are chosen to make the low type incumbent with unpopular signal indifferent between either policy choice. Therefore, the low type incumbent panders and has no profitable deviation.

In Region $4A$, the matched state leads to reelection of the incumbent regardless the policy choice. If, instead, the state is mismatched, then the voter always reelects the incumbent after the popular policy choice but mixes after the unpopular policy choice $y = B$ ($V_B^\epsilon < 1$). When the low type incumbent sees signal $s = B$ if he follows it and chooses $y = B$ he gets:

$$EU_B^B = P(\omega = B|s = B)(1 + q) + P(\omega = A|s = B)(0 + V_B^\epsilon q)$$

If instead he panders and chooses $y = A$ he gets:

$$EU_B^A = P(\omega = A|s = B)(1 + q) + P(\omega = B|s = B)(0 + q)$$

Since the low type incumbent panders in this region, the equilibrium reelection probability V_B^* makes him indifferent between following the unpopular policy and pandering, meaning:

$$V_B^* = \frac{P(\omega = A|s = B)(1 + q) - P(\omega = B|s = B)}{P(\omega = A|s = B)q}$$

We have already shown that this reelection probability makes the low type incumbent truthful in region $3B$.

In Region $4B$, the voter never reelects the incumbent regardless of the policy choice after a mismatched state. If the state is matched then he voter sometimes reelects the incumbent after the popular policy choice $y = A$ ($V_A^{1+\epsilon} < 1$) but always elects the challenger after the unpopular policy choice $y = B$. When the low type incumbent sees the unpopular signal $s = B$, if he follows it and chooses $y = B$ he gets:

$$EU_B^B = P(\omega = B|s = B)(1 + 0) + P(\omega = A|s = B)(0 + 0)$$

If instead he panders and chooses $y = A$ he gets:

$$EU_B^A = P(\omega = A|s = B)(1 + V_A^{1+\epsilon} q) + P(\omega = B|s = B)(0 + 0)$$

Since the low type incumbent with the unpopular signal panders in this region, the

equilibrium reelection probability is derived by equating the two expressions above:

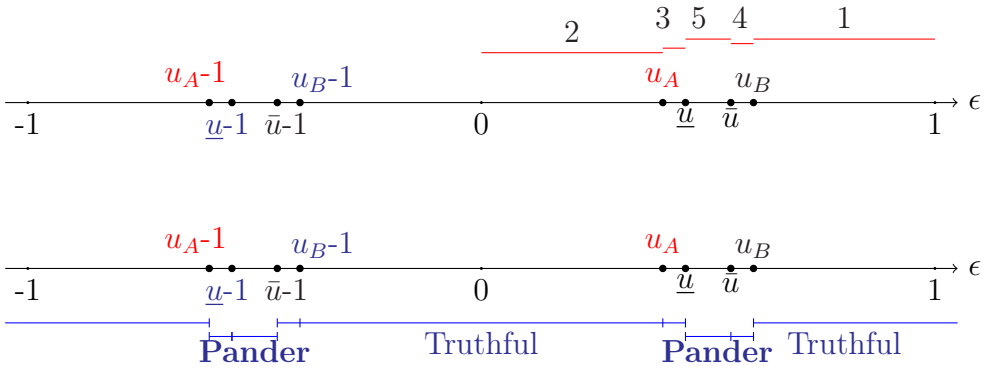
$$V_A^* = \frac{P(\omega = B|s = B) - P(\omega = A|s = B)}{P(\omega = A|s = B)q}$$

We have already shown that this reelection probability makes the low type incumbent truthful in Region $3A$.

5A and 5B Similar to the previous case, reelection mixing probabilities make the low type incumbent with unpopular signal indifferent between either policy choice and he has no profitable deviation. Unlike the previous case, both reelection probabilities play a role in satisfying the indifferent conditions for the low type incumbent with the unpopular signal in both of these regions. Consequently, the equilibrium values of the reelection probabilities (V_A^*, V_B^*) for these regions are derived by solving the system of equations for double indifference as shown in the main text.

The Voter

As already discussed in the main text, voter who observes utility beyond $(0, 1)$ range has no profitable deviation since she learns about matched/mismatched state (given challenger and incumbent are from the same pool, this is enough information for them to elect second period representative). The rest of the proof falls directly from the observations in Section 5.3 and using Bayes Rule for updated posterior beliefs of the voter.



□

As discussed in the main text, the voter knows the low type incumbent was truthful when she observes the utility level from Regions 1 and 2. Since $u_A = 1 - \alpha$ and $u_B = \alpha$, it follows directly from the truthful equilibrium of the baseline model that she has no profitable deviation.

For utility levels from Region 3, the voter knows that one of the two cases is possible:

- The state was matched and $\epsilon = u_v - 1$. In which case, $u_A - 1 < \epsilon < \underline{u} - 1$ and from the previous part, the incumbent is pandering with probability σ^*_-.

- The state was mismatched and $\epsilon = u_v$. In which case, $u_A < \epsilon < \underline{u}$: and the L type incumbent is truthful.

Based on this information the voter's posterior beliefs after each policy choice are:

$$P(H|u, y = A) = \frac{f(u-1)p\alpha}{f(u-1)\alpha p + f(u-1)\alpha(1-p)(q + (1-q)\sigma^*_-) + (1-\alpha)f(u)(1-p)(1-q)}$$
$$P(H|u, y = B) = \frac{f(u-1)p(1-\alpha)}{f(u-1)(1-\alpha)p + f(u-1)(1-\alpha)(1-p)q(1-\sigma^*_-) + \alpha f(u)(1-q)(1-p)}$$

The equilibrium level of pandering $\sigma^*_-(\epsilon = u_v - 1)$ in this region is derived to make the voter indifferent between choosing the incumbent or the challenger after observing the popular policy choice ($P(H|u, y = A) = p$). We also make sure that, for this equilibrium level of pandering, the voter wants elect the challenger after observing the unpopular policy choice $y = B$ and the utility from this region ($P(H|u, y = B) < p$). This derives the threshold $\underline{u}$ in equilibrium.

In Region 4, the voter knows that one of the two cases is possible:

- The state was matched and $\epsilon = u_v - 1$. In which case, $\bar{u} - 1 < \epsilon < u_B - 1$ and from the previous part, the incumbent is truthful.

- The state was mismatched and $\epsilon = u_v$. In which case, $\bar{u} < \epsilon < u_B$: and the L type incumbent is pandering with probability σ^*_+.

Based on these beliefs the voter's posterior beliefs after each policy choice are:

$$P(H|u, y = A) = \frac{f(u-1)p\alpha}{f(u-1)\alpha p + f(u-1)\alpha(1-p)q + (1-\alpha)f(u)(\sigma^*_+ q + (1-q))(1-p)}$$
$$P(H|u, y = B) = \frac{f(u-1)p(1-\alpha)}{f(u-1)(1-\alpha)p + f(u-1)(1-\alpha)(1-p)q + \alpha f(u)(1-q)(1-\sigma^*_+)(1-p)}$$

In equilibrium, the voter is indifferent between voting for the incumbent or the challenger after observing the unpopular policy choice $y = B$ and the utility level from this region. Therefore, the equilibrium level of pandering $\sigma^*_+(\epsilon = u_v)$ is chosen to satisfy this indifference condition $P(H|u, y = B) = p$. The voter has no profitable deviation if she does not want to vote for the challenger after observing the popular policy choice $y = A$ for this equilibrium level of pandering $\sigma^*_+(\epsilon = u_v)$. Therefore we must have $P(H|u, y = A) > p$. This condition is always satisfied for $u > \bar{u}$.

For Region 5 we have already shown in the main text how the indifference conditions for the voter after both policy choices define the equilibrium levels of pandering (σ_-^*, σ_+^*) for the corresponding values of the external shock. This completes our proof.