

# Policing Politicians: Citizen Empowerment and Political Accountability in Uganda

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## Abstract

Does greater transparency improve political accountability? In this paper, we use a simple model of political accountability to derive a set of hypotheses linking information to political behavior; we introduce a multilevel field experiment designed to test these hypotheses in the context of MP behavior in Uganda; and we provide first findings from a survey experiment designed to assess the responsiveness of voters to information on MP behavior and from a pre-intervention experiment designed to search for early evidence on the effects of information on parliamentary activity. We find very strong evidence that Ugandan voters are responsive to information on politician behavior but only weak evidence that politicians are responsive to these concerns.

**Note:** The research described in this document makes use of the Uganda Parliamentary Scorecard; 2006-7 and 2007-8 editions are available at: [http://www.columbia.edu/~mh2245/Scorecard/2007\\_Scorecard.pdf](http://www.columbia.edu/~mh2245/Scorecard/2007_Scorecard.pdf) and [http://www.columbia.edu/~mh2245/Scorecard/2008\\_Scorecard.pdf](http://www.columbia.edu/~mh2245/Scorecard/2008_Scorecard.pdf)

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# 1 Introduction

Identifying the conditions under which politicians are responsive to citizens' needs and preferences is a central concern of political scientists. As Besley and Burgess (2002) argue, "it is particularly poignant in low-income countries where, in the absence of market opportunities, vulnerable populations rely in large measure on state action for their survival." Thus, unsurprisingly, observers greeted Africa's wave of democratization in the 1990s with guarded optimism, anticipating that regular elections might provide strong incentives for better governmental performance.

There is some evidence that Africa's democratic experiments are producing governments that better protect the rights and interests of their constituents. 44 of 48 countries in Sub-Saharan Africa held at least one contested election between 1989 and 2003, and 20 mounted three consecutive elections. While some of the early elections were admittedly imperfect, Lindberg (2006) argues that countries exhibit a trend toward elections of higher quality over time. He suggests that the "mere holding of de jure participatory and competitive elections tends to be self-reinforcing and improves with greater experience," and that elections generate subsequent improvements in the protection of rights and liberties (2006, 17). Posner and Young (2007) demonstrate further that "formal rules of the game" constrain African politicians in ways that they previously have not; while three-quarters of African politicians who left office in the 1960s and 1970s did so through coups, violent overthrows, or assassinations, the share replaced through irregular means dropped to just 19 percent after 2000. The modal means by which heads of state in Africa now leave office is voluntary resignation, generally as a consequence of constitutional term limits. With respect to the provision of public goods that benefit the disadvantaged, Stasavage (2005) argues that multiparty elections increased education spending by 1.1% of GDP, while Kudamatsu (2006) provides evidence that Africa's democratization has yielded improvements in infant mortality of nearly 2 percentage points.

But there are also reasons to be concerned that the rise of electoral democracy in Africa might not fulfill its promise of greater political accountability and better performance. A wave of recent scholarship highlights the emergence of "hybrid" or "semi-authoritarian" regimes which combine "the rhetorical acceptance of liberal democracy, the existence of some formal democratic institutions [...] with essentially illiberal or even authoritarian traits" (Ottaway 2003, 3; Levitsky and Way 2002, forthcoming). These gov-

ernments allow little real competition for power, thereby diminishing government accountability. They are also abundant in Africa, where multiparty elections often fail to produce working parliaments or other institutions capable of holding the executive in check. By some accounts, of the 15 African countries that exhibited “competitive authoritarian” characteristics in the mid-1990s, 12 have not progressed subsequently toward greater democracy (Levitsky and Way, forthcoming). These realities are consistent with the skeptics who warned that elections would be an insufficient corrective to patterns of neopatrimonial politics overseen by an all-powerful chief executive (Bratton 1998; Chabal and Daloz 1999). Moreover, there is growing evidence that political liberalization may not be sufficient to generate greater investments in public goods. Wantchekon (2003) shows that candidates in democratic Benin employ patronage appeals to great effect, whereas platforms constructed around investments in public goods yield few electoral benefits. Kasara (2006) demonstrates that, expensive sub-national administrative districts proliferated in Kenya as an electoral strategy by the ruling party to win the votes of minority ethnic groups. Both studies suggest, as Callaghy (1993) and Van de Walle (2001, 2003) cautioned, that electoral politics may not generate improvements in economic and social policies, but only reinforce patterns of patronage. Finally, recent surveys of public opinion in Africa suggest that popular support for democracy has drifted downward over time as citizens gain more experience with it (Bratton 2004). Optimism about the benefits of democracy marked the aftermath of founding elections, especially where the previous regime was repressive, yet popular exuberance often dissipated as “political life reverted to familiar patterns” (Bratton 2004: 148). Alternations in power can resurrect support for and faith in democratic processes, but alternations take place rarely: incumbent presidents in Africa still win reelection more than 85% of the time (Posner and Young 2007).

One reason why the advent of electoral democracy in Africa may be insufficient to improve governance and accountability is that voters typically do not observe the actions of politicians and may be uninformed about their behavior or their preferences (Besley and Burgess 2002). This information asymmetry leaves room for politicians to act opportunistically, to shirk their duties, and to ignore the needs or preferences of the citizenry, even in an electoral democracy. Thus, some have proposed that a key mechanism for enhancing the performance and accountability of politicians is greater transparency (Sen 1999). With better information, voters can select higher quality politicians and hold poorly performing ones accountable at the polls (Besley

2005). But this is not the only possibility. One alternative is that voters are relatively indifferent to the performance of their MPs, responding instead to ethnic or party cues, to clientelistic arrangements, or to the instructions of traditional leaders. Another is that transparency could simply induce poorly performing politicians to disguise their opportunistic behavior or shirking, decreasing the likelihood of detection, thereby offsetting its positive impact.

Does greater transparency in fact improve governmental performance and increase political accountability? To address this question, we study the impact of a unique accountability mechanism—Uganda’s Parliamentary Scorecard—on the behavior of members of parliament (MPs), the attitudes of voters, and ultimately, on electoral outcomes. Produced approximately annually by a local NGO beginning in 2007 (in partnership with Columbia and Stanford universities), the scorecard reports on initiatives undertaken and positions advocated by MPs in plenary and committee sessions, and provides relative rankings of each MP compared to other MPs in their own party and in Parliament as a whole. In this research we seek to use variation in exposure to the scorecard to avoid the identification issues that plague previous studies of the relationship between transparency and accountability.

Research will continue through Summer 2011; already however initial results have started to emerge and we describe a number of these here. We proceed as follows:

1. In section 2 we introduce a simple model that reflects the key features of the intervention we examine and which we use to motivate a set of hypotheses on political accountability.
2. In section 3 we relate these hypotheses to the Uganda context and introduce the parliamentary scorecard.
3. Section 4 describes three elements of our empirical strategy. The major element depends on national level randomized dissemination, described in section 4. Although MPs have been aware of the structure of this dissemination since December 2007, the dissemination has not yet been undertaken and results of its effects are not yet available.
4. In sections 3.5 and 4.3 we provide evidence from validation tests that the scorecard does indeed capture features of MP performance that matter, independently, to MPs and voters.

5. In section 4.2 we provide the results from an early assessment on the MP side. We compare the rate of participation in parliamentary debates in the month prior to the intervention (February) to participation in the month after (mid-June to mid-July, after parliament was reconvened for a new session). Participation rates in February for the treated group were statistically identical to (and substantively lower than) those of the control group and, importantly, participation rates were identical for those that were selected and accepted treatment and those that were selected and did not. Strikingly, however, we find that in July, the rate of participation for treated MPs is 50% higher than for control MPs (53% compared to 36%). These effects are substantively large but they are not statistically robust.
6. In section 4.3 we describe early results on the voter side; we employ a nationwide survey experiment that provides subsets of voters with information regarding the scorecard. The experiment provides strong evidence that the scorecard correlates with the values of voters, that voters do examine the performance of their MPs and form opinions on this basis, and that greater information can produce sharp changes in reported voting intentions.

## 2 Transparency, Accountability, and Government Performance

On their own, elections may be insufficient to prevent opportunistic behavior and generate greater responsiveness to citizens' needs and preferences. In models of political agency and political selection, information asymmetries can undermine responsiveness and impede accountability in electoral democracies through a number of channels. We focus here on two, which can be termed the **agent accountability channel** and the **agent selection channel** (in some studies these are referred to as the **discipline** and **sorting** channels (Prat 2005)). Both of these channels have been examined at some length in the formal literature.

The *accountability channel*, described as early as 1816 by Jeremy Bentham (1999), emphasizes the ability of citizens to use the electoral mechanism to shape the incentives facing politicians (see also Barro 1973; Ferejohn 1986). In such models, politicians perform well because they fear being turned out

of office if they do not. The extent to which they do so depends on the extent to which they value future returns from holding office. An uninformed citizenry, however, undermines the strength of the incentives mechanism and increases the scope for opportunistic politicians to shirk from their duties or to implement policies far from voters' ideals without electoral consequences (Buchanan 1989). Following this logic, transparency initiatives plausibly strengthen the incentives for incumbent politicians to perform well.

The *agent selection* channel emphasizes variation in the attributes of politicians. Without high quality information about candidates, voters are unable to “find those who are fit to serve” (Besley 2005). Political selection is thus impeded in information poor environments with distressing results (Azam, Bates, Biais 2005). In Besley's (2005) model, politicians differ in their honesty, competence, and the extent of their public service motivation. Creating more accountable government depends on finding trustworthy politicians—a matter of selection, not incentives. He argues that higher-quality politicians will be more likely to enter electoral contests (and experience higher success rates) when voters are well-informed about candidate characteristics, as in a political environment with a vibrant media. In some models of agent selection, pure selection effects operate when incumbents are not simply unwilling but *unable* to alter their performance (Fearon 1999, Besley and Prat 2006); if accountability effects can result in a change in behavior of poor quality politicians however this can, in some setting render the selection problem more difficult and may render it moot.

Finally there are a set of what might be called *perverse channels*. While the accountability and agent selection channels provide rationales for why transparency may help, there are also theoretical reasons to believe that increased transparency may have perverse effects. As a general matter, more information about the actions of agents is typically better for principals (Holmström 1979) to the extent that it allows them to write complete contracts. However, there are exceptions. Just as greater transparency may reduce competition among firms by facilitating the enforcement of collusive agreements, transparency could facilitate collusion among politicians to minimize the collective effort they expend on citizens. In contrast, a lack of transparency might lead to greater effort by political leaders to perform well in order to *overcome* the informational problems and demonstrate their capacity (Holmström 1999; Dewatripont et al 1999). Recently, Prat (2005) has shown that when outcomes are observable, but the relationship between actions and outcomes is better understood by the agent than by the principal,

more transparency may lead to conformist action by agents and a reluctance to act on private information that could result in better outcomes. Stasavage (2004) develops a model in which transparency can result in a greater level of “posturing” by politicians; rather than reaching political compromises, politicians select bargaining strategies to signal their policy positions to constituents.

Although many models focus on one or other of these channels, in the environment of interest here the interaction of them is likely to be important. To gain analytic insights into how these channels plausibly interact we examine a simple model which allows us to examine the effects of three forms of voter uncertainty on a politician’s behavior: uncertainty over the politician’s preferences, uncertainty over the politician’s actions, and uncertainty over the mapping between actions and outcomes. For related models that examine the first two types of uncertainty together see Austen-Smith and Banks (1989), Banks and Sundaram (1998), Fearon (1999); for models that also introduce uncertainty over the benefits of different policies see Morris’s model of “political correctness” (2001), Maskin and Tirole’s model of “pandering” (2004), Prat (2005), and Stasavage (2004) on “posturing.”

We consider a two period game in which in each period an incumbent MP chooses action  $s$  from a set of two possible actions,  $S = \{0, 1\}$ , one of which benefits her constituents. Although known to incumbents, neither the action, the value of the action, or the motivation of the incumbent is known with certainty to the representative voter (we assume that voters in a given constituency have common preferences over the politician’s actions). In particular:

- Voters receive a signal regarding the actions of the incumbent given by  $\tilde{s} \in \tilde{S} = \{0, 1\}$ . With probability  $\varepsilon \in (0, .5)$  the signal  $\tilde{s}$  is “false” and voters observe  $\tilde{s} = 1 - s$ ; with probability  $1 - \varepsilon$  they observe a “true”  $\tilde{s} = s$ . We define  $\tau \equiv (1 - 2\varepsilon) \in (0, 1)$  as an index of transparency.
- The mapping from actions to outcomes is parameterized by  $\eta \in \{0, 1\}$ . With probability  $\varphi \in (.5, 1)$  the mapping  $\eta$  is “normal” in which case  $\eta = 1$  and with probability  $1 - \varphi$  the mapping is “unusual” and  $\eta = 0$ .
- The incumbent’s “type” is given by  $\theta \in \Theta = \{\theta_L, \theta_H\}$ . With probability  $q \in (0, 1)$  the incumbent is of a “High” type, with  $\theta_H > 0$  and has the voters’ interests at heart; with probability  $1 - q$  however she is of a

“Low” type, with  $\theta_L < 0$  and has interests that diverge from those of the voters.<sup>1</sup>

The benefit to the civilian population of action  $s$  is  $\eta s + (1 - \eta)(1 - s)$ . For example action  $s = 1$  might be “tell the truth” or “turn up”; actions that are typically associated with benefits for voters. Unusually however, civilians might instead benefit from action  $s = 0$  rather than  $s = 1$ .

The benefit to an incumbent of policy action  $s$  is:  $(\eta s + (1 - \eta)(1 - s))\theta$  to reflect the idea that high types prefer actions that benefit constituents; these actions impose a cost on low types however. The present value to an incumbent of type  $i$  of being returned to office is  $v_i$  which we take to be positive and normalize, for each type, to unity.

The voter’s decision is simply whether or not to return the incumbent, a choice taken after observing a signal of the incumbent’s Period 1 policy choice.

## 2.1 Equilibrium

This is a simple game of one sided incomplete information. We seek to identify the set of all perfect Bayesian equilibrium for the game. In addition, to simplify matters we focus on generic cases, ignoring  $\tau = -\theta_L$ ,  $\tau = \theta_H$  and  $\theta_H = -\theta_L$ . An equilibrium of this game consists of a strategy for each MP type in each state,  $\beta_{\eta\theta} \in [0, 1]$ , denoting the probability with which they select  $s = 1$ , and a strategy for voters for each observed action  $\sigma_{\bar{s}} \in [0, 1]$  denoting the probability with which they re-appoint the incumbent. In addition we require that voter beliefs are consistent with Bayes’ rule, although in the statement of the equilibria we leave this element implicit (these beliefs are however unambiguously given since with the noisy communication technology considered here all observations by voters may arise with non-zero probability for all possible strategy profiles).

Let us say that an incumbent “**conforms**” if she plays  $s = 1$  in all states; that she “**chooses good policies**” if  $\eta = 1 \leftrightarrow s = 1$  and that she “**chooses bad policies**” if  $\eta = 1 \leftrightarrow s = 0$ .

The main result of the model (given more formally in the Appendix) is that which of these types of strategy is used in equilibrium depends simply on the size of the benefits of each type to implementing policy,  $\theta$ , relative to

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<sup>1</sup>In Maskin and Tirole (2004), these types are referred to as “congruent” and “noncongruent.”



the level of transparency,  $\tau$ . In our analysis we focus on four types of equilibria that can emerge depending on these values. Table 1 shows the four mutually exclusive and exhaustive combinations of parameter values (“environments”), and for each of these, we describe one equilibrium. In some of these cases other equilibria exist although these equilibria either involve the use of “negatively responsive” strategies by voters, in which voters reward when they observe actions associated with poor performance, or involve mixing when pure strategy equilibria exist.<sup>2</sup>

To see the intuition behind these equilibria consider first environments  $A$ ,  $C$  and  $D$ . In these cases pure strategies are used and voters return the incumbent if and only if they observe a signal associated with good behavior,  $\tilde{s} = 1$ .

Given such rewarding behavior by voters, the optimal strategies for incumbents are as follows:

- If  $\eta = 1$ , the incumbent will take action  $s = 1$  (a good policy) if:  $\theta + (1 - \varepsilon) \geq \varepsilon$ , that is, if:  $\theta \geq -(1 - 2\varepsilon) = -\tau$ .
- If  $\eta = 0$ , the incumbent will take action  $s = 1$  (a bad policy) if:  $(1 - \varepsilon) > \theta + \varepsilon$ , that is, if:  $\theta < (1 - 2\varepsilon) = \tau$ .

We have then that high types always take action  $s = 1$  in normal times and low types always take  $s = 1$  in unusual times. In addition, combinations of these conditions yield each of the cells in Table 1.

To check that the voter’s strategy is supported by consistent beliefs note that upon observing  $s = 1$  the voter’s beliefs that the incumbent is of type  $H$  in environment  $Z \in \{A, C, D\}$ , is given by:

$$\tilde{q}(H|\tilde{s} = 1, Z) = \frac{\Pr(\tilde{s} = 1|H, Z)q}{\Pr(\tilde{s} = 1|H, Z)q + \Pr(\tilde{s} = 1|L, Z)(1 - q)}$$

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<sup>2</sup>Further conditions can be generated to rule these out if we allow voters to “select” the equilibrium by selecting performance standards. In this case we select equilibria on the basis of payoffs to voters. We note however that positively responsive equilibria are not always selected by this rule. To see why consider the relative benefits of equilibria type  $C(i)$  in the appendix and equilibrium  $C(iii)$  when  $\varphi$  tends to .5 and  $q$  tends to 1. In the limit the difference in payoffs is  $-\frac{1}{2}$  because with positive responsiveness the High type “panders” with probability  $\frac{1}{2}$  but under negative responsiveness she always chooses good policies. Similarly, when obtainable, equilibrium  $D(iii)$ —a continuation of the equilibrium played in  $B$ —dominates  $D(i)$  when  $q$  is high.

	$\tau < -\theta_L$	$\tau > -\theta_L$
$\tau < \theta_H$	Environment <i>A</i> <i>H</i> chooses good policies <i>L</i> chooses bad policies  Incumbent returned iff $\tilde{s} = 1$	Environment <i>B</i> <i>H</i> chooses good policies <i>L</i> conforms with probability $2 - \frac{1}{\varphi}$ and chooses bad policies with probability $\frac{1}{\varphi} - 1$ Incumbent returned with probability $\frac{-\theta_L}{\tau}$ if $\tilde{s} = 1$ and with probability 0 if $\tilde{s} = 0$
$\tau > \theta_H$	Environment <i>C</i> <i>H</i> conforms <i>L</i> chooses bad policies Incumbent returned iff $\tilde{s} = 1$	Environment <i>D</i> <i>H</i> conforms <i>L</i> conforms Incumbent returned iff $\tilde{s} = 1$

Table 1: Environments and Equilibria

These posteriors are at least as great as the priors if  $\Pr(\tilde{s} = 1|H, Z) \geq \Pr(\tilde{s} = 1|L, Z)$ , a condition that holds, for  $\varepsilon \in (0, .5)$  and  $\varphi \in (.5, 1)$  for environments *A*, *C* and *D*.

Environment *B* is somewhat more complicated. In this environment there are no pure strategy equilibria. To see why note that if voters could commit to pure reward behavior like that employed in environments *A*, *C* and *D*, then *L* type incumbents would conform and *H* types would choose good strategies. In this case however upon observing a signal of bad behavior ( $\tilde{s} = 0$ ) the voter should infer that it is more likely that the incumbent is of a *high* type, taking an unusual action in unusual times. She will then have an incentive to return the incumbent, contrary to the proposed strategy. Similarly, a pure strategy of rewarding if and only if  $\tilde{s} = 0$  or rewarding (or punishing) independent of  $\tilde{s}$  cannot be sustained.

A mixed strategy equilibrium does exist however. For mixing to hold in equilibrium the voter's posterior must be exactly equal to  $q$  and any incumbents that mix must be indifferent between available policies. These conditions can be satisfied by strategies of the following form. In state  $\eta = 1$ , *L* plays  $s = 1$  with probability  $2 - \frac{1}{\varphi}$ . When  $\tilde{s} = 1$  the voters return the incumbent with probability  $\frac{-\theta_L}{\tau}$ ; when  $\tilde{s} = 0$  the incumbent is removed.

Note that in this mixed strategy equilibrium the probability of retaining

the incumbent, upon seeing good performance, is falling in transparency.

If for both types of incumbent the value of contemporaneous policy choices is very high relative to the value of retaining office, then outcomes are independent of the level of transparency for all  $\tau$ , and incumbents choose their preferred policies. Focusing then on the interesting cases in which  $\theta_H < 1$  and  $\theta_L > -1$ , generically (that is, excluding cases in which  $\theta_L = -\theta_H$ ) for any set of values for  $\theta_H$  and  $\theta_L$ , three outcomes can obtain, depending on the level of transparency.

In all cases, environment  $A$  occurs when transparency is low; and  $D$  occurs under high transparency. Which environment occurs for middling levels of transparency depends on which types place relatively more weight on present policy choices (relative to the future value of office). Thus for example with  $\theta_H = \frac{1}{3}$  and  $\theta_L = -\frac{2}{3}$ , we can find  $A$ ,  $C$  and  $D$  equilibria:  $A$  for  $\tau \in (0, \frac{1}{3})$ ,  $C$  for  $\tau \in (\frac{1}{3}, \frac{2}{3})$ , and  $D$  for  $\tau \in (\frac{1}{3}, 1)$ ; state  $B$  never arises. With  $\theta_H = \frac{2}{3}$  and  $\theta_L = -\frac{1}{3}$ , we can find  $A$ ,  $B$  and  $D$  equilibria:  $A$  arises for  $\tau \in (0, \frac{1}{3})$ ,  $B$  for  $\tau \in (\frac{1}{3}, \frac{2}{3})$ , and  $D$  for  $\tau \in (\frac{2}{3}, 1)$ ; state  $C$  never arises.

## 2.2 Hypotheses

### 2.2.1 MP and Voter Strategies

An examination of this equilibrium behavior yields the following hypotheses:

**H<sub>1</sub>: [Voters' attitudes]** Voters exposed to information that politicians are performing poorly ( $s = 0$ ) should express greater dissatisfaction with the incumbent and a decreased willingness to support his or her reelection.

**H<sub>2</sub>: [Politicians' Behavior]** On average, greater transparency will be associated with less shirking by politicians in advance of the next election (with "shirking" defined on the basis of public information).

**H<sub>3</sub>: [Electoral outcomes]** Greater transparency will decrease the reelection rate, vote share, and margin of victory of poorly performing incumbent politicians.

In addition, as can be seen from movements between environments  $A$  and  $C$ , and  $B$  and  $D$ , a rise in transparency can in some cases also be associated with a worsening in performance by High type politicians. This feature motivates our fourth hypothesis:

**H<sub>4</sub>: [Perverse Effects]** Greater transparency will result in a substitution of effort by politicians from less observable actions to more observable actions, *even at a cost to the welfare of voters.*

Such perverse effects could include for example a substitution of effort by politicians from issues of national interest to issues more narrowly of interest to constituents or from behavior that benefits constituents to behavior that only appears to do so.

In the next section we will find that the relation between transparency, citizen welfare and the *overall* reelection rate is however more complex.

### 2.2.2 Welfare Implications

Consider now the question of voter welfare. Total expected voter utility in environment  $A$  is given as follows:

$$\begin{aligned} W(A) &= q[1 + \varphi[(1 - \varepsilon) + \varepsilon q] + (1 - \varphi)[\varepsilon + (1 - \varepsilon)q]] \\ &\quad + (1 - q)[\varphi(1 - \varepsilon) + (1 - \varphi)\varepsilon]q \\ &= q[1 + q] + 2q(1 - q)[\varphi + (1 - 2\varphi)\varepsilon] \end{aligned}$$

We can see from this equation that welfare is increasing in transparency within equilibria of type  $A$ ; in addition, the gains from transparency are greatest when prior uncertainty about the incumbent types is high ( $q = .5$ ) and uncertainty about the correct type of policy is low ( $\varphi = 1$ ). In environment  $B$  we have:

$$W(B|q, \varphi, \varepsilon) = (2\varphi - 1) + q(3 - 2\varphi) - (1 - \varphi)^2(1 - q)q\varepsilon$$

Within environment  $B$ , the gains from transparency are greatest when prior uncertainty about the incumbent types is high ( $q = .5$ ) and uncertainty

about the correct type of policy is high ( $\varphi = .5$ ); but even in these cases the marginal effect is much weaker than in environment  $A$ .

Welfare in environments  $C$  and  $D$  are more straightforward:

$$\begin{aligned} W(C|q, \varphi, \varepsilon) &= q[1 + (2 - q)\varphi] - 2\varphi q(1 - q)\varepsilon \\ W(D|q, \varphi, \varepsilon) &= \varphi + q \end{aligned}$$

In all four environments it is easy to check that  $\frac{\partial W}{\partial \varepsilon} \leq 0$ , with the inequality strict for all but the final case. This implies that, *locally*, transparency produces gains in welfare; these local gains are due entirely to a better ability to select MPs. However the effects of accountability mechanism are more complicated: a rise in transparency can be associated with a fall in voter welfare if the equilibrium shifts from one environment to another. Indeed this is the key result of the analysis: *globally, a rise in transparency can have positive, negative or non-monotonic effects depending on the underlying parameter values.*

Figure 1 shows how welfare depends on transparency for a range of parameter values. The three left graphs consider cases in which environments  $A$ ,  $B$  and  $D$  obtain. Specifically we impose  $\theta_H = \frac{2}{3}$ ,  $\theta_L = -\frac{1}{3}$ . The right three graphs show equilibria in environments  $A$ ,  $C$  and  $D$  for a case with  $\theta_H = \frac{1}{3}$  and  $\theta_L = -\frac{2}{3}$ . Each graph considers a different value for  $\varphi$ , as marked on the titles, and within each graph the four lines correspond (in order from bottom to top) to  $q = 0$ ,  $q = .5$ ,  $q = .75$  and  $q = 1$ .

The lower figures correspond to cases in which  $\varphi = 1$  (in which there is no difficulty in associating good actions with good outcomes). In these cases the more transparency the better. Within environment  $A$ , more transparency leads to better selection of round 2 agents, and thus a rise in welfare. The major gains arise however from shifts from environments  $A$  to  $B$  and from  $C$  to  $D$ . These step shifts are pure accountability shifts; they correspond exactly to the gains from inducing bad types to take action  $s = 1$ .

The central panels ( $\varphi = .75$ ) in which there is a positive but imperfect relation between actions and outcomes, tell a more complex story. In some cases a rise in transparency leads to a rise in welfare throughout its range. This is true for example if almost all types are Low,  $q \approx 0$ . However in other cases, notably when  $q \approx 1$  transparency has the opposite, perverse effect. In these cases, the (many) good types who would select policies they know to be good under equilibria  $A$  or  $B$  choose instead to conform, knowing that

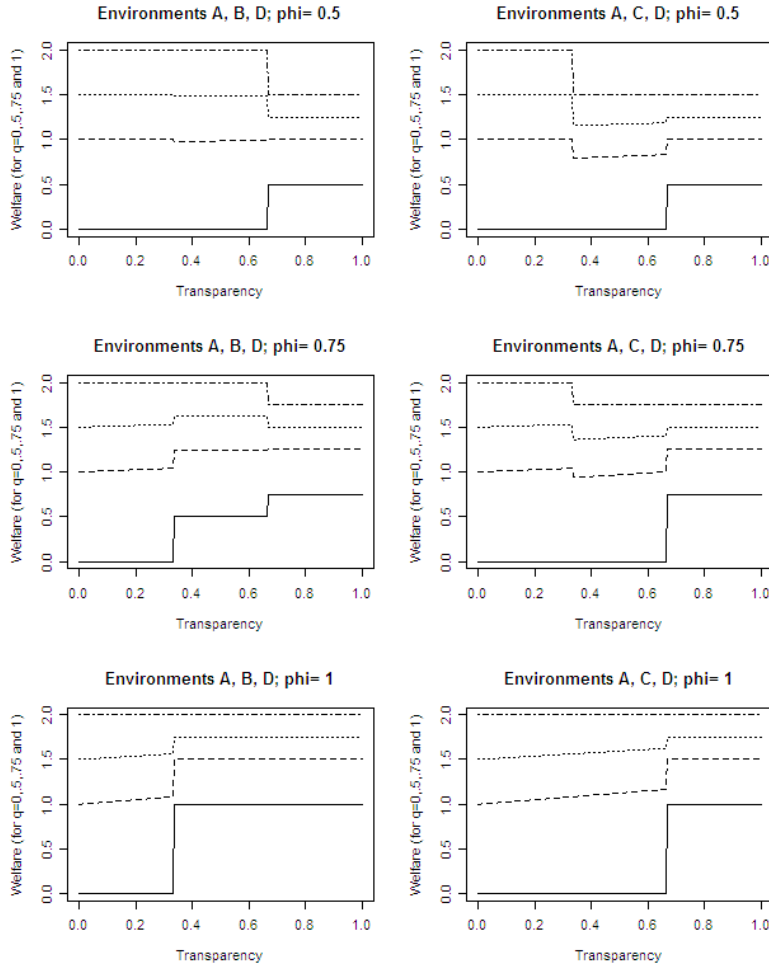


Figure 1: Citizen welfare as a function of  $\tau$  for a series of parameter values. In each graph higher lines correspond to higher values of  $q$ .

whenever  $\eta = 0$ , their good actions run a risk of being misinterpreted by voters. In consequence they conform to expectations instead of seeking to achieve public benefits. In intermediate cases, non-monotonicities can arise, with a rise in transparency leading to either an intermediate rise or decline in welfare. *Which type of non-monotonicity arises depends on the relative gains from incentivizing bad types to act well when  $\eta = 1$  and the losses associated with good types acting badly when  $\eta = 0$ .*

Finally we note that even when  $\varphi \approx 0.5$  and there is no (ex ante) relationship between  $s$  and benefits to voters, the first column in Figure 1 tells us that information about  $s$  nevertheless can help keep politicians accountable. In the extreme case of *only bad politicians*, a rise in transparency allows voters to ensure that politicians choose the right action half the time (although voters never know which half); the same perverse effects seen in the  $\varphi = .75$  cases do however obtain here also.

From these observations we derive the following hypothesis:

**H<sub>5</sub>: [Welfare Gains]** A rise in transparency is associated with gains in voter welfare in cases in which MPs are not believed to have voter interests at heart and in which voters are more confident of the mapping between actions and outcomes, but is associated with a fall in welfare when MPs are believed to have voter interests at heart or in which voters are less confident of the mapping between actions and outcomes.

### 2.2.3 Re-election Probabilities

We have noted already that equilibrium behavior suggests that the poorly performing politicians, as measured by public information, will be less likely to be reelected. The more general relationship between transparency and incumbency advantage is however more complicated as shown in Figure 2.

As with welfare effects, there is a non-monotonic relationship between transparency and turnover. In all cases if transparency is already sufficiently high as to ensure good performance through the accountability mechanism, a rise in transparency *reduces* turnover rates by ensuring that voters are less likely to make false judgments. However transparency can also increase turnover through a number of channels. In environment  $A$ , for example, if politicians are implementing their preferred strategies, unrestrained by voters, a rise in transparency can still facilitate selection by reducing the likelihood of removing High types and increasing the likelihood of removing Low types.

General hypotheses are hard to draw and again depend on beliefs about the incumbents types and confidence in policy mappings. We extract the following however for study:

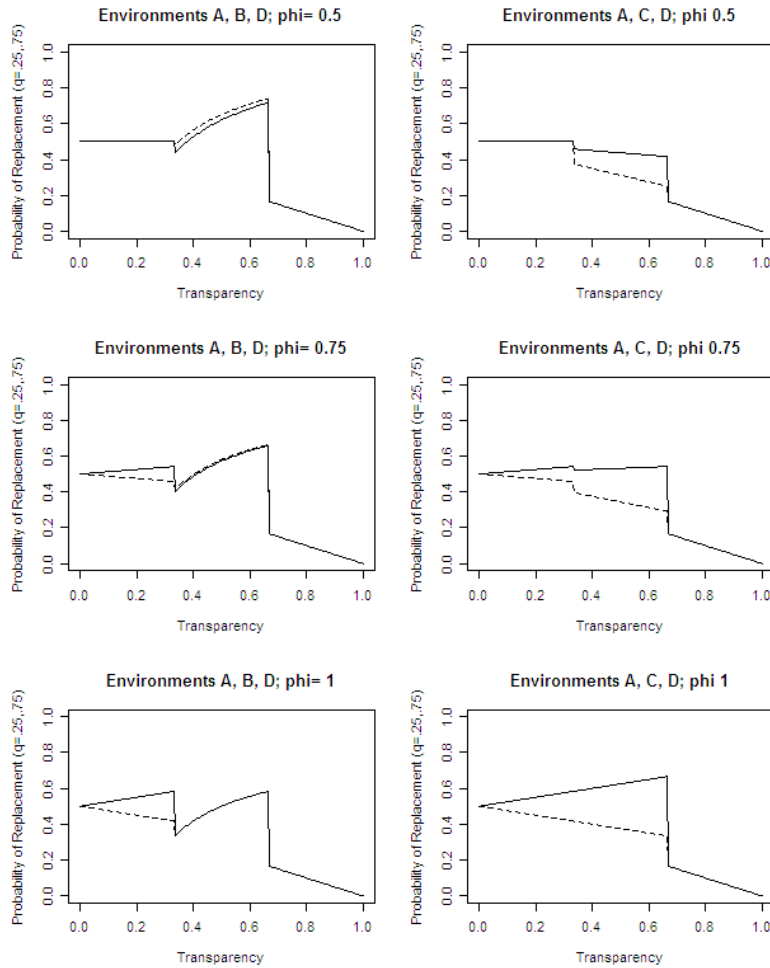


Figure 2: Probability with which the incumbent is replaced as a function of  $\tau$  for a series of parameter values given  $q = .25$  (solid line) and  $q = .75$  (dotted line).

**H<sub>6</sub>: [Incumbency Advantage]** The incumbency advantage is increasing in transparency when there is greater uncertainty regarding the mapping from action to outcomes or when the prior pool of candidates is believed to have voter interests at heart. Turnover rates are increasing at intermediate levels of transparency, especially when there is prior distrust in politicians



and when the mapping from inputs to outputs is believed to be known.

#### 2.2.4 Candidate Pool

Finally we can consider the incentives for individuals to stand as MPs for any given level of transparency. We suppose again that  $|\theta_i| < 1$  and hence that the maximum utility obtainable from office is less than 2. Finally we assume that there are an equal number of good and bad potential candidate types and that each individual has an outside option distributed  $u \sim U[0, 2]$ . We expect that candidates will stand for office only if their expected gains,  $y > u$ .

Our interest is in determining whether the composition of the candidate pool is likely to improve or worsen with transparency.

The expected benefit to a candidate of type  $H$  in equilibrium  $A$  is:

$$u_{HA} = \theta_H + \varphi(1 - \varepsilon) + (1 - \varphi)\varepsilon = \theta_H + \varphi + (1 - 2\varphi)\varepsilon$$

To place the utilities of the High and Low types on a comparable scale (relative to  $u$ ) we add an extra term  $-\theta_L$  to the Low types utility. The expected benefit to a candidate of type  $L$  in an equilibrium in environment  $A$  is then:

$$u_{LA} = -\theta_L + \varphi\varepsilon + (1 - \varphi)(1 - \varepsilon) = -\theta_L - (1 - 2\varphi)\varepsilon + (1 - \varphi)$$

The share of candidates that are high types from the pool of candidates willing to stand for office at the beginning of the first period is then simply:

$$q_A = \frac{u_{HA}^{\frac{1}{2}}}{u_{HA}^{\frac{1}{2}} + u_{LA}^{\frac{1}{2}}} = \frac{\theta_H + \varphi + (1 - 2\varphi)\varepsilon}{\theta_H - \theta_L + 1}$$

which is decreasing in  $\varepsilon$ . Hence more transparency produces a better pool.

In a similar way we have:

$$\begin{aligned}
q_B &= \frac{\theta_H + (\varphi + (1 - 2\varphi)\varepsilon) \frac{-\theta_L}{\tau}}{\theta_H - \theta_L + \frac{-\theta_L}{\tau}} \\
q_C &= \frac{\varphi\theta_H + (1 - \varepsilon)}{\varphi\theta_H - \theta_L + 1 + (1 - \varphi)(1 - 2\varepsilon)} \\
q_D &= \frac{\varphi\theta_H + (1 - \varepsilon)}{\varphi\theta_H - (1 - \varphi)\theta_L + 2(1 - \varepsilon)}
\end{aligned}$$

From these values we can establish that  $q_A, q_B$  and  $q_C$  are decreasing in  $\varepsilon$ . However,  $q_D$  can be increasing or decreasing in  $\varepsilon$  depending on whether office is a more attractive prospect for high or low types. It is increasing in  $\varepsilon$  if and only if:  $\frac{\theta_H}{-\theta_L} > \frac{1-\varphi}{\varphi}$  and decreasing if and only if  $\frac{\theta_H}{-\theta_L} < \frac{1-\varphi}{\varphi}$ . Hence  $q_D$  will be increasing in  $\varepsilon$  (that is, falling in transparency) whenever  $\theta_H > -\theta_L$  and whenever the mapping from outcomes is well known ( $\varphi$  close to 1).

As before, a change in  $\varepsilon$  can also be associated with a change in the type of equilibrium, with more dramatic consequences for behavior. Note that if  $\frac{-\theta_L}{\tau} = 1$ , then:  $q_B = q_A$ ; this establishes that the share of  $H$  types is increasing over the range between equilibria type  $A$  and equilibria type  $B$ . Similarly when  $\frac{\theta_H}{\tau} = 1$ ,  $q_C = q_A$  which establishes that the gain from transparency holds across these parameter ranges also. Hence the pool of candidates is improving in transparency in low and intermediate ranges.<sup>3</sup>

However, in ranges in which players are already pooling on conformist action, or in which a rise in transparency induces them to pool, rising transparency has adverse effects on the pool of applicants. The between-environment fall in the quality of the candidate pool for a shift from state  $B$  to  $D$  arises from two effects: from the fact that High types now conform in order to ensure reelection, and from the fact that Low types, though willing to conform in equilibrium  $B$ , are more likely to be rewarded for conforming in equilibrium  $D$ . The intuition for the worsening pool of candidates *within* equilibrium  $D$  is the following. Each type's benefit comes from two elements — the Period 1 benefit, which is greater for the High type than for the Low

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<sup>3</sup>In addition, we have that provided  $\frac{\theta_H - \theta_L \theta_H + \frac{1}{2} \theta_L}{\frac{1}{2} \theta_H - 2\theta_L \theta_H - \frac{1}{2} \theta_L} < \varphi$ , the pool contains relatively more high types in the full transparency state ( $\tau = 1$ ) than in the lowest transparency state ( $\tau = 0$ ); this condition always holds with  $\theta_H < -\theta_L$  (that is when the relevant environments are  $A, C, D$ ) and can never hold if  $\frac{\theta_H}{2\theta_H + 2} > -\theta_L$ . For  $\frac{\theta_H}{2\theta_H + 2} < -\theta_L < \theta_H$  improvements in the pool across the full range depend on the quality of the signal  $\varphi$ .

type, and the period 2 benefit, which is equal across both types. As transparency rises, the expected gains to both types of Period 2 benefits rises and in doing so it reduces the relative aggregate gains of High types compared to Low types.

**H<sub>7</sub>: [Candidate pool]** A rise in transparency will be associated with an improvement in the quality of the pool of candidates (and, relative to the control areas, a larger positive difference between the performance of newly elected MPs after the 2011 elections and that of the candidates that they replaced), at low levels of transparency, with this effect weakening or reversing at high levels of transparency.

### 2.3 Non-Electoral Channels

Although not amenable to empirical testing through the field experiment we propose, it is also possible that the impact of transparency operates through intra-party rather than electoral dynamics. Consider that the rewards of being a politician depend not only on remaining in office but also on rising in the party hierarchy. Positions of leadership in the party grant politicians significant power: they have greater resources at their disposal to secure re-election; they exert control over positions and resources that other politicians want, making it possible for them to more often get their preferred policies implemented; and, if in the ruling party, they are more likely to receive posts as ministers and state officials. But sitting party leaders face a difficult challenge in deciding how to allocate positions of leadership: in particular, they need indicators of the quality of politicians in the pool. Of course, some decisions are made on the basis of personal ties, but other leadership positions may be awarded to those who distinguish themselves as competent. If transparency efforts increase the volume of information about how politicians behave, this may induce party leadership-seeking office holders to improve their performance. Constituents play no role in this story: a desire for leadership roles in the party accounts for the impact of transparency on performance.

We will not be in a position to assess this story using data from the field experiment. However, drawing on observational data, we can look for temporal evidence that transparency drives increased party discipline, and that those politicians with the strongest incentives to signal competence to

party leaders (i.e. those lacking personal ties to the party leadership or with the most limited outside options) exhibit the greatest improvements in measured performance over time.

## 2.4 Evidence from the Literature

We know of no study that tests the full range of hypotheses that we have derived from the our model of accountability and agent selection. Nevertheless a number of recent studies have found support for overall effects and for some particular channels.

Examining U.S. states, one study demonstrates that fiscal transparency induces greater effort on the part of politicians (Alt et al 2001). Another underscores the power of access to radio and confirms that voters with more information are more active and successful in ensuring that the political processes benefits their areas (Stromberg 2005). One study exploits a natural experiment and concludes that voter turnout rises when voters have more information about policy debates (Lassan 2005). A series of studies in India have shown similar effects: state governments are more responsive to falls in food production and crop flood damage when there is greater media penetration (Besley and Burgess 2002) and local politicians better allocate resources to those in need in communities in which villagers are literate and have the opportunity to participate in community decision-making (Besley, Pande, and Rao 2006). In addition there is a growing empirical literature that relies on field experiments to examine the impacts of information on different types of agency problems. Olken (2007), drawing on a randomized field experiment shows that audits reduce corruption in road-building projects. Moreover, the impact is greatest in when village leaders face reelection within the near future. Reinikka and Svensson (2006a) document the impacts of an information campaign designed to minimize the diversion of educational funding meant for local schools in Uganda. Schools in geographic areas with newspaper access received significantly more of the intended transfers. In a second study, Reinikka and Svensson (2006b) show that community monitoring of public health facilities—through a citizen report card implemented in a random subset of communities—contributes to the improvement of the quality and quantity of health care, as health unit staff exert greater effort to serve the needs of the community.

The *agent selection* channel has received less attention in empirical work,

nevertheless recent empirical research suggests that, contrary to the predictions of arguments drawing on Downsian or Coasian logics, the characteristics of politicians appear to matter a great deal for the policies that are implemented (Chattopadhyay and Duflo 2004; Jones and Olken 2005). In other work, Ferraz and Finan (2007) find that a municipal audit program in Brazil decreased the probability of reelection by 20 percent for each document corruption violation.

A handful of empirical studies provide evidence for the perverse effects of information. Datta (2006) shows that, when political discussions are televised in India (Question Hour in Parliament), the voice of ordinary MPs is reduced as party establishments ensure that nationally prominent politicians dominate the proceedings. He finds no evidence that making discussions public increases the degree to which MPs represent their constituents' interests. In another study, Gentzkow (2006) shows that access to television reduces turnout, in part because voters substitute away from richer sources of information.

These studies lend support to these individual mechanisms. They do not however allow researchers to examine the relations between the distinct mechanisms that we have identified; in addition whereas observational studies have examined the impacts of interventions on elite behavior, field experimental work in the area has been confined to the behavior of voters and consumers. Our aim is to advance this research agenda by examining the multiple channels in operation in the context of a study of elite behavior.

### **3 Transparency and the Ugandan Parliament**

The potential governance pathologies that flow from information asymmetries pose a particular challenge in the environment we study. Uganda's voting population lacks access to a well-developed media that might transmit information about the characteristics or activities of politicians. Moreover, as compared to the relationship between voters and the executive, the problems posed by information asymmetries with parliamentarians are severe: constituents know little about the proper role and function of an MP and receive almost no information about the activities of MPs once they are elected. There are strong reasons to believe that the predictions of political

agency and political selection models—of shirking, opportunistic behavior, and a mismatch between politicians’ actions and citizens’ preferences—are likely to be prevalent in Uganda’s Parliament.

### **3.1 The Ugandan Parliament**

The Parliament is the legislative arm of the Ugandan government and derives its mandate and functions from the 1995 Constitution. Elected for a five year period, the Parliament is composed of 215 MPs who represent geographic constituencies and 104 MPs representing special interests including women, youth, workers, people with disabilities, and the army—the Uganda People’s Defense Forces (UPDF). In addition there are 13 non-voting ex officio members including cabinet members that are not otherwise members of parliament. Its functions are laid out in broad terms and include passing laws for the good governance of Uganda, providing for the financing of government business (through the authorization of taxation and the acquisition of loans), scrutinizing government policy and administration, debating matters of topical interest, and vetting the appointment of persons nominated by the President, including cabinet ministers and judges. Major bills passed by the present parliament include a series of amendments to legislation on excise tariffs, income tax, value added tax and appropriations.

Uganda’s Parliament has played a central role in recent political debates in the country, although its record as an effective, representative body is mixed and some recent political events have brought the legislative body into disrepute. For example, President Museveni’s controversial initiative in 2005 to change the constitution to permit him to run for a third term was an issue debated and approved by Parliament in a 220-53 vote, even though more than half of Ugandans opposed the constitutional amendment (Afrobarometer 2005). It was later revealed that sitting MPs received cash from the executive branch, in the form of constituency development funds, in advance of the controversial vote. More recently, Parliament has interjected itself into discussions of Uganda’s overseas deployment of troops. After the President deployed troops to Somalia without parliamentary approval (even though it was required by the constitution), MPs stepped in and repeatedly rejected the government’s motions to authorize the overseas deployment. Government MPs eventually approved the deployment (while opposition MPs boycotted the vote), although bargained behind the scenes for government subsidies to support the purchase of vehicles to be used for parliamentary business.

	NRM	Opposition	Independent	N/A	Total
Universal Adult Suffrage	139	47	20	0	215
Women’s Rep.s	57	10	12	0	79
UPDF Rep.s	0	0	0	10	10
Persons with Disabilities	5	0	0	0	5
Workers’ Rep.s	5	0	0	0	5
Youth Rep.s	4	0	1	0	5
Ex officio	3	0	0	10	13
Total	213	57	42	20	332

Table 2: Members of the 8th Parliament by Party and Ascendancy

The present parliament—the Eighth—marks the shift to multipartyism in Uganda and with that comes the introduction of party discipline and of a well defined opposition. Opposition MPs have been particularly vocal in Parliament, often staging walkouts to protest, for example, the detention and mistreatment of officials affiliated with opposition parties. As shown in Table 2 however these opposition MPs however constitute a relatively small minority of Uganda’s parliamentarians.

Despite its mixed record, the Parliament is seen by many as a critical linchpin in the effort to build sustainable democracy in Uganda. Outside donors have committed significant resources to the strengthening of the legislative (and the judicial) branch in an effort to check the growing power of the executive. It is hoped that, with the introduction of multi-party politics in 2006, Parliament can and will become a forum for the discussion of opposing viewpoints on critical national issues. In an early analysis of the workings of the Eighth parliament, Kasfir and Twebaze (2007) describe their “expectation that its committees will make effective contributions to bills and oversight” although they note that “it is still too early to tell how much of Parliament’s [accumulated ] influence [...] will survive the potent combination of party discipline in a party led by the President and controlling more than two-thirds of the seats” (Kasfir and Twebaze, 2007, 57).

It is not surprising though, given the vignettes offered above, that Ugandan citizens express very mixed opinions about Parliament (Afrobarometer 2005). Nearly 74% of Ugandans can accurately report the name of their MP, 70% express some or a lot of trust in Parliament, and 63% approve or strongly approve of the performance of their own MP. Ugandans overwhelm-

ingly recognize the importance of the independent role of the legislature as well. 91% of Ugandans would disapprove or strongly disapprove of any move to abolish elections and the parliament in order to vest complete authority in the President. 81% agree or agree strongly with the idea that MPs represent the people and should make laws for the country even if the President does not agree.

Yet, when one investigates opinions about MPs in more depth, the results are not as encouraging. 79% of Ugandans expect regular visits from the MP to the constituency (once a month or more), while 69% report that their MP never visits or comes only once a year. 77% of respondents complain that MPs never or only sometimes listen to their concerns. Nearly 70% believe that MPs are actively involved in corruption. And 40% describe elections as working not very well or not well at all as a mechanism for ensuring that MPs reflect the views of their voters. This skepticism about Parliament is not simply a Ugandan phenomenon. Mattes and Chiwandamira (2004) find a “yawning chasm” between citizens’ views of MPs and how MPs see themselves in Zambia. More broadly, Nijzink et al (2006) report that, across a sample of African countries in which public opinion surveys were conducted, parliaments were almost uniformly viewed less positively than the executive branch, although respondents’ average satisfaction with their own MP hovered in the range of 50-60%.

## **3.2 The Parliamentary Scorecard**

In an effort to promote more effective representation in the legislative process, the Africa Leadership Institute (AFLI), a Kampala-based non-governmental organization, formed a partnership with Columbia and Stanford universities to develop, release, and disseminate a Parliamentary Scorecard. Building on a parliamentary performance audit conducted in advance of the 2006 elections, the Parliamentary Scorecard seeks to provide a high-quality, annual, and sustainable mechanism for delivering information to voters about the activities of their representatives—consistent with the constitutional right of citizens to access information about government.

Prior to our partnering with it, AFLI had already produced a pilot audit of the 7th Parliament in 2006, just before parliamentary elections were held. The report provided detail about the activities of MPs in Parliament’s plenary sessions (including attendance, bills introduced, motions made, questions asked, etc.) for a small sub-sample of sittings during one year of the



MPs' five-year term. Grades were assigned to each MP, although the coding rules for matching contributions and grades were not transparent. The audit was released in a press conference in Kampala weeks before the 2006 elections and it received media coverage in the newspapers and on the radio in the capital. No efforts were made to disseminate the results to largely illiterate, rural voters. The audit likely had little effect on the voting public, although its existence was noted by MPs, some of whom spoke out in criticism of the methodology. The document did suggest it would be an annual effort, but our sense is that few MPs took serious note of its existence, and many new MPs (more than 50%) joined the 8th Parliament with no previous exposure to the auditing mechanism.

Building on lessons from the pilot audit, AFLI has raised significant resources to develop a higher-quality, comprehensive Parliamentary Scorecard. Beginning in July 2006, after the new Parliament was inaugurated, we partnered with AFLI to begin building a comprehensive database on the performance of every sitting MP. The new scorecard draws on this database to generate reports on the activities undertaken by MPs in Parliament's plenary sessions, which represent the most public forum in which legislative business is conducted. The new scorecard also describes the participation of MPs in committee work. Informal consultations with MPs suggested that a focus on plenary, committee, along with a possible extension to measures of constituency work would be sufficient to capture accurately the distribution of activities in which parliamentarians engage. The data sources for the scorecard include Parliamentary Hansards (verbatim transcriptions of every plenary session), transcriptions of committee meetings, attendance logbooks for plenary and committee sessions, and majority and minority committee reports.

### **3.3 Indicators of Performance**

Each scorecard includes a series of indicators of performance for the year, generally presented as a percentile in order to facilitate comparisons among MPs. The challenge in creating these measures is to identify indicators that are sufficiently clear in their measurement so as not to become the subject of dispute, but still rich enough to capture salient dimensions of political action. We collect two types of measures: indicators of “**effort**” and “**position.**” An example of the 2006-7 scorecard is given in Figure 3.3, with indicators of effort occupying the top half of the scorecard and positional indicators

on the bottom. The 2007-8 scorecard includes all the same measures but also includes a suite of measures of **constituency activities**—including a behavioral measure of the ease with which constituents can locate telephone numbers for their MPs—and *peer assessments*.

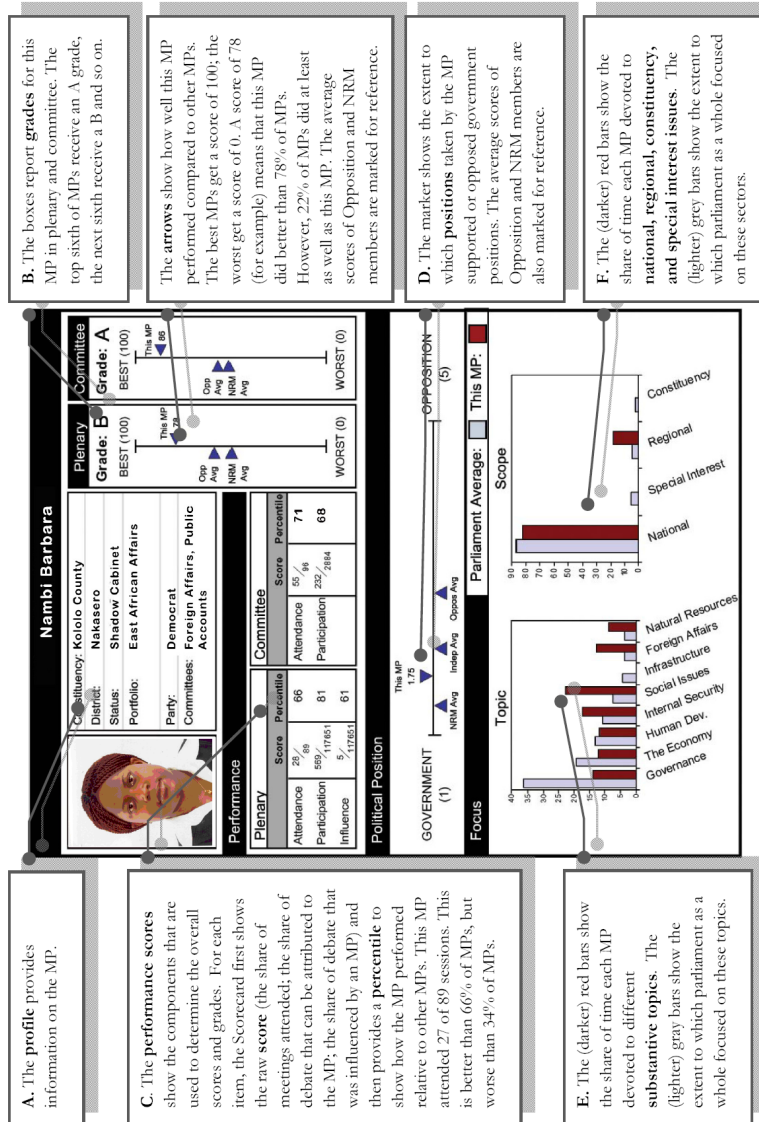


Figure 3: A sample scorecard (not a real MP).

For work in **plenary** sessions, MP effort is evaluated using three indicators that describe MP attendance, participation, and initiative. Attendance is the simplest and most transparent indicator. Measured as the share of plenary sessions in which the MP’s signature appears in the attendance logbook (or is documented through the Hansard archives), it captures a minimal condition of political activity in plenary sessions.<sup>4</sup> Although one might expect little information from this measure, the empirical variation is quite dramatic. Overall attendance rates average at 23 shows out of 87 days of meeting. The best performers on this measure appeared over 50 times in parliament; however 50 MPs showed up a dozen times or less and 3 never showed up at all.

The **participation** measure is more difficult. Although measures of the quality of participation are desirable, in the absence of a measure that would not be subject to dispute we employ a simple quantitative metric—the total number of lines each MP speaks in the Hansard. Again the measure picks up on some substantial variation; there are again extreme cases on this measure with evidence that 40 MPs never participated at all on the floor of parliament.

Our measure of **initiative** is the most challenging of the three. We seek a measure of the extent to which MPs are acting as political entrepreneurs. However, much entrepreneurial activity takes place behind the scenes and cannot be readily associated with the actions of a given MP. Yet the introduction of new items, such as bills and amendments, to parliament, is associated with particular MPs, although disproportionately so with those already high up in a party’s hierarchy. To generate a measure of initiative that is relatively immune to manipulation and which aims to take account of the importance of issues introduced, we use an indicator that captures the total number of lines spoken by other MPs about items that a given MP has initiated. For each of these three measures, an MP is given a percentile ranking and an overall grade associated with these percentiles. On this measure 39% of MPs had no influence on parliamentary debates.

For effort in **committee work**, MPs are again scored on attendance and participation. The attendance measure is given as the share of all committee meetings in which the MP’s signature appears in the logbook; the participation measure uses tape recordings of all committee meetings to generate

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<sup>4</sup>In addition, if an MP speaks in plenary session (as captured in the Hansard) but is not recorded as in attendance in the logbook, we code him/her as having been present at plenary that day.

an indicator of the average number of lines spoken by MPs per committee meeting.

The indicators of **position** record the sectors in which politicians are most active (a “salience” indicator), as well as the extent to which they adopt positions that are more or less pro or anti government. The single greatest challenge we face in constructing these indicators is the absence of an automated process for recording votes; indeed, no written record is made of vote tallies except in unusual circumstances such as the third-term vote. Instead, we have based our measures on a coding scheme applied to the debates in plenary sessions. Each time an MP speaks, she is coded on a 5-point scale in terms of how strongly she supports or opposes the item under discussion. In addition, enumerators provide a metric of their level of certainty (also on a 5-point scale) about the position they have assigned. Then, all items discussed in plenary business are coded as government, opposition, or neutral according to the affiliation of the MP who introduced them. If the individual is a cabinet member, then the item is coded as “government.” If the item is introduced by a member of the shadow cabinet, it is coded as “opposition.” To be conservative, any items introduced by backbenchers are coded as “neutral,” except in the case of clearly partisan items such as a resolution praising the President for his State of the Nation address. Information on the degree to which an MP is pro-government is then calculated as the average position taken on items introduced either by government or shadow cabinet ministers when the enumerator is certain or very certain of the coding.<sup>5</sup> In presenting this data on the scorecard, an MP’s average position is placed on a continuum generated by the MPs percentile score among all MPs, alongside indicators for the average position of government, opposition and independent MPs.

We also include two positional measures that capture the substantive issues in which MPs are engaged. Each contribution to plenary debate is coded according to the sector/topic with which it deals. The scorecard then includes a chart describing how an MP’s comments in plenary are distributed across the sectors as compared to Parliament as whole. Contributions are also assessed for the scope of the issue, whether it is a constituency, special

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<sup>5</sup>Each Hansard is graded by two enumerators; a third enumerator reconciles any discrepancies between the first two. For a position to be counted on an individual item, the average certainty of the first two enumerators must be greater than four and the certainty of the third enumerator must be greater than 4. Ultimately, the position used is that enumerated by the third enumerator who reconciles the first two positions.

interest, regional, or national issue. Again, a chart detailing how MPs (and how Parliament as a whole) allocate their comments across issues of different scope is included in the final scorecard.

The new **peer assessment** measures introduced in the 2008 scorecard (and in preparation for the 2009 card) uses data from a survey on MPs in which they are asked to rank a random subset of 15 of their peers (stratified by party) on a set of six dimensions. For each dimension MPs were asked to circle a number between 1 and 5, with top performers receiving a 5, above-average performers a 4, average MPs a 3, below-average performers a 2, and the least effective Members a 1. Scores were then normalized to prevent manipulation by removing the average grade assigned by MPs to different sides of the house. The six dimensions of peer assessment are: quality and relevance of contributions in plenary and committee; how active the MP is in scrutinizing legislation; the MP’s success in building support among other MPs for legislative activities; the MP’s effectiveness in providing oversight of the activities of the executive; intra-party caucus influence; and conduct in public (whether the MP conducts him/herself in a manner befitting of an MP).

### 3.4 Caveats

There are clear advantages and disadvantages to the indicators of performance we have selected. One of the advantages of our approach, aside from position data, is that it involves almost no subjective judgments on the part of our enumerators. They are clear, defensible measures that are easily replicated. However, by erring on the side of clarity and transparency, the scorecard will fall short on some fronts that constituents care a great deal about. For example, does an MP make “valuable” comments? Can an MP get a bill passed or an amendment adopted if he puts his mind to it? Is an MP delivering on her campaign promise? Are MPs providing development benefits to their constituencies? We have elected to bypass questions of the quality of MPs’ activities because we cannot generate a defensible, replicable coding rule for making such determinations. Our fear is that any effort to do this might undermine the whole project. The risk, of course, is that by measuring simple indicators such as those we have proposed, the scorecard itself might provide strong incentives for more “talking” but not for quality legislative activity. In this sense the information provided is like the signal  $\tilde{s}$  described in our model above; it is a good indicator of the inputs but the

mapping between these inputs and benefits to constituents is not known with certainty. In our discussion of validation (next section) we provide evidence that indeed the issues addressed in the scorecard are strongly correlated with the concerns of MPs and voters.

A second concern is that the scorecard does not measure outputs and in particular does not measure those outputs that many may be most concerned with: the provision of pork to constituents. We chose not to include a measure of transfers to each constituency for normative reasons: while we could generate a broad consensus on the value of providing incentives for more active and sustained participation in Parliament, there was substantial disagreement about whether we should provide additional incentives for MPs to raid the budget for pork for their districts. Unsurprisingly, perhaps, this is something that constituents expect from their MPs, but AFLI and its local partners felt strongly that including pork-barrel politics as a measure of performance would (a) systematically reward government MPs and (b) provide additional incentives for destructive budgetary politics.

### 3.5 Validation

We describe two ways in which we validate the scorecard measures. The first is to compare the grades we produce from objective data on in parliament to the MP self assessments of performance. It is quite possible that our measure of MP performance does not capture what politicians know to be really important actions on the part of MPs. If so, then there would be a poor correlation between our scores and MPs self assessments—indeed media statements by various MPs suggest that this should be the case. The second approach is to compare our scores to voter assessments of MP performance.

For both sets of validations we compare independently generated measures; for the peer assessment comparison (described next) we compare 2008 peer assessments to 2008 plenary scores; the plenary scores do not use information on peer assessments and the peer assessments were made before 2008 scores were made available to MPs. For the voter validation (described in section 4.3) we employ information from voters in the control condition—not exposed to information on the scorecard—and we condition upon prior attitudes to the MPs in question.

The peer assessment results are shown in Figure 4. We see a very strong relation between our scorecard assessments and the MP’s own estimations. The strong negative trend seen in the graph corresponds to a correlation

of 0.41 between the raw plenary score and the overall peer assessment; the associated  $t$ -score is 7.5, confirming the highly significant relation. Similar correlations can be seen for all the disaggregated peer assessments; the strongest correlations were for MP assessments of the quality of contributions to debate and the actions of MPs in executive oversight; the weakest was for the MPs department (Does this MP conduct him/herself in a manner befitting of an MP?), although even in this case there is a strong relationship. Although many MPs have argued that the data-based measures do not reflect what is really going on in parliament, in fact they correspond very well.

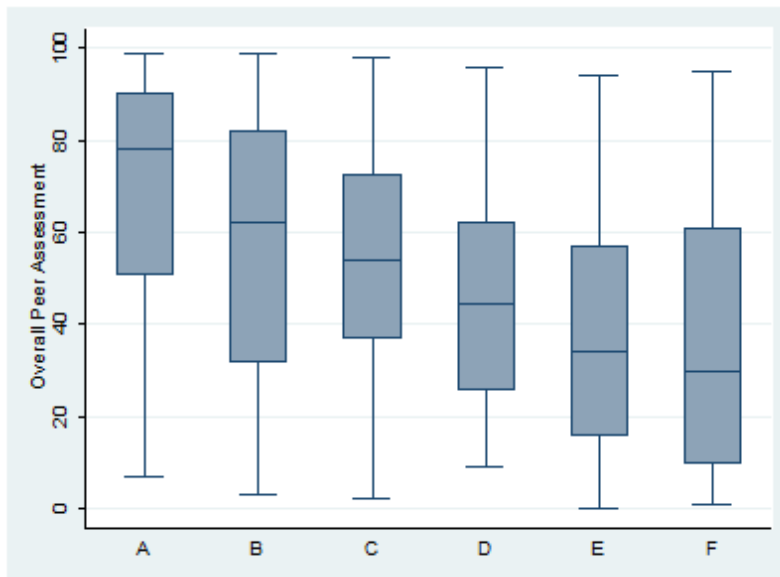


Figure 4: Distribution of 2008 peer assessment scores for MPs broken down by 2008 scorecard grades. The strong negative trend corresponds to a correlation of 0.41 which has an associated  $t$ -score of 7.5.

## 4 Empirical Strategy and Early Results

We describe three strategies for examining components of this model.

The first, most important, but politically most vulnerable, is to examine the effects of increased information at the constituency level on MP perfor-

mance in parliament. We describe this approach briefly in section 4.1. The second strategy employs a series of survey experiments that allow us to examine the impact of information on the voter side (keeping the actions and the treatment of politicians constant); the survey experiment allows us to examine behavior by informed and uninformed voters within constituencies in which there may be either many informed or many uninformed other voters. In section 4.3 we report on the first of these survey experiments undertaken in the baseline.

## 4.1 Dissemination Campaigns

For political reasons, the scorecard is produced in the same way for all MPs in the country. It is being released in Kampala approximately once a year, a few months after that year’s parliamentary session has concluded. As with the release of the pilot audit, the scorecard is provided to MPs, civil society organizations, and representatives of the media. So while we will be in a position to observe temporal change in the behavior of MPs using our measures, in the absence of an experimental design at the national level, we will not be able to ascribe improvements in overall performance (if they occur) to the *existence* of the scorecard.

Our research strategy therefore rests on another source of variation: variation in voter access to data from the scorecard. Our experimental protocol involves intensifying the accountability treatment through the implementation of sustained dissemination campaigns in a randomly selected sub-sample of geographic constituencies. Recall that 88% of Ugandan voters live in rural areas; only 18% have completed secondary school; and 60% never gets news from newspapers, which have been the most active media source in covering parliamentary business (Afrobarometer 2005). The public release of the scorecard in Kampala is thus unlikely to reach voters in geographic constituencies via traditional media channels; moreover, the scorecard as published for dissemination in the capital is not likely to be accessible to most voters given its publication in English and the literacy and numeracy required to understand the results.

In order to get this information to voters, AFLI is to organize day-long constituency-wide meetings in a random sample of half the UAS constituencies in Uganda. The dissemination workshops are to include: (a) a constituency-wide public meeting with local officials, traditional leaders, and community members in which the scorecard project and the results are



described; (b) the distribution of locally-appropriate materials in local languages that summarize the results for the MP (including posters to put in public places and materials that individuals can take home) and; (c) the establishment of a formal relationship with a local civil society organization in the constituency for the purpose of distributing future iterations of the scorecard. At the center of each workshop there will be a discussion with the local MP, with an opportunity for the MP to defend his or her record before constituents and opposition candidates. Over four years then, and before the next Parliamentary elections, AFLI is to cover 147 of the 294 MPs with some form of geographic constituency (108 representing traditional geographic constituencies and 39 women's MPs who represent a district). Each selected constituency will be visited only once; however, to provide some duration to the treatment, those constituencies randomly selected for treatment in earlier years will also receive materials for distribution in later years (a feature that also provides some variation in the intensity of the treatment across constituencies in advance of the next election).

We emphasize that because the scorecard is created for all MPs but disseminated in only some constituencies the research strategy should be properly thought of not as estimating the effect of the dissemination of the score card not of its generation. We also emphasize however that the workshops are political events and the implementation of the workshops is beyond the direct control of the researchers; this makes this component the most vulnerable component of this research strategy.

Importantly, the design is such that MPs will be able to adjust their performance over the course of the intervention to alter their scores. The lottery itself was conducted in time for the results to be released with the 2007 scorecard. The procedure used was to divide MPs into blocks according to party affiliation (government, opposition, independent); order MPs according to their overall (baseline) performance in the 2007 scorecard, and, conditional upon a random draw, select either every even or every odd numbered MP. This procedure ensures that the treatment and control units are balanced with respect to party and with respect to the key baseline indicator. In addition it is possible to verify that we have balance ex post with respect to gender and region. The results of the randomization are printed on pages 378 to 382 of the 2007 scorecard, have been made available to all MPs in the Ugandan parliament, and have been reprinted in the 2008 scorecard.

Our empirical strategy for assessing the impact of transparency on political accountability thus hinges on a comparison of outcomes across con-

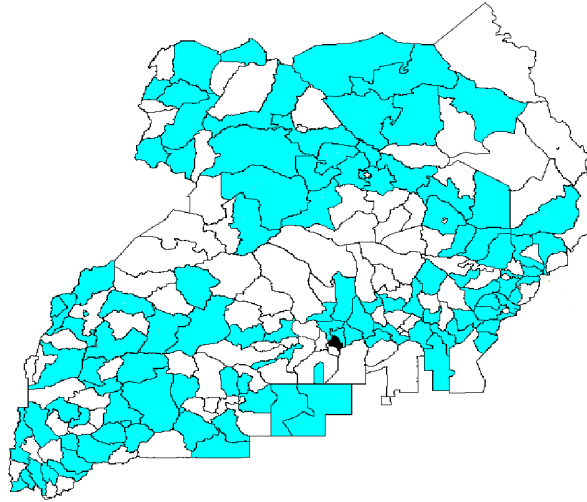


Figure 5: Map of selected constituencies for the dissemination campaign. Treated and control

stituencies in which the scorecard will be disseminated and those where it will not. The ideal experiment would consist of producing a scorecard and releasing it for some MPs and not for others, however, such a design is politically infeasible. Because voters are so disengaged from what happens in the capital, however, we are confident that an assessment of the causal impact of the dissemination campaign itself will provide valuable information about how transparency shapes political behavior in Uganda.

We envision estimating the impact of the treatment using three main types of outcome measures: MP performance, voter attitudes and electoral behavior.

#### 4.1.1 MP Performance

The scorecard serves usefully both as a tool for the intervention, but also as a set of indicators about how MPs behave. If greater transparency has its intended impact, we would anticipate temporal changes in performance as MPs become aware of the scorecard; for the purposes of assessing the aggregate impact of the dissemination workshop, we will examine whether levels of performance and temporal changes in performance differ across MPs representing treated and untreated constituencies [ $H_2$ ,  $H_4$ ]. In addition, we can use the data to measure the differences between the performance of new

politicians relative to the incumbents they replace [ $H_7$ ]. Our database is, however, considerably richer than what can be summarized on the scorecard. Measures of MP behavior, such as richer positional data on salient policy dimensions of constituent interest, can also be used to examine the adverse impacts of transparency by examining the alignment of MP activity and constituent preferences across treated and non-treated constituencies [ $H_4$ ].

#### **4.1.2 Voter information, attitudes, and welfare**

The second set of outcome measures will be gathered through the administration of household surveys in treated and untreated constituencies at three points intervals: a baseline survey, one after two years of the dissemination workshops (when 74 constituencies have been treated), and a second round after four years of the dissemination workshops (when 148 have been treated), but just before the election. We will use the household survey to collect detailed data on: (a) how voters evaluate the performance of their MP and government more generally [ $H_1$ ]; (b) the extent of exposure citizens have to their MP [ $H_2$ ]; (c) voter policy attitudes ( $H_4$ ) (d) household welfare and access to political benefits [ $H_5$ ]. In order to distinguish the direct effect of information from the indirect effect of anticipatory improvements in MP performance (that result from the announcement of constituency workshops), we will embed an experiment within the household surveys. A random subset of households in our panel will be provided with copies of their MPs scorecard along with an oral explanation of the content of the score card. In areas in which workshops are not held, the direct effect of information in the absence of anticipatory changes in MP behavior can be observed.

#### **4.1.3 Electoral Outcomes**

A third set of outcome measures relates to electoral competition and performance in the 2011 Parliamentary elections. We expect to gather data on the electoral contest in each constituency including the number and characteristics of the competing candidates, the level of voter registration and turnout, the margin of victory, and most importantly, the reelection rate of incumbent politicians [ $H_3$ ,  $H_6$ ].

#### 4.1.4 Other Covariates

In addition to measures for the key dependent variables the baseline and follow-up surveys will be used to record measures of two types of covariate.

First, as can be seen from Table 1 and from the statement of the hypotheses, the expected marginal effects of transparency depends in a systematic way on two other types of uncertainty: the voters' uncertainty with respect to the preferences of MPs ( $q, \theta_L, \theta_H$ ) and the voters' uncertainty with respect to the mapping from inputs to outputs ( $\varphi$ ). Estimates of these measures will be derived from trust indicators and attitudinal measures from the national surveys. In addition the effect of a change in transparency ( $\tau$ ) depends on baseline levels of transparency which will also be derived from survey based estimates of voter knowledge of MP activity.

Second it bears mention that estimating treatment effects in this context will be made more difficult because the effects of the dissemination campaign may spill over into untreated constituencies. For example, aware that a scorecard now exists, civil society organizations in untreated constituencies may utilize the freely available national materials to disseminate information about the performance of their own MP. It is also possible that opposition candidates in untreated constituencies may bring the scorecard results into the electoral campaign, even if no dissemination was done in that area. There are numerous possibilities. If we do not account for these spillover effects, we will underestimate the impact of the dissemination strategy. Our household surveys will be one useful tool for assessing the extent of spillover that occurs, both in the period without electoral competition and in the immediate run-up to the campaign. But we will also be in a position, following Miguel and Kremer (2004), to exploit the random location of our treated geographic constituencies in generating measures of the density of treatment within geographic areas to proxy for spillover effects (see Figure 5).

## 4.2 MP reactions to information

One concern with our approach (as with many experimental designs) is that the effect size may be too small to measure with any confidence. Greater transparency about what MPs do may matter, yet be only one of many factors that affect the behavior of MPs in Parliament. In order to get an initial assessment of the impact of increased information on MP performance,

we took advantage of an intervention designed originally to provide publicity for the scorecard. In March 2007, AFLI organized an awards ceremony to recognize top performers from the pilot audit. The awards ceremony offered an opportunity to provide MPs with a description of the evolution of the scorecard. AFLI invited high performing MPs from the previous Parliament (some of whom continue to serve) to the awards ceremony, along with a random sample of 58 additional MPs, stratified by party (NRM versus non-NRM MPs).<sup>6</sup> In actuality, very few MPs attended the event. As a result, AFLI pursued the goal of informing the new Parliament about the scorecard through a series of briefings in the parliament buildings (in April and May) in which the content and use of the scorecard was explained. The same random sample of MPs was invited to these briefings as part of an expanded list including 58 NRM and 43 non NRM MPs. Each NRM MP was selected with probability 0.29 and each non-NRM MP was selected with probability 0.46.<sup>7</sup>

Of the 101 MPs selected for briefing, 31 actually attended (33% of invited NRM MPs and 29% of non-NRM candidates). Those that failed to show up did so for a wide range of reasons. Some were busy or traveling; for many others, we could find no telephone number or were unable to reach them by telephone—indeed AFLI was unable even to issue the invitations to 44 of 101 selected MPs. Beyond the 31 who participated from the pool of sampled MPs, 3 additional MPs attended the briefings even though they were not invited. In these cases, MPs heard about our information sessions and asked to come or accompanied a colleague to a session.

The intervention was simple. Taking place in either one-on-one or small group sessions, AFLI staff welcomed MPs and then asked them to complete a short survey gaging their prior knowledge of the scorecard and their views of the role of an MP. They were then given information about the scorecard, outlining the key dimensions on which data is being collected and would be reported. Before departing, MPs were asked to complete a short exit survey and were invited to ask questions of the AFLI representative.

To assess the impact of being informed about the scorecard on subsequent performance, we rely on publicly available data on the behavior of MPs in

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<sup>6</sup>We exclude from our analysis the 13 ex-officio and the 10 representatives of the army in parliament.

<sup>7</sup>100 of the total of 101 selected MPs were selected using a random number generator. The 101st was selected because her phone number was mistakenly taken as that of another (selected) MP.

	Not Sampled ( <i>N</i> )	Sampled ( <i>N</i> )	Difference ( <i>se</i> )	Total ( <i>N</i> )
Not Treated	42% (192)	37% (70)	-5% (7%)	41% (262)
Treated	67% (3)	35% (31)	-31% (30%)	38% (34)
Difference ( <i>se</i> )	25% (29%)	-2% (10%)		-3% (9%)
Total	43% (195)	37% (101)	-6% (6%)	41% (296)

Table 3: Participation February 2007

plenary sessions. For each MP, we generate a simple indicator of whether she took part in parliamentary debate or not. We calculate this measure for a pre-intervention period (February 2007) and a post-intervention period (mid-June to mid-July 2007).

An examination of the pre-intervention performance data suggests that those that were informed about the scorecard (the “treated”) were not systematically different from those that were not (the “untreated”).<sup>8</sup> In particular among the set of MPs that were randomly assigned to participate in a briefing, the pre treatment scores are similar between those that were in fact treated and those that were not. In Table 3, we provide the breakdown of our sample by selection and treatment status. In addition, we provide the average score for the pre-intervention outcome measure for each of these groups and present the differences between the scores of those who participated and those who did not participate in each group.

The outcome data after the intervention are presented in Table 4. The data show that the performance among MPs who were briefed is higher than among MPs who did not. Among MPs who did not attend a briefing the rate of participation is 36%. Among those that did the rate is 53%. This difference is significant at the 90% level (using an exact Fisher test ( $p = 0.046$  one sided,  $p = 0.064$  two sided)).

These simple test statistics provide support to the hypothesis that in-

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<sup>8</sup>We do not have balance within all subgroups however; among non-NRM MPs low performing politicians were oversampled relative to high performing MPs.

	Not Sampled ( <i>N</i> )	Sampled ( <i>N</i> )	Difference ( <i>se</i> )	Total ( <i>N</i> )
Not Treated	37% (192)	34% (70)	-3% (7%)	36% (262)
Treated	67% (3)	52% (31)	-15% (31%)	53% (34)
Difference ( <i>se</i> )	30% (28%)	17% (10%)		17% (9%)*
Total	37% (195)	40% (101)	2% (6%)	38% (296)

Table 4: Participation: June/July 2007

formation matters for MP participation, but they leave out some important factors. First, they do not make use of the pre-intervention data available to us; second, they do not take account of the fact that NRM and non-NRM MPs were sampled with different probabilities; finally, they do not take account of the fact that those who participated were possibly a non-random sub-sample of those who were invited to attend a briefing.

While we can demonstrate that MPs who participated were similar to those invited MPs who did not in terms of the outcome measure before the intervention, we cannot rule out the possibility that there are some differences between the two groups. Table 5 examines whether those that were selected and were contactable or those that were selected and attended differ in systematic ways. Examining three prominent observables—gender, alignment and past performance—we find no evidence of systematic selection (in each case the probability that we would observe data like we do given no relation is over 50%). Nevertheless it is still possible in principle that there are differences on unobservables and that a subset of MPs that are more likely to be responsive to the treatment are also more likely to attend our briefings (or are more easily contacted).

Analyses that take account of these factors are provided in Table 6. The first column presents the results of a cross sectional examination of performance, taking account of NRM status, the second (ordered probit) regression uses as dependent variable the change in participation over the two periods; taking the value of -1, 0, or 1.

In both cases the results are consistent with the results from the Fisher

	I	II
	Contacted	Attended
Male	-0.08 [0.73]	-0.15 [1.45]
NRM	-0.03 [0.31]	-0.03 [0.34]
Past Performance	0.02 [0.19]	0.01 [0.09]
$N$	101	101
$p > \chi^2$	0.89	0.53

Table 5: Correlates of Contactability and Attendance. Coefficients are marginal effects from probit models. The dependent variables record whether selected MPs were successfully contacted by AFLI (Model I) or received treatment (Model II).  $z$ -statistics are in brackets; in neither case can we reject the null that the selection process (within the randomly selected set) was random.

test with coefficients significant at the 90% level. The slightly stronger results for the difference equation could be interpreted as a result of regression toward the mean.

The final columns provide tougher tests. Column III provides an intention-to-treat analysis. It shows the effect of being selected to participate whether or not the MP was actually invited or actually attended the briefing. With our low compliance rates, these results are strikingly different from those in columns I and II and the small estimated effects are not statistically significant. The final column provides a related analysis in which we use the sampling as an instrument for attendance; again there is no discernible effect.

In short, the data provide evidence that being informed about the scorecard exerts a substantively large effect on the likelihood of participation in Parliament. This is consistent with the accountability mechanism. Non-compliance rates are high however and this results in a failure to pass more demanding statistical tests. Which lesson should be drawn depends on whether there plausibly exist relevant unobservable selection effects *within* our set of randomly selected MPs.



	I	II	III	IV
Dependent variable:	$y_2$	$y_2 - y_1$	ITT	LATE
Model:	Probit	Oprobit	Probit	Probit
Treatment	0.15 [1.66]*	0.39 [1.78]*		0.004 [0.01]
Sampled			0.002 [0.04]	
NRM	-0.1 [1.62]	-0.14 [0.97]	-0.15 [1.89]	-0.30 [1.86]
Observations	296	296	296	296
F-test / $\chi^2$ / Wald	0.02	0.10	0.16	0.16

Table 6: Intention to Treat and LATE (IV) Analysis: Model I shows the treatment effect controlling for strata, Model II also accounts for preintervention levels. Models III and IV show the intention-to-treat analysis and the treatment effect instrumented for by the randomization; in neither of these two cases can an effect be discerned.

### 4.3 Voter reactions to information

We employ a survey experiment to address hypotheses  $H_1$  (and its converse) and  $H_3$  (and its converse). These hypotheses predict behavior on the part of voters conditional upon actions by MPs for any baseline transparency level.

The experiment was embedded within a nationwide survey of knowledge of and attitudes towards MP behavior that we ran in October 2008. In each of Uganda’s 215 UAS constituencies we randomly sampled 20 respondents in two villages (Census Enumeration Areas), each lying in a separate parish (for a total sample size of 4,300). Each respondent was randomly assigned questions either about their UAS MP or about their women’s MP, including questions about what they believed the role of an MP is and how they voted in the previous election, if applicable. Subjects were asked to provide an overall assessment of the performance of their MP, they were then asked to describe in detail the behavior of their MP on a set of dimensions. In one of the clusters a subset of subjects was then shown a copy of the 2007 scorecard and the enumerator explained the scorecard methodology and the set of scores received by the subject’s MP, expressed in percentile terms. Finally at the close of the survey all subjects were asked again to describe their overall opinion of the MP and in particular whether (a) they approved

of the MP (b) they felt the MP should be renominated by their party and (c) whether they intended to vote for their MP.

Table 7 shows how the allocation of treatment in the survey experiment relates to the larger study. By allocating treatment to a subset of voters in one cluster in each constituency we generate six different treatment conditions for voters, depending on whether they are in areas with major dissemination campaigns, whether they are in clusters where there was some targeted information dissemination (whether or not individuals were targeted) and on whether they received targeted information through the survey experiment. Finally it is worth emphasizing that in this work we are analyzing an experiment that is delivered through a survey, rather than simply including an experimental component in the survey design; that is, in this research voters are being provided with information which may *alter* their positions as distinct from designing a suite of questions in order to better *measure* preexisting positions.

Cluster has targeted dissemination?	Individual is targeted?	Constituency has workshops?	
		No	Yes
No	No	000	100
Yes	No	010	110
	Yes	011	111

Table 7: Treatment Nesting

We use the survey and survey experiment to address two questions. The first is a validity question akin to that examined in section 3.5: do the scorecard scores correspond to ex ante voter perceptions of incumbent performance? To answer this question we implicitly address a joint hypothesis: do voters care about parliamentary performance and if so do their assessments correspond to our independent measures? The second is the core question posed in Hypotheses 1 and 3: do voters condition their attitudes and political behavior on new information about the performance of MPs?

Figure 6 provides an affirmative answer to the first question. The dependent variable is the approval rating (1 - 4) of incumbent MPs and the figure shows a histogram of this approval, broken down by past support as well as scores from the scorecard (divided into quartiles). The figure shows that although past supporters in general rate MPs more highly, there is a strong trend towards higher approvals as a function of scorecard data. The scorecard data strongly predicts the extent to which voters approve of in-

cumbents, both for previous supporters and non-supporters. There is a 15% correlation for non-supporters and a 18% correlation for supporters, both of which are significant at the 99% level. We emphasize that voters surveyed here did not have access to actual scorecard information when answering this question and so this relation serves as evidence for the validity of the scorecard measure.

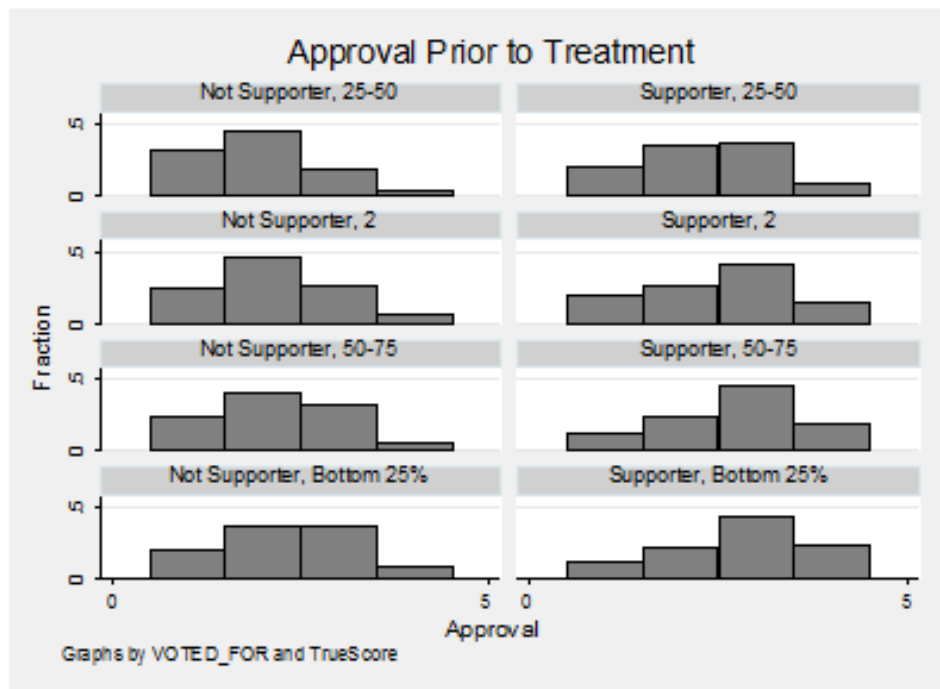


Figure 6: Approval of MP performance as a function of scorecard scores

In a regression framework, taking account of survey weights and cluster structures, we estimate that a one point improvement in our assessed score corresponds to a 0.1 point (for non-supporters) and 0.15 point (for supporters) gain in approvals, both significant at the 99% level.

To address the second question we examine the effect of exposure to the scorecard for different strata. The difficulty with assessing the effects of information on voter choice is that whether or not the news is new and whether it is good news or bad news depends on both the prior attitudes of subjects and characteristics of politicians, both of which are beyond our control. The right way to think about this problem, which is reflected in our original model, is

that there are heterogeneous treatment effects of information that depend on these features of voters and performance. For estimation we thus treat these features as strata and estimate average treatment effects within strata.

Figures 7 and 8 illustrate these average treatment effects for each combination of characteristics for two outcome variables, voter approval and intention to vote. The horizontal axis gives prior approval (prior to treatment), the vertical gives the MP's score and the interior gives the treatment effects with confidence intervals. In both cases we observe variation in the extent to which stratum level treatment effects are significant but we observe a strong trend with positive effects arising for individuals with low priors receiving positive information and negative effects for those with high priors receiving negative information; both of these are consistent with expectations.

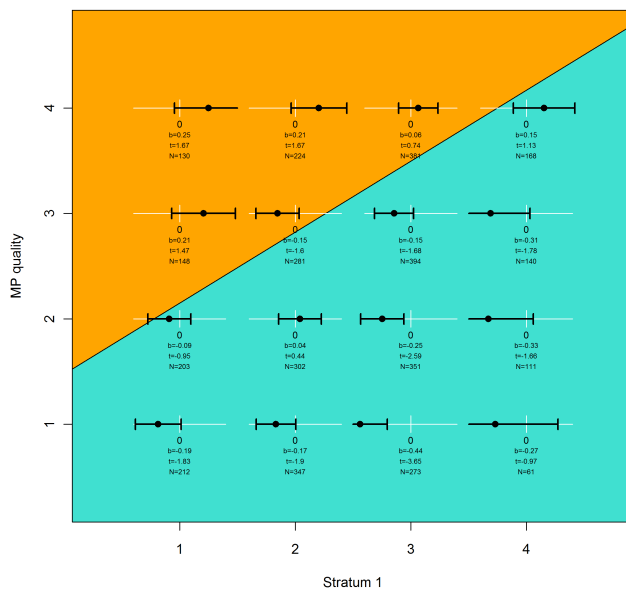


Figure 7: Treatment Effects on Approval

The color pattern in these graphs is used to differentiate zones with positive and negative treatment effects. To identify these zones we employ the following model which summarizes the stratum level treatment effects<sup>9</sup>:

<sup>9</sup>We note that the stratum level treatment effects are estimated without recourse to any model.

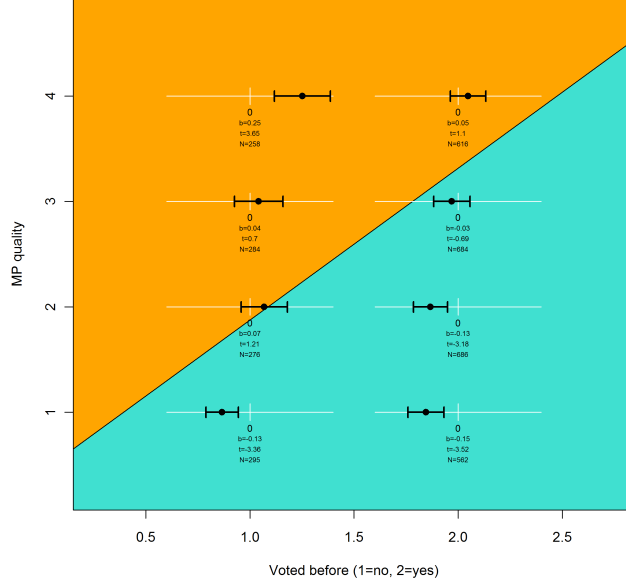


Figure 8: Treatment Effects on Voting Intentions

$$\hat{y}_{i2} - \hat{y}_{i1} = \delta \tilde{y} + \gamma(\tilde{y} - (\alpha + \beta \hat{y}_{i1})) \times T + \phi \hat{y}_{i1} + \epsilon_i$$

Here  $\tilde{y}$  is our independent measure of MP quality,  $\hat{y}_{i1}$  is the respondent's initial estimate of quality,  $\hat{y}_{i2}$  is the final estimate, and  $T$  is treatment. Turning to coefficients,  $\delta$  captures 'reflection effects'—changes in responses that result from *internal information* only;  $\gamma(\tilde{y} - (\alpha + \beta \hat{y}_{i1}))$  captures a treatment effect whose sign depends on the extent to which the information gained from treatment is good news or bad news, that is, to the extent that  $\tilde{y}$  is greater or less than  $\alpha + \beta \hat{y}_{i1}$ . Including  $\alpha$  and  $\beta$  allows for the fact that  $\tilde{y}$  and  $\hat{y}_{i0}$  may be measured with different metrics and allow for any affine tradeoff between them,  $\gamma$  captures the magnitude of the treatment effect in units of  $\tilde{y}$ ,  $\epsilon_i$  represents individual level shocks, which in practice we allow to be clustered at the level of the MPs in question,  $\phi$  captures regression to the mean effects.

A similar model may be constructed with the level  $\hat{y}_{i2}$  on the left hand side instead of a difference.

Least squares estimates of these parameters yield the results given in Ta-

Parameter	Interpretation	Y=Approval (Change)	Y=Renominate Y (Level)	Y=Vote (Change)
$\delta$	Internal learning	0.09 (0.02)	0.09 (0.04)	0.05 (0.01)
$\gamma$	Magnitude of treatment effect	0.19 (0.04)	0.29 (0.05)	0.09 (0.02)
$\alpha/\gamma$	Scaling constant (normalized)	-0.06 (0.02)	-0.15 (0.03)	-0.16 (0.04)
$\beta/\gamma$	Scaling slope (normalized)	-0.10 (0.03)	-0.39 (0.05)	-0.12 (0.04)
$\phi$	Regression to the mean	-0.30 (0.02)	0.81 (0.2)	-0.70 (0.02)
N		3726	3591	3661
R <sup>2</sup>		0.15	0.29	0.35

Table 8: Effects of treatment on changes in MP approval, desire to see renominated, and intention to vote. Standard errors in parentheses. In all cases all estimates are significant at the 99% level.

ble 8. The coefficients on  $\alpha$  and  $\beta$  determine the border between positive and negative treatment effects and are illustrated by the colored regions in figures 7 and 8. Other features are notable: there is evidence of ‘internal learning’ whereby estimates align further with our won, once people are provided basic information and time to reflect. The internal inspection effect produces a change on the order of 0.1 points (on a four point scale); in magnitude this is about half the size of the scorecard treatment effect.

These results suggest a willingness of voters to incorporate new information and use it to re-evaluate their positions towards MPs, consistent with  $H_1$  and  $H_3$ .

## 5 Conclusion

Many argue that greater transparency improves government performance and increases political accountability. If voters are not able to observe most of the actions of politicians, or to know with any certainty their underlying preferences then this provides room for politicians to act opportunistically and ignore the needs or preferences of their constituencies. Transparency, it is hoped, solves the problem by putting citizens in a better position to police their politicians. The theoretical literature provides a more nuanced picture

however: transparency can have positive or negative effects depending on what kind of information is revealed and what other sources of uncertainty affect strategic decision-making.

This paper describes the design and early results from a combination of field and survey experiments used to estimate the impact of greater transparency on the performance of members of Parliament in Uganda, the attitudes of voters, and ultimately electoral outcomes. Together with partners in the field we have developed an innovative accountability mechanism—the Uganda’s Parliamentary Scorecard—and randomized its dissemination across geographic constituencies to explore its impact. This approach allows us to avoid many of the identification issues that plague previous studies on access to information and government performance. Beyond estimating the average impact of the transparency mechanism on MP and voter behavior, our approach also provides an avenue for uncovering the mechanisms through which information affects behavior, whether through electoral or non-electoral channels.

Initial results suggest that the transparency that may be produced from a scorecard technology may play an important role in holding MPs to account. We have confirmation from separate sources that the information gathered by the scorecard maps well onto voter and MP evaluations of MP quality. While it is too soon to see discriminating evidence for the selection and accountability mechanisms, there is some evidence that politicians alter their behavior in light of exposure to scorecard information (consistent with the accountability mechanism) and strong evidence that voters, rather than being beholden to ethnic ties or patronage politics, are willing to condition support on quality of engagement in national politics (consistent with both mechanisms).

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## 6 Appendix

For the general case we let  $\sigma_{\tilde{s}}$  denote the probability with which the incumbent is returned given signal  $\tilde{s}$ , and we let  $\beta_{\eta\theta}$  denote the probability with which incumbent  $\theta$  plays  $s = 1$  upon observing  $\eta$ . In the second period incumbents play their preferred strategies, as such we focus on strategy choices in the first period only.

We now prove the following proposition which identifies the set of equilibria that can be sustained in each environment.

**Proposition 1** The complete set of equilibria are as follows:

[Environment A] If  $\tau < -\theta_L$  and  $\tau < \theta_H$  then:

- A: There is a unique equilibrium with  $\beta_{0L} = \beta_{1H} = 1$ ,  $\beta_{0H} = \beta_{1L} = 0$ ,  $\sigma_1 = 1$ ,  $\sigma_0 = 0$ .

[Environment B] If  $\tau > -\theta_L$  and  $\tau < \theta_H$  then:

- B: There are no pure strategy equilibria. In the unique family of mixed strategy equilibria:  $\beta_{0H} = 0$ ,  $\beta_{1H} = \beta_{0L} = 1$  and  $\beta_{1L} = 2 - \frac{1}{\varphi}$ . Voter strategies  $\sigma_1$ ,  $\sigma_0$  are responsive and satisfy  $\sigma_1 - \sigma_0 = -\frac{\theta_L}{\tau} \in (0, 1)$ .

[Environment C] If  $\tau < -\theta_L$  and  $\tau > \theta_H$  then:

- C(i) There is a positively responsive pure strategy equilibrium:  $\beta_{0L} = 1$ ,  $\beta_{1L} = 0$ ,  $\beta_{0H} = 1$ ,  $\beta_{1H} = 1$ ,  $\sigma_1 = 1$ ,  $\sigma_0 = 0$
- C(ii) There is a negatively responsive pure strategy equilibrium:  $\beta_{0L} = 1$ ,  $\beta_{1L} = 0$ ,  $\beta_{0H} = 0$ ,  $\beta_{1H} = 0$ ,  $\sigma_1 = 0$ ,  $\sigma_0 = 1$
- C(iii) There is a negatively responsive mixed strategy equilibrium:  $\beta_{0L} = 1$ ,  $\beta_{1L} = 0$ ,  $\beta_{0H} = 0$ ,  $\beta_{1H} = \frac{1-\varphi}{\varphi}$ . Voter strategies  $\sigma_1$ ,  $\sigma_0$  satisfy  $\sigma_0 - \sigma_1 = \frac{\theta_H}{\tau}$ .

[Environment D] If  $\tau > -\theta_L$  and  $\tau > \theta_H$  then:

- D(i) There is a class of positively responsive pooling equilibria with  $\beta_{0L} = \beta_{1H} = \beta_{1L} = \beta_{0H} = 1$ . Voter strategies  $\sigma_1$ ,  $\sigma_0$  satisfy  $\sigma_1 - \sigma_0 > \max(-\frac{\theta_L}{\tau}, \frac{\theta_H}{\tau})$ . This class of equilibria includes the pure strategy equilibrium with  $\sigma_1 = 1$  and  $\sigma_0 = 0$ .

- *D(ii)* There is a class of negatively responsive pooling equilibria with  $\beta_{0L} = \beta_{1H} = \beta_{1L} = \beta_{0H} = 0$ . Voter strategies  $\sigma_1, \sigma_0$  satisfy  $\sigma_0 - \sigma_1 \geq \max(\frac{-\theta_L}{\tau}, \frac{\theta_H}{\tau}) \in (0, 1)$ . This class of equilibria includes the pure strategy equilibrium with  $\sigma_1 = 0$  and  $\sigma_0 = 1$ .
- *D(iii)* If  $\theta_H \geq -\theta_L$  there is a class of positively responsive mixed strategy equilibria with  $\beta_{0L} = \beta_{1H} = 1, \beta_{0H} = 0, \beta_{1L} = 2 - \frac{1}{\varphi}$ . Voter strategies  $\sigma_1, \sigma_0$  satisfy  $\sigma_1 - \sigma_0 = \frac{-\theta_L}{\tau} \in (0, 1)$ .
- *D(iv)* If  $\theta_H \geq -\theta_L$  then there is a class of negatively responsive mixed strategy equilibria with:  $\beta_{0L} = 1, \beta_{1H} = \frac{1}{\varphi} - 1, \beta_{1L} = \beta_{0H} = 0$  and with  $\sigma_1$  and  $\sigma_0$  such that  $[\sigma_0 - \sigma_1] = \frac{\theta_H}{\tau} \in (0, 1)$ .

**Proof** To establish the proposition we first derive a set of relations that hold across environments.

**Incumbent decision rules** If  $\eta = 1$ , the incumbent will (weakly) prefer  $s = 1$  if and only if:

$$\theta + (1 - \varepsilon)\sigma_1 + \varepsilon\sigma_0 \geq \varepsilon\sigma_1 + (1 - \varepsilon)\sigma_0 \quad (1)$$

Therefore,  $\beta_{1\theta} > 0$  only if:

$$\theta \geq (1 - 2\varepsilon)[\sigma_0 - \sigma_1] = \tau[\sigma_0 - \sigma_1] \quad (2)$$

Similarly,  $\beta_{1\theta} < 1$  only if:

$$\theta \leq \tau[\sigma_0 - \sigma_1] \quad (3)$$

If  $\eta = 0$ , the incumbent will (weakly) prefer  $s = 0$  if and only if:

$$\theta + (1 - \varepsilon)\sigma_0 + \varepsilon\sigma_1 \geq \varepsilon\sigma_0 + (1 - \varepsilon)\sigma_1 \quad (4)$$

Therefore,  $\beta_{0\theta} < 1$  only if:

$$\theta \geq -(1 - 2\varepsilon)[\sigma_0 - \sigma_1] = -\tau[\sigma_0 - \sigma_1] \quad (5)$$

Similarly,  $\beta_{0\theta} > 0$  only if:

$$\theta \leq -\tau[\sigma_0 - \sigma_1] \quad (6)$$

These features yield the following relations between voter and incumbent strategies:

$$\begin{aligned}
\theta > -\tau[\sigma_0 - \sigma_1] &\rightarrow \beta_{0\theta} = 0 \\
\theta < -\tau[\sigma_0 - \sigma_1] &\rightarrow \beta_{0\theta} = 1 \\
\theta < \tau[\sigma_0 - \sigma_1] &\rightarrow \beta_{1\theta} = 0 \\
\theta > \tau[\sigma_0 - \sigma_1] &\rightarrow \beta_{1\theta} = 1
\end{aligned} \tag{7}$$

The incumbent will be indifferent when  $\eta = 1$  if and only if:

$$\theta = \tau[\sigma_0 - \sigma_1]. \tag{8}$$

The incumbent will be indifferent when  $\eta = 0$  if and only if:

$$\theta = -\tau[\sigma_0 - \sigma_1] \tag{9}$$

From (8) we have that only one incumbent type can be indifferent if  $\eta = 1$ , furthermore, a high type can be indifferent only if  $\sigma_0 > \sigma_1$  and a low type can be indifferent only if  $\sigma_0 < \sigma_1$ . From (9) we have that only one type of incumbent can be indifferent if  $\eta = 0$ , furthermore, a high type can be indifferent only if  $\sigma_0 < \sigma_1$  and a low type can be indifferent only if  $\sigma_0 > \sigma_1$ . Ignoring the possibility that  $\theta_H = -\theta_L$  we have that for any pair  $\sigma_0, \sigma_1$  only one type can be indifferent and then only in one state.

**Voter Action** The voters' decision depends strongly on their posteriors. The voters have a unique best response to return an incumbent if  $\tilde{q}(H|\tilde{s} = 1) > q$ , and to remove her if  $\tilde{q}(H|\tilde{s} = 1) < q$ . Mixing is only possible if  $\tilde{q}(H|\tilde{s} = 1) = q$ . Given strategies  $\{\beta_{\eta\theta}\}$ , the posterior is given by:

$$\tilde{q}(H|\tilde{s} = 1) = \frac{\Pr(\tilde{s} = 1|\theta = \theta_H, \{\beta_{\eta\theta}\})q}{\Pr(\tilde{s} = 1|\theta = \theta_H, \{\beta_{\eta\theta}\})q + \Pr(\tilde{s} = 1|\theta = \theta_L, \{\beta_{\eta\theta}\})(1 - q)}$$

Where:

$$\begin{aligned}
\Pr(\tilde{s} = 1|\theta = \theta_H, \{\beta_{\eta\theta}\}) &= \varphi [\beta_{1H}(1 - \varepsilon) + (1 - \beta_{1H})\varepsilon] \\
&\quad + (1 - \varphi) [\beta_{0H}(1 - \varepsilon) + (1 - \beta_{0H})\varepsilon] \\
\Pr(\tilde{s} = 1|\theta = \theta_L, \{\beta_{\eta\theta}\}) &= \varphi [\beta_{1L}(1 - \varepsilon) + (1 - \beta_{1L})\varepsilon] \\
&\quad + (1 - \varphi) [\beta_{0L}(1 - \varepsilon) + (1 - \beta_{0L})\varepsilon]
\end{aligned}$$

Manipulation of this condition reveals that:

$$\begin{aligned} \tilde{q}(H|\tilde{s} = 1) \geq q &\leftrightarrow \tilde{q}(H|\tilde{s} = 0) \leq q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) \geq (1 - \varphi)(\beta_{0L} - \beta_{0H}) \\ \tilde{q}(H|\tilde{s} = 1) \leq q &\leftrightarrow \tilde{q}(H|\tilde{s} = 0) \geq q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) \leq (1 - \varphi)(\beta_{0L} - \beta_{0H}) \end{aligned} \tag{10}$$

Given these general features we establish the proposition by considering an exhaustive set of cases.

We begin by ruling out equilibria with  $\sigma_1 = \sigma_0$ , we then identify all “positively responsive” equilibria and finally all “negatively responsive equilibria.”

**Claim** There are no non-responsive equilibria.

Assume contrary to the claim that  $\sigma_1 = \sigma_0$  in equilibrium.

Recall that  $\beta_{1\theta} = 0$  if  $\theta < \tau[\sigma_0 - \sigma_1] = 0$  and  $\beta_{1\theta} = 1$  if  $\theta > \tau[\sigma_0 - \sigma_1] = 0$ . We then have:  $\beta_{1L} = 0$ ,  $\beta_{1H} = 1$ . Since  $\beta_{0\theta} = 0$  if  $\theta > -\tau[\sigma_0 - \sigma_1] = 0$  and  $\beta_{0\theta} = 1$  if  $\theta < -\tau[\sigma_0 - \sigma_1] = 0$ , and therefore  $\beta_{0L} = 1$ ,  $\beta_{0H} = 0$ .

Given these strategies we have:

$$\tilde{q}(H|\tilde{s} = 1) > q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) > (1 - \varphi)(\beta_{0L} - \beta_{0H}) \leftrightarrow \varphi > \frac{1}{2}$$

However  $\varphi > \frac{1}{2}$  by assumption and so  $\tilde{q}(H|\tilde{s} = 1) > q$  which implies  $\sigma_1 = 1$  in equilibrium. Similarly  $\tilde{q}(H|\tilde{s} = 0) < q$  which requires  $\sigma_1 = 0$ .

**Claim** Environment *A*: There is a unique equilibrium

In environment *A*, from (7) we have  $\theta_L < -\tau$  implies  $\beta_{0L} = 1$  and  $\beta_{1L} = 0$  and  $\theta_H > \tau$  implies  $\beta_{0H} = 0$  and  $\beta_{1H} = 1$ .

The unique equilibrium involves pure strategies in which *H* plays good policies and *L* chooses bad policies. Voters infer that an incumbent is of a high type if and only if they observe  $\tilde{s} = 1$ .

**Claim** Environment *B*: There are no Pure Strategy Equilibria. There is a single class of Mixed Strategy Equilibria.

Consider first a positively responsive pure strategy with  $[\sigma_0 - \sigma_1] = -1$ . Then, from (7):  $\beta_{1\theta} = 0$  if  $\theta < -\tau$ ,  $\beta_{1\theta} = 1$  if  $\theta > -\tau$ ,  $\beta_{0\theta} = 0$  if  $\theta > \tau$  and  $\beta_{0\theta} = 1$  if  $\theta < \tau$ . Any such equilibrium must involve  $\beta_{0H} = 0$  and  $\beta_{1H} = \beta_{1L} = \beta_{0L} = 1$ . In this case  $\tilde{q}(H|\tilde{s} = 1) < q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) < (1 - \varphi)(\beta_{0L} - \beta_{0H}) \leftrightarrow 0 < (1 - \varphi)$ . Hence if the voter observes a  $\tilde{s} = 1$  she will infer that the incumbent is more likely to be of type *L* and remove her, contrary to the assumption.



Consider next a negatively responsive pure strategy with  $[\sigma_0 - \sigma_1] = 1$ . Then:  $\beta_{1\theta} = 0$  if  $\theta < \tau$ ,  $\beta_{1\theta} = 1$  if  $\theta > \tau$ ,  $\beta_{0\theta} = 0$  if  $\theta > -\tau$  and  $\beta_{0\theta} = 1$  if  $\theta < -\tau$  and so in equilibrium we require:  $\beta_{1H} = 1, \beta_{0H} = \beta_{1L} = \beta_{0L} = 0$ .

In this case  $\tilde{q}(H|\tilde{s} = 1) > q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) > (1 - \varphi)(\beta_{0L} - \beta_{0H}) \leftrightarrow \varphi > 0$  and so if the voter observes a  $\tilde{s} = 1$  she will infer that the incumbent is more likely to be of type  $H$  and retain him, contrary to the assumption.

Hence the only equilibria in Environment B are mixed strategy equilibria.

In a mixed strategy equilibrium the requirement for the incumbent to mix is:  $\theta = \tau[\sigma_0 - \sigma_1]$  if  $\eta = 1$  and  $\theta = -\tau[\sigma_0 - \sigma_1]$  if  $\eta = 0$ .

Condition  $\theta_H > \tau$  together with the fact that  $\sigma_0 - \sigma_1 \leq 1$  implies that  $H$  will never mix and in particular  $\beta_{0H} = 0$  and  $\beta_{1H} = 1$ . Hence any mixing must be by  $L$  only. When  $\eta = 1$ , we need  $[\sigma_1 - \sigma_0] = -\frac{\theta_L}{\tau}$  where  $0 \leq -\frac{\theta_L}{\tau} \leq 1$ . When  $\eta = 0$ , we need  $[\sigma_0 - \sigma_1] = -\frac{\theta_L}{\tau}$ , where again  $0 \leq -\frac{\theta_L}{\tau} \leq 1$ . Thus a  $\sigma_0, \sigma_1$  combination can be chosen in which  $L$  will mix under one but only one state of the world.

We examine each case. Assume first that  $\beta_{0L} = 1$ . Then:

$$\tilde{q}(H|\tilde{s} = 1) = q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) = (1 - \varphi)(\beta_{0L} - \beta_{0H}) \leftrightarrow \beta_{1L} = 2 - \frac{1}{\varphi}$$

If however  $\tilde{s} = 0$  then:

$$\tilde{q}(H|\tilde{s} = 0) = q \leftrightarrow \beta_{1L} = 2 - \frac{1}{\varphi}$$

Hence with  $\beta_{1L} = 1$ , mixing can be sustained either when  $\tilde{s} = 0$  or  $\tilde{s} = 1$  or both.

Assume next that  $\beta_{1L} = 0$ . Then:

$$\tilde{q}(H|\tilde{s} = 1) = q \leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) = (1 - \varphi)(\beta_{0L} - \beta_{0H}) \leftrightarrow \beta_{0L} = \frac{\varphi}{1 - \varphi} > 1$$

Similarly:

$$\tilde{q}(H|\tilde{s} = 0) = q \leftrightarrow \beta_{0L} = \frac{\varphi}{1 - \varphi} > 1$$

And no mixing cannot be sustained. Thus the unique family of mixed strategy equilibria involve strategies:  $\beta_{0H} = 0, \beta_{1H} = \beta_{0L} = 1$  and  $\beta_{1L} = 2 - \frac{1}{\varphi}$ . The voters have a set of feasible strategies over  $\sigma_1, \sigma_0$  such that  $[\sigma_1 - \sigma_0] = -\frac{\theta_L}{\tau}$  and hence  $\sigma_1 > \sigma_0$ .

**Claim** Environment C: Positively Responsive Equilibria Imply Pure Strategies.

Assume that in equilibrium:  $\sigma_1 > \sigma_0$ . Then from (7) we have:  $\beta_{0L} = 1$  and  $\beta_{1H} = 1$ .

From  $\theta_L < -\tau$  we have  $\theta_L < -\tau[\sigma_1 - \sigma_0] < \tau[\sigma_1 - \sigma_0]$  and so  $\beta_{1L} = 0$ . Adding these elements together we have:

$$\tilde{q}(H|\tilde{s} = 1) > q \leftrightarrow \varphi > (1 - \varphi)(1 - \beta_{0H})$$

Thus for all values of  $\beta_{0H}$  we have  $\tilde{q}(H|\tilde{s} = 1) > q$  and hence there is no mixed strategy equilibrium, and in particular,  $\sigma_1 = 1$  and  $\sigma_0 = 0$ . Using this fact we have that in the unique responsive equilibrium in environment C,  $\theta_H < \tau$  implies  $\beta_{0H} = 1$ .

**Claim** Environment D: Positively Responsive Equilibria are all of Type  $D(i)$  or  $D(iii)$

If  $\sigma_1 > \sigma_0$  then, from (7) we have :  $\beta_{0L} = 1$  and  $\beta_{1H} = 1$ . In this case:

$$\tilde{q}(H|\tilde{s} = 1) \geq q \leftrightarrow \varphi(1 - \beta_{1L}) \geq (1 - \varphi)(1 - \beta_{0H})$$

For a responsive pure strategy equilibrium we have  $\sigma_1 = 1$  and  $\sigma_0 = 0$  and so,  $\beta_{0H} = 1$  and  $\beta_{1L} = 1$ .

For mixing to be possible in a positively responsive equilibrium we require  $\varphi(1 - \beta_{1L}) = (1 - \varphi)(1 - \beta_{0H})$  and either (i)  $\beta_{1L} = \beta_{0H} = 1$  or (ii)  $(1 - \beta_{1L}) < (1 - \beta_{0H})$  and so  $\beta_{0H} < \beta_{1L}$ .

For (i) we need (for  $\beta_{1L} = 1$ ) that  $\theta_L > \tau[\sigma_0 - \sigma_1]$  and (for  $\beta_{0H} = 1$ ) that  $\theta_H < -\tau[\sigma_0 - \sigma_1]$ . For this we need:  $\sigma_1 - \sigma_0 > \max(-\frac{\theta_L}{\tau}, \frac{\theta_H}{\tau})$ . This class of equilibria ( $D(i)$ ) includes the pure strategy equilibrium with  $\sigma_1 = 1$  and  $\sigma_0 = 0$ .

For case (ii)  $\beta_{0H} < \beta_{1L}$  implies that  $\beta_{0H} < 1$  and  $\beta_{1L} > 0$ . We have established that it is not possible for both types to mix in any equilibrium, furthermore we can rule out the possibility that  $H$  mixes since in that case  $\beta_{1L} = 1$ , but then the condition  $(1 - \beta_{1L}) < (1 - \beta_{0H})$  cannot be satisfied. The only mixing then involves  $L$  mixing, and so  $\beta_{0H} = 0$  and  $\beta_{1L} = 2 - \frac{1}{\varphi}$ . To support this equilibrium we require that  $\theta_L = \tau[\sigma_0 - \sigma_1]$  and so  $[\sigma_1 - \sigma_0] = \frac{-\theta_L}{\tau}$ . In addition to support  $\beta_{0H} = 0$  we need, from 5, that  $\theta_H \geq -\tau[\sigma_0 - \sigma_1] = -\theta_L$ . This is case  $D(iii)$ .

**Claim** The only negatively responsive equilibrium are those given by  $C(ii)$ ,  $C(iii)$ ,  $D(ii)$  and  $D(iv)$ .

Assume that in equilibrium:  $\sigma_1 < \sigma_0$ .

If  $\eta = 1$ , the incumbent will prefer to play  $s = 1$  if and only if:  $\theta \geq \tau[\sigma_0 - \sigma_1]$ . With  $\sigma_1 < \sigma_0$ , the low type will always play  $s = 0$  if  $\eta = 1$ , that is:  $\beta_{1L} = 0$ .

If  $\eta = 0$ , the incumbent will prefer to play  $s = 0$  if and only if:  $\theta \geq -\tau[\sigma_0 - \sigma_1] > 0$ . With  $\sigma_1 < \sigma_0$ , the high type will always play  $s = 0$  if  $\eta = 0$ . That is:  $\beta_{0H} = 0$ .

To sustain  $\sigma_1 < \sigma_0 \leq 1$  we require  $\tilde{q}(H|\tilde{s} = 1) \leq q$ , or equivalently:

$$\begin{aligned}\tilde{q}(H|\tilde{s} = 1) \leq q &\leftrightarrow \varphi(\beta_{1H} - \beta_{1L}) \leq (1 - \varphi)(\beta_{0L} - \beta_{0H}) \\ &\leftrightarrow \varphi\beta_{1H} \leq (1 - \varphi)\beta_{0L}\end{aligned}$$

Thus (since  $\varphi > .5$ .) we require that either (i)  $\beta_{1H} = \beta_{0L} = 0$  or (ii)  $\beta_{1H} < \beta_{0L}$  and in particular that  $\beta_{0L} > 0$  and  $\beta_{1H} < 1$ .

In case (i)  $\beta_{1H} = \beta_{0L} = 0$  requires that (a)  $\theta_H \leq \tau[\sigma_0 - \sigma_1]$  and (b)  $\theta_L \geq -\tau[\sigma_0 - \sigma_1]$ . This can only be sustained in environment  $D$ . To see this note that condition (a) can never be satisfied if  $\theta_H > \tau$  and this allows us to rule out negatively responsive equilibria in environments  $A$  and  $B$ . Condition (b) can never be satisfied if  $\theta_L < -\tau$  or  $-\theta_L > \tau$  and this allows us to rule out environment  $C$ . In environment  $D$  however pooling of this form is possible if  $\sigma_0 - \sigma_1 \geq \max(\frac{-\theta_L}{\tau}, \frac{\theta_H}{\tau})$ . This corresponds to case  $D(ii)$ .

The conditions in case (ii) themselves imply that:  $\theta_H \leq \tau[\sigma_0 - \sigma_1]$  and  $\theta_L \leq -\tau[\sigma_0 - \sigma_1]$  or  $-\theta_L \geq \tau[\sigma_0 - \sigma_1]$ . The condition  $\theta_H \leq \tau[\sigma_0 - \sigma_1]$  can never be satisfied if  $\theta_H > \tau$  and this allows us to rule out negatively responsive equilibria in environments  $A$  and  $B$ . Together these imply that  $\theta_H \leq -\theta_L$  which holds in case  $C$ .

A negatively responsive pure strategy equilibrium in case (ii) thus requires  $\beta_{0L} = 1$  and  $\beta_{1H} = 0$ . No such equilibrium holds in environment  $D$  since for  $\beta_{0L} = 1$  we require  $\theta_L \leq -\tau[\sigma_0 - \sigma_1] = -\tau$  which holds only in environments  $A$  and  $C$ . We have already ruled out such an equilibrium in environment  $A$ ; such an equilibrium does obtain in environment  $C$  however and corresponds with equilibrium  $C(ii)$ .

A negatively responsive mixed strategy equilibrium in environment  $C$  can only be sustained if  $\varphi\beta_{1H} = (1 - \varphi)\beta_{0L}$ . Since mixing can only take place with respect to one strategy we need  $\beta_{0L} = 1$  and  $\beta_{1H} = \frac{1 - \varphi}{\varphi} \in (0, 1)$  (note  $\beta_{1H} = 1$  implies  $\beta_{0L} = \frac{\varphi}{1 - \varphi} > 1$ ) and  $\sigma_0 - \sigma_1 = \frac{\theta_H}{\tau}$ . This corresponds to equilibrium  $C(iii)$ . Note that to sustain  $\beta_{0L} = 1$  we need  $\theta_L < -\tau[\sigma_0 - \sigma_1] = -\theta_H$  which is true in environment  $C$ .

A negatively responsive equilibrium in environment  $D$  can only be sustained if  $\tau > -\theta_L \geq \tau[\sigma_0 - \sigma_1]$ , and hence if  $[\sigma_0 - \sigma_1] < 1$ . Equivalently, to sustain a negatively responsive equilibrium in environment  $D$ , some voter type must mix. However mixing requires that in equilibrium  $\tilde{q}(H|\tilde{s} = 1) = q$ , and so  $\frac{\varphi}{1-\varphi}\beta_{1H} = \beta_{0L}$ . Since  $\beta_{1H} < \beta_{0L}$  this condition cannot be met by  $\beta_{1H} = \beta_{0L} = 0$ , instead mixing by one or other incumbent type is required. In addition the condition cannot be met if  $\beta_{1H} = 0$  or  $\beta_{0L} = 0$ . Therefore we have  $\beta_{1H} > 0$  and  $\beta_{0L} > 0$ . Generically we have established that only one type will mix for a given voter strategy. Since  $\frac{\varphi}{1-\varphi} > 1$ , the only feasible mixed strategy equilibrium requires  $\beta_{1H} = \frac{1-\varphi}{\varphi}, \beta_{0L} = 1$ .  $H$  will be *willing* to mix iff  $\theta_H = \tau[\sigma_0 - \sigma_1]$ , that is:  $[\sigma_0 - \sigma_1] = \frac{\theta_H}{\tau}$ . And, from 5,  $L$  will be willing to play  $\beta_{0L} = 1$  only if  $\theta_L \geq -\tau[\sigma_0 - \sigma_1] = -\theta_H$ . This corresponds to case  $D(iv)$ .