

Third-Party Actors and the Success of Democracy:
How Electoral Commissions, Courts, and Observers
Shape Incentives for Election Manipulation and
Post-Election Protest

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Abstract

When and how do third-party actors – most prominently electoral commissions, courts, and observers – contribute to the integrity of the electoral process? We approach these questions by studying how third-party actors shape politicians' incentives to comply with the outcomes of elections. Third-parties are most beneficial in close elections, when the threat of a post-election confrontation alone fails to ensure self-enforcing compliance with election outcomes. Our analysis highlights that third-parties do not need to be impartial to be politically consequential, that it is third-parties with a moderate pro-incumbent bias that will be in the interest of not only the opposition but also the incumbent, and that incumbents adopt politically consequential third-party institutions when they fear that their narrow victory might not be recognized and result in a costly post-election confrontation. Extensions of our model discuss the interaction between repression, protest, and third-party institutions and clarify not only the potential but also the limits to institutional solutions to the problem of electoral compliance in new and transitioning democracies.

1 Introduction

When do third-party actors contribute to the integrity of the electoral process? How do they shape parties' and candidates' incentives to comply with the outcomes of elections? Various third-party institutions – most prominently electoral commissions, courts, and observers – are frequently credited with the capacity to deter electoral manipulation and prevent post-election disputes. According to [Diamond and Morlino \(2004, 25\)](#), for instance, “the single most important institutional guarantee of freedom and fairness . . . in elections is an independent and authoritative electoral commission.”¹ Yet why an electoral commission would have such a capacity is far from obvious. After all, most electoral commissions – and certainly all observers – have only a few de jure powers and almost never any de facto powers: They do not command police forces, armies, or mobs that could enforce their verdicts. Hence it is not clear what prevents the incumbent or the opposition from ignoring them.

We approach these questions by studying how third-party actors contribute to “self-enforcing” compliance with the outcomes of elections. Beginning with [Przeworski \(1991\)](#), a growing line of research addresses questions about the viability of democracy by contrasting elections and violence as two alternative methods for resolving political conflicts, with elections being the less wasteful of the two. According to these accounts, democracy is self-enforcing when all competing parties prefer the outcome of elections to the costly violent confrontation that would otherwise ensue.²

Yet even from this perspective, the emphasis on third-party actors as well as the frequent occurrence of electoral manipulation and post-election protests present a puzzle:

¹Similar pronouncements are often made about election observers. The Carter Center, for instance, asserts that “the presence of impartial observers deters interference or fraud. . .” See the Carter Center’s website at <http://www.cartercenter.org/peace/democracy/index.html>.

²See [Dixit, Grossman, and Gul \(2000\)](#), [Acemoglu and Robinson \(2001\)](#), [Boix \(2003\)](#), [Fearon \(2011\)](#), [Przeworski \(2011\)](#), and [Cheibub, Hays, and Savun \(2012\)](#).

An incumbent who is genuinely popular should not need to manipulate elections in order to remain in office, while an unpopular incumbent should be deterred from stealing elections by the mere threat of a violent post-election confrontation. As long as candidate popularity translates into both votes and the capacity for violence, compliance with the outcomes of elections by the incumbent as well as the opposition should be self-enforcing. Put in the jargon of contemporary political science, stolen elections and post-election conflict should be “off the equilibrium path” and third-party actors redundant.

We address these puzzles by examining the implications of an informational asymmetry that distinguishes elections in stable democracies from those under dictatorship and in new and transitioning democracies.³ In the latter cases, the incumbent typically enjoys privileged access to information about the true level of his popular support once votes have been cast, while the opposition must rely on its own estimate of its popularity or a potentially biased report by the incumbent. In the controversial 1988 Mexican presidential election, for instance, the candidate of the incumbent Institutional Revolutionary Party (PRI) Carlos Salinas could obtain information about his vote share from the Ministry of Interior and the Federal Electoral Commission, both of which were controlled by the PRI. Thus when the opposition candidate Cuauhtémoc Cárdenas claimed that the PRI stole the election, he had to cite “the slowness” with which official results were announced and “confidential information” received from inside the government – unlike Salinas who actually knew whether the PRI in fact stole the election or not.⁴

This informational asymmetry, which we refer to as the *incumbent’s information advantage*, has far-reaching implications for the viability of self-enforcing compliance with

³On authoritarian elections, see [Bunce and Wolchik \(2011\)](#), [Gandhi and Lust-Okar \(2009\)](#), [Magaloni \(2006, 2010\)](#), [Miller \(Forthcoming\)](#), [Schedler \(2012\)](#), and [Simpser \(2012\)](#).

⁴See William Branigin, “Mexican Opposition Presses Vote Claims; Leftist Asserts He Won; Rightist Calls for ‘Civil Resistance’,” *The Washington Post*, July 11, 1988, p.A-6; Ginger Thompson, “Ex-President in Mexico Casts New Light on Rigged 1988 Election,” *The New York Times*, March 9, 2004, p.A-10; and [Castañeda \(2000, 231-239\)](#)

election outcomes. We start by examining a benchmark model that helps us answer a key question: Can the threat of a violent post-election confrontation *alone* compel politicians to comply with the outcomes of elections? We find that while compliance will occur in elections overwhelmingly won by one of the candidates, the threat of post-election confrontation fails to deter manipulation when elections are close. In close elections, the incumbent’s information advantage limits the credibility of the opposition’s threat to confront the incumbent in a post-election protest: The closer the two parties’ true popular support, the more pressing the opposition’s concern that it is overestimating its popularity and will therefore suffer a costly defeat if it initiates a violent post-election confrontation – even if its information indicates that it likely won the election. Such doubts in turn create an incentive for the incumbent to claim a victory in elections that have actually been narrowly won by the opposition. This failure of self-enforcing democracy hurts primarily the opposition and is due to the incumbent’s information advantage.

We next examine how three prominent types of a third party – electoral commissions, courts, and observers – shape the incumbent’s and the opposition’s incentives to comply with the outcomes of elections.⁵ We develop a general model of each third-party. We study an electoral commission that publicly certifies an election outcome and whose pro-incumbent bias – the extent to which it favors the incumbent when certifying an election – may range from impartiality to complete subservience to the incumbent.⁶ When we examine courts and observers, we account for the fact that their judicial and monitoring capacities may be limited and that their concern about unfairly rejecting an incumbent’s

⁵On electoral commissions and courts, see [Pastor \(1999\)](#) and [Eisenstadt \(2004\)](#); on election observers, see [Hyde \(2011\)](#), and [Kelley \(2012\)](#).

⁶The key function of electoral commissions emphasized here – to administer the election and certify the result – is in many cases not performed by a “commission” but by a government authority (e.g. the Secretary of State in some U.S. states) or a judiciary authority (e.g. the Conseil Constitutionnel in France) instead of an electoral commission (see [López-Pintor 2000](#)). Similarly, election disputes are only sometimes adjudicated by a dedicated electoral court (e.g. the Electoral Tribunal in Mexico); more frequently this function is performed by the high court (e.g. the Supreme Court in the case of Ukraine in 2004).

victory may vary in intensity. After all, in many new and transitioning democracies, the make-up of courts and commissions is neither completely impartial nor entirely controlled by the incumbent, and international observers frequently encounter conflicting incentives when evaluating elections, especially if an endorsement will avoid a violent post-election confrontation (Hyde 2011; Kelley 2012).

Surprisingly, we find that third parties do not need to be perfectly independent in order to improve self-enforcing compliance with election outcomes, and crucially, that it is precisely such third parties – with a moderate pro-incumbent bias – that will be in the interest of not only the opposition but also the incumbent. In the case of electoral commissions, for instance, an endorsement of the incumbent’s victory by even a moderately biased commission conveys enough politically relevant information to discourage the opposition from resorting to a post-election confrontation that would otherwise occur. At the same time, the anticipation of a potential rejection by the commission compels the incumbent to concede elections that he would otherwise attempt to manipulate. We refer to these two mechanisms as the *information effect* and the *deterrent effect* of third parties. The intuitions behind them extend – with appropriate modifications – to election monitors and courts. Third parties thus have the capacity to reduce the likelihood of a costly post-election confrontation even if they are moderately biased in favor of the incumbent and even if their only power is to publicly certify the winner of an election.

Our models also highlight that politically consequential third parties are most valuable to both the incumbent and the opposition when they expect a *close* election. The opposition’s rationale is most apparent in our analysis of courts. When the opposition decides whether to challenge the incumbent’s victory in court or in the street, it effectively weighs the cost of litigation against the political value of the information that a court ruling might reveal. That value is greatest in close elections – when the opposition is most

concerned about overestimating its popularity. Meanwhile, incumbents favor politically consequential third parties when they fear that an election that they expect to narrowly win might be incorrectly perceived as the opposition's victory and followed by a costly post-election confrontation. As the air force representative in the Chilean junta General Fernando Matthei put it when commenting on the 1988 referendum about whether to extend Augusto Pinochet's rule for another eight years, "If the government's candidate wins everyone will say it was fraud. . . So it is more in our interest than in anyone else's to be able to show it was an absolutely fair election."⁷

Crucially, our analysis of the trade-offs entailed in the adoption of politically consequential third-parties clarifies not only the potential but also the limits to their contribution to the integrity of the electoral process. Real-world commissions, courts, and observers must be acceptable to *both* the opposition and the incumbent. What makes moderately biased third parties acceptable to the incumbent is the nature of the information that they provide: By publicly endorsing an election in favor of the incumbent or the opposition, moderately biased third parties improve the opposition's information about its popularity *without fully revealing its actual vote share*. Nonetheless, we shall see that the optimal pro-incumbent bias of third parties acceptable to the incumbent will be positive and increasing in the incumbent's estimate of the opposition's popularity. Unpopular incumbents will therefore only adopt third parties that are so biased as to be politically inconsequential. Pinochet's defeat in the 1988 Chilean referendum thus exemplifies those instances when the risk entailed in adopting politically consequential third-party institutions eventually backfired: At the time of the referendum's planning, Pinochet's regime expected a victory ([Constable and Valenzuela 1989](#), 172). It therefore considered the reinstatement of the pre-1973 multiparty system of election oversight and

⁷Alfred Stepan, "The Last Days of Pinochet?" *The New York Review of Books*, 2 June 1988, p. 34, cited in [Huntington \(1993, 185\)](#); see also [Santa-Cruz \(2005, 84\)](#).

the participation of foreign observers a safe bet.⁸ Once the vote revealed that the regime lost and the observers confirmed it, the opposition was confident that it was supported by a majority of the public and the regime had no option but to concede a defeat.

While extant research frequently attributes incumbents' success in manipulating elections to their use of repression, our arguments imply that the incumbent's information advantage favors the incumbent even when he does not employ *any* repression. By initially setting repression aside in our benchmark model, we highlight that electoral compliance is as much an informational problem as it is a problem of repression. In fact, our results imply that in elections that are close to perfectly tied, even the smallest amount of a third-party actor's pro-incumbent bias can lead to a wasteful post-election confrontation. Close elections therefore present a challenge to electoral compliance in both new and advanced democracies, as the 2006 Mexican and 2000 U.S. presidential elections illustrate. Nonetheless, we do consider repression in an extension of our benchmark model and confirm that the incumbent's ability to get away with manipulating elections is indeed increasing in his repressive capacity.

Our analysis of the role of third-party institutional actors contributes to a growing line of research that studies the informational role elections. According to these accounts, even manipulated or authoritarian elections may preclude violent political conflicts by revealing information about the strength of contending parties.⁹ By contrast, we highlight that elections in dictatorships as well as in many new and transitioning democracies typically generate an *asymmetry* of information that both disadvantages the opposition and raises

⁸Consistently with our arguments about the positive minimal pro-incumbent bias of third-party actors acceptable to the incumbent, opposition parties especially encouraged the participation in the 1988 Chilean referendum of observers with "centrist and center-right political views," see Shirley Christian, "Foreigners to Observe the Plebiscite in Chile," *The New York Times*, September 18, 1988, p. 6.

⁹See Cox (2009), Londregan and Vindigni (2008), Hyde and Marinov (2009), Kuhn (2011), Little (2012), and Egorov and Sonin (2012). The alternative approach of Gehlbach and Simpser (2011) conceives of electoral manipulation as a means of bureaucratic control.

the likelihood of wasteful post-election disputes. Our contribution is to show that third-party actors have the capacity to reduce the likelihood of such disputes even if they are biased and even if their only de facto power is to issue a costless public endorsement of an election.

Meanwhile the research on self-enforcing democracy, on which our paper builds, has most often addressed the question of compliance with election outcomes at a different level of analysis than ours. This literature has either focused on broad, structural conditions that favor the emergence and survival of democracy, most prominently the level of economic development (Lipset 1959; Przeworski et al. 2000) and inequality (Acemoglu and Robinson 2001; Boix 2003), or assumed that a majority of the population sees elections as a tool of accountability that is worth defending (Weingast 1997; Fearon 2011). Yet in many new and transitioning democracies, challenges to the integrity of elections as well as the public's willingness to oppose them fluctuate substantially across elections. Our analysis contributes to the research on self-enforcing democracy by clarifying how factors intimately tied to the electoral process – the popularity of the contending parties, presidential versus parliamentary form of government, and the presence and nature of third parties among several – shape incentives for electoral manipulation and the viability of post-election protests.

In the next section, we present our benchmark model of electoral manipulation and post-election protest and study how the incumbent's information advantage limits the opposition's ability to deter electoral manipulation. We then introduce three distinct types of third-party actors – an electoral commission, a court, and a monitor – and examine how each improves self-enforcing compliance with election outcomes and when each is acceptable to not only the opposition but also to the incumbent. An extension of our analysis considers the role of repression and pro-opposition urban bias in protest. We conclude by

discussing the implications of our analysis for the empirical study of election monitoring and post-election protests, for pre-election as opposed to election-day fraud, and for the role of third parties in presidential versus parliamentary democracies. Detailed proofs of all technical results can be found in a supplementary appendix at the authors' website.

2 The Benchmark Model

Figure 1 portrays the extensive form of our benchmark model of electoral manipulation and post-election protest. We index the incumbent and the opposition by the numbers 1 and 2, respectively. At the beginning of the game, nature determines the *opposition's strength* θ , $0 < \theta < 1$, which corresponds to the fraction of a continuum of voters who support the opposition. To keep the analysis as simple as possible at this point, we assume that θ is drawn from a uniform distribution on the open interval $(0, 1)$ and that all voters participate and vote sincerely in the election. Thus at the time of the election, a fraction $1 - \theta$ of voters votes for the *incumbent*, who wins the election if $\theta \leq 1/2$ and loses otherwise.

After the votes have been cast, the true election result and thus θ is observed by the incumbent but not the opposition.¹⁰ Instead, the opposition privately observes an imperfect signal $S_{2,N}$ of θ , where $S_{2,N}$ is the number of voters in a sample of N who support the opposition. The opposition's signal $S_{2,N}$ is thus distributed according to the *Binomial* (N, θ) density. We interpret the size of the sample N as the precision of the opposition's signal $S_{2,N}$ – the larger N , the more precise $S_{2,N}$ is as a signal of θ – and hence a metric of the information asymmetry between the incumbent and the opposition.¹¹

¹⁰This assumption captures the fact that the incumbent typically has more precise information about his popularity than the opposition once the votes have been cast – primarily because of his privileged access to electoral administration. We relax this assumption when we study the adoption of third parties in Section 3.

¹¹We do not interpret N literally as the actual upper limit on the number of voters that the opposition can survey. Rather it is a convenient way to summarize the many reasons why the opposition's information

After the election, the incumbent announces the election result r , where $r = \{1, 2\}$ corresponds to the incumbent's and opposition's victory respectively. Whenever the incumbent is supported by a majority of the electorate, $\theta \leq 1/2$, he *wins* the election and reports the election result truthfully by announcing $r = 1$. On the other hand, if the opposition is supported by a majority of the electorate, $\theta > 1/2$, then the incumbent decides whether to *step down* or *manipulate* the election. The incumbent steps down if $\theta > 1/2$ and he announces $r = 2$; the incumbent manipulates the election when $\theta > 1/2$ but he announces $r = 1$.

Finally, if the incumbent announces that the opposition lost the election, $r = 1$, the opposition decides whether to *protest* or *concede* the election result. If the opposition concedes, the incumbent remains in office. On the other hand, a protest amounts to a violent confrontation that will attempt to force the incumbent out of office. Crucially, because the opposition observes only an imperfect signal $S_{2,N}$ of θ , it does not know whether an incumbent who claims to have won the election indeed did so or whether he is attempting to manipulate it. In Figure 1, we denote this informational asymmetry by an information set that connects the two histories.

A post-election confrontation that occurs if the opposition protests is costly to both the incumbent and the opposition. Many such confrontations involve paralyzing opposition protests (e.g. Mexico 1988, Ukraine 2004, Zimbabwe 2008) and some escalate into widespread violence (e.g. Kenya 2007, Côte d'Ivoire 2010) and civil war (e.g. Costa Rica 1948, Algeria 1991), resulting in significant material and human costs to both sides. We denote this cost by $c_i > 0$, where $i = 1, 2$. Only for now, we assume that the opposition prevails in the post-election confrontation if $\theta > 1/2$ – if the opposition is indeed supported

about the true level of its popular support is severely limited in dictatorships and new democracies: voter's reluctance to reveal their true preferences, hard to predict turnout, and a volatile or undecided electorate.

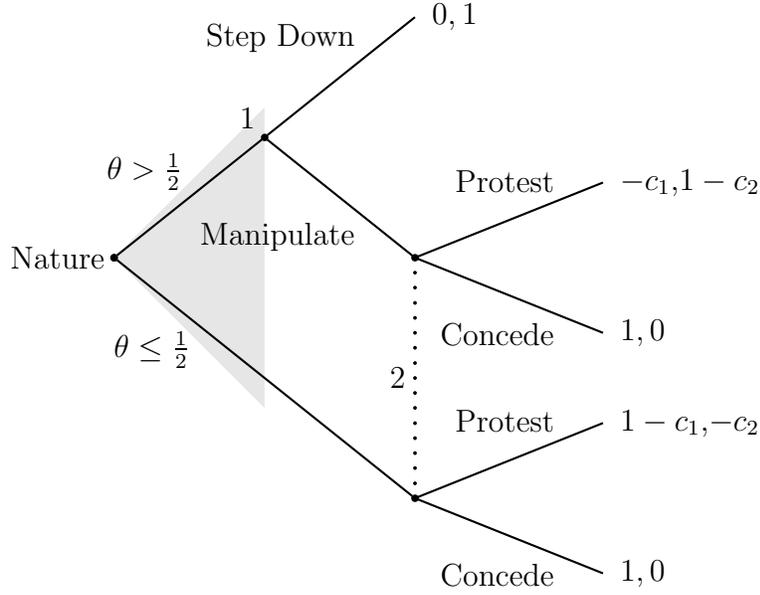


Figure 1: The benchmark model of electoral manipulation and post-election protest in the extensive form

by a majority of voters.¹² As Figure 1 indicates, we normalize the incumbent’s and the opposition’s payoffs from being in and out of office after the election and the potential post-election confrontation to 1 and 0, respectively.

This benchmark setting helps us answer a key question: Can the threat of a violent post-election confrontation alone compel politicians to comply with the outcomes of elections? We examine the perfect Bayesian equilibria of this benchmark model in threshold strategies, which we denote by $s_1(\theta)$ and $s_2(S_{2,N})$. According to these strategies, the incumbent manipulates the election if and only if the opposition’s strength θ is at most some threshold value $\hat{\theta}$,

$$s_1(\theta) = \begin{cases} \text{manipulate,} & \text{if } \theta \leq \hat{\theta}; \\ \text{step down,} & \text{if } \theta > \hat{\theta}. \end{cases}$$

¹²We relax this assumption in Section 4 when we introduce repression and discuss pro-opposition urban bias. Our results remain qualitatively identical if the outcome of the post-election confrontation is probabilistic, e.g. using a contest success function à la [Hirshleifer \(1989\)](#). We intentionally avoid such a setup because it introduces an additional layer of uncertainty, resulting in conceptually straightforward but algebraically tedious formulations.

Meanwhile, the opposition protests if and only if it observes a signal of its popularity $S_{2,N}$ that is greater than some threshold value $\hat{S}_{2,N}$,

$$s_2(S_{2,N}) = \begin{cases} \text{concede,} & \text{if } S_{2,N} \leq \hat{S}_{2,N}; \\ \text{protest,} & \text{if } S_{2,N} > \hat{S}_{2,N}. \end{cases}$$

We will refer to $\hat{\theta}$ and $\hat{S}_{2,N}$ as the *manipulation* and *protest* thresholds, respectively.

Consider first, how the opposition's incentive to protest after the incumbent declares a victory depends on its perception of its support among the electorate $S_{2,N}$ and the incumbent's manipulation threshold $\hat{\theta}$. The opposition's payoff from conceding the election is 0, while its expected payoff from protesting is

$$\Pr \left[\theta > \frac{1}{2} \mid r = 1, S_{2,N} \right] (1 - c_2) + \Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right] (-c_2) = 1 - \Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right] - c_2.$$

According to its strategy $s_2(S_{2,N})$, the threshold $\hat{S}_{2,N}$ is the largest signal of the opposition's popularity $S_{2,N}$ for which the opposition prefers to concede the election,

$$\hat{S}_{2,N} = \max \left\{ S_{2,N} : c_2 \geq 1 - \Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right] \right\}. \quad (1)$$

In indifference condition (1), $\Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right]$ is the opposition's belief that it indeed lost the election that the incumbent claims to have won. It is consistent with the incumbent's strategy according to Bayes' rule when

$$\Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right] = \frac{\Pr \left[r = 1 \mid \theta \leq \frac{1}{2}, S_{2,N} \right] \Pr \left[\theta \leq \frac{1}{2} \mid S_{2,N} \right]}{\Pr \left[r = 1 \mid \theta \leq \frac{1}{2}, S_{2,N} \right] \Pr \left[\theta \leq \frac{1}{2} \mid S_{2,N} \right] + \Pr \left[r = 1 \mid \theta > \frac{1}{2}, S_{2,N} \right] \Pr \left[\theta > \frac{1}{2} \mid S_{2,N} \right]}. \quad (2)$$

In (2), $\Pr [r = 1 \mid \theta \leq \frac{1}{2}, S_{2,N}] = 1$, since we assumed that the incumbent truthfully announces that he won the election when he actually did. On the other hand, $\Pr [r = 1 \mid \theta > \frac{1}{2}, S_{2,N}]$ is the incumbent's actual strategy – the probability with which he manipulates the election if $\theta > \frac{1}{2}$ and it therefore depends on his manipulation threshold $\hat{\theta}$,

$$\Pr \left[r = 1 \mid \theta > \frac{1}{2}, S_{2,N} \right] = \Pr \left[\frac{1}{2} < \theta \leq \hat{\theta} \mid S_{2,N} \right] = \frac{F_{\theta}(\hat{\theta} \mid S_{2,N}) - F_{\theta}(\frac{1}{2} \mid S_{2,N})}{1 - F_{\theta}(\frac{1}{2} \mid S_{2,N})}. \quad (3)$$

In (3), $F_{\theta}(\hat{\theta} \mid S_{2,N})$ and $F_{\theta}(\frac{1}{2} \mid S_{2,N})$ correspond to the cumulative distribution function of the $Beta(S_{2,N} + 1, N - S_{2,N} + 1)$ distribution evaluated at $\hat{\theta}$ and $\frac{1}{2}$, respectively. This is because the opposition's signal $S_{2,N}$ is distributed according to the $Binomial(N, \theta)$ density and, assuming a prior for θ that is uniformly distributed on the interval $(0, 1)$, the posterior distribution of θ is $Beta(S_{2,N} + 1, N - S_{2,N} + 1)$.¹³

After substituting (3) into (2), we see that the probability that the opposition indeed lost an election that the incumbent claims to have won is

$$\Pr \left[\theta \leq \frac{1}{2} \mid r = 1, S_{2,N} \right] = \frac{F_{\theta}(\frac{1}{2} \mid S_{2,N})}{F_{\theta}(\frac{1}{2} \mid S_{2,N}) + \frac{F_{\theta}(\hat{\theta} \mid S_{2,N}) - F_{\theta}(\frac{1}{2} \mid S_{2,N})}{1 - F_{\theta}(\frac{1}{2} \mid S_{2,N})} [1 - F_{\theta}(\frac{1}{2} \mid S_{2,N})]} = \frac{F_{\theta}(\frac{1}{2} \mid S_{2,N})}{F_{\theta}(\hat{\theta} \mid S_{2,N})}, \quad (4)$$

and it is decreasing in both $\hat{\theta}$ and $S_{2,N}$. That is, the opposition believes that it more likely lost an election that the incumbent claims to have won if the incumbent manipulates only close elections (low $\hat{\theta}$) and if its signal indicates that it is unpopular (low $S_{2,N}$).

Combining these results with the indifference condition in (1), we see that $\hat{S}_{2,N}$ is the

¹³The uniform prior for θ corresponds to the $Beta(1, 1)$ density. Our results extend straightforwardly to the case of a general $Beta(\alpha_0, \beta_0)$ prior, in which case the posterior distribution of θ is $Beta(S_{2,N} + \alpha_0, N - S_{2,N} + \beta_0)$.

largest signal of the opposition's popularity $S_{2,N}$ that satisfies the inequality

$$c_2 \geq 1 - \frac{F_\theta(\frac{1}{2} | S_{2,N})}{F_\theta(\hat{\theta} | S_{2,N})} \quad \text{for } 0 \leq S_{2,N} \leq N. \quad (5)$$

According to inequality (5), the opposition's protest threshold $\hat{S}_{2,N}$ balances the cost of a failed post-election confrontation (the left-hand side) against its expected benefit (the right-hand side). Since the right-hand side is increasing in both $\hat{\theta}$ and $S_{2,N}$, the threshold $\hat{S}_{2,N}$ is a step function that is weakly decreasing in $\hat{\theta}$: The greater the margin of the opposition's victory for which the incumbent manipulates the election (a high $\hat{\theta}$), the lower the threshold signal $\hat{S}_{2,N}$ above which the opposition protests.

Inequality (5) further implies that in order to study plausible equilibria, we must restrict the range of values for the opposition's cost of post-election protest c_2 . For $c_2 > 1$, the left-hand side of (5) will always be greater than the right-hand side (which is at most 1.) That is, if the opposition's cost of post-election protest is too large, then the opposition will not be willing to protest even if it were certain that it is supported by a majority of the electorate, $\theta > \frac{1}{2}$, and would therefore prevail in a post-election confrontation.¹⁴ The following assumption precludes such unreasonable behavior:

Assumption 1 (A Sure Victory is Worth Fighting For). *If θ were publicly observed, then the opposition would protest whenever $\theta > \frac{1}{2}$.*

Assumption 1 asks that $1 - c_2 > 0$ for any $\theta > \frac{1}{2}$. It is therefore satisfied as long as $c_2 < 1$.

At the same time, inequality (5) implies that if the opposition's cost of post-election protest c_2 were too low, the opposition would be willing to protest even if it believed that

¹⁴Such unreasonable behavior is a concern only for the opposition because we assumed that the incumbent always claims a victory if $\theta \leq \frac{1}{2}$. An assumption analogous to Assumption 1 would preclude this concern for the incumbent if he were given the choice to step down when $\theta \leq \frac{1}{2}$.

the incumbent most likely won fairly, $\Pr [\theta \leq \frac{1}{2} \mid r = 1, S_{2,N}] \geq \frac{1}{2}$. Observe that for a very small c_2 , the right-hand side of the inequality in (5) may be greater than its left-hand side even if $S_{2,N}$ is close to 0. That is, when the opposition is not sufficiently concerned about the cost of a post-election protest, it will be willing to protest even if it expects to be defeated, gambling on the odd chance that it will prevail. Such unreasonable behavior by the opposition is precluded by the following assumption:

Assumption 2 (No Gambling Against the Odds). *In equilibrium, the opposition concedes the election if $\Pr [\theta \leq \frac{1}{2} \mid r = 1, S_{2,N}] \geq \frac{1}{2}$.*

Assumption 2 implies that the opposition's concern about the cost of a post-election confrontation c_2 must be sufficiently high so that it prefers to concede the election whenever it expects to be defeated in a post-election confrontation.¹⁵ Assumption 2 is most demanding on c_2 when $\Pr [\theta \leq \frac{1}{2} \mid r = 1, S_{2,N}] = \frac{1}{2}$ and, following (5), asks that $c_2 \geq \frac{1}{2}$. Whenever Assumption 2 holds, $\hat{S}_{2,N} \geq \frac{N}{2}$.

Consider now how the incumbent's incentive to manipulate the election depends on the opposition's support among the electorate θ and its protest threshold $\hat{S}_{2,N}$. Recall that we are assuming that when the incumbent is supported by a majority of the electorate, $\theta \leq 1/2$, he truthfully claims a victory, $r = 1$. The incumbent's expected payoff from truthfully claiming a victory is

$$\Pr [S_{2,N} \leq \hat{S}_{2,N} \mid \theta] - \Pr [S_{2,N} > \hat{S}_{2,N} \mid \theta] (1 - c_1),$$

while his payoff from conceding the election is 0. In turn, the incumbent is willing to claim

¹⁵Assumption 2 thus sets aside protests in which the opposition knows that it does not have the strength to "march on the presidential palace." Such protests do not threaten the incumbent and are therefore politically inconsequential.

a victory when he is supported by a majority of the electorate as long as

$$c_1 \leq \frac{1}{1 - \Pr \left[S_{2,N} \leq \hat{S}_{2,N} | \theta \right]}, \quad (6)$$

or equivalently as long as $c_1 \leq 1$.¹⁶ This is the incumbent's analogue to Assumption 1.

When $\theta > \frac{1}{2}$, on the other hand, the incumbent considers manipulating the election. His expected payoff from manipulating the election is

$$\Pr \left[S_{2,N} \leq \hat{S}_{2,N} | \theta \right] - \Pr \left[S_{2,N} > \hat{S}_{2,N} | \theta \right] c_1.$$

According to his threshold strategy $s_1(\theta)$, the incumbent is indifferent between manipulating and conceding the election whenever $\theta = \hat{\theta}$. The manipulation threshold $\hat{\theta}$ therefore solves

$$\frac{c_1}{1 + c_1} = \Pr \left[S_{2,N} \leq \hat{S}_{2,N} | \hat{\theta} \right] \quad \text{for} \quad \frac{1}{2} < \hat{\theta} \leq 1. \quad (7)$$

In indifference condition (7), $\Pr \left[S_{2,N} \leq \hat{S}_{2,N} | \hat{\theta} \right]$ is the probability with which the incumbent expects the opposition to concede the election if its protest threshold is $\hat{S}_{2,N}$ and its popularity is $\hat{\theta}$. It corresponds to the cumulative distribution function of the *Binomial*($N, \hat{\theta}$) distribution evaluated at $\hat{S}_{2,N}$,

$$\sum_{S_{2,N}=0}^{\hat{S}_{2,N}} \binom{N}{S_{2,N}} \hat{\theta}^{S_{2,N}} (1 - \hat{\theta})^{N - S_{2,N}},$$

and it is decreasing in $\hat{\theta}$ and increasing in $\hat{S}_{2,N}$. The manipulation threshold $\hat{\theta}$ is therefore increasing in the opposition's protest threshold $\hat{S}_{2,N}$. Intuitively, the more sensitive the

¹⁶Condition (6) is most stringent when the right-hand-side is the smallest, or equivalently, when $\theta = 1$. This is because $\lim_{\theta \rightarrow 1} \Pr \left[S_{2,N} \leq \hat{S}_{2,N} | \theta \right] = 0$ for any $\hat{S}_{2,N} = 0, 1, \dots, N - 1$.

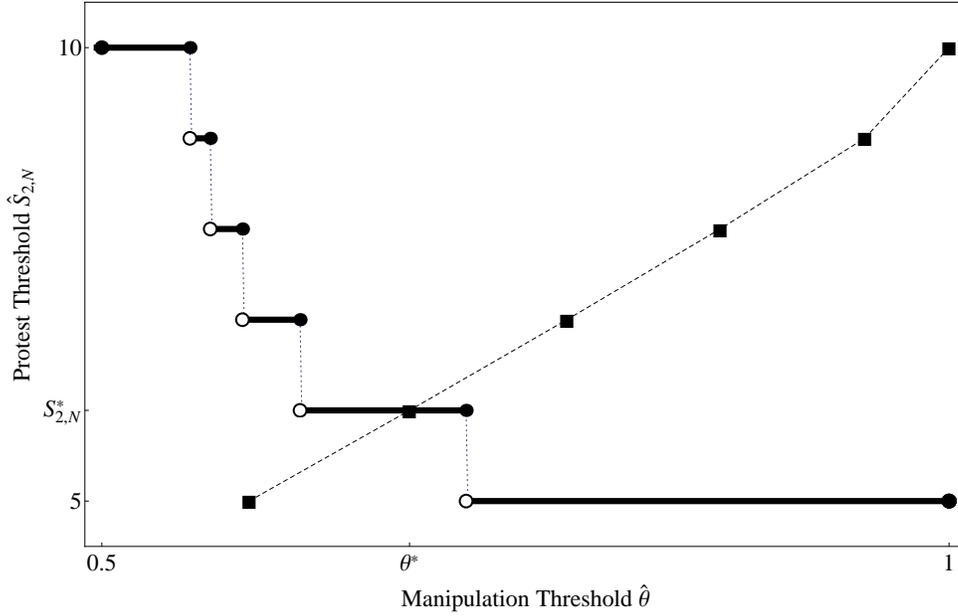


Figure 2: The unique perfect Bayesian equilibrium of the benchmark model in pure strategies. The solid line plots the opposition’s protest threshold $\hat{S}_{2,N}$; square markers connected by dashed lines plot the incumbent’s manipulation threshold $\hat{\theta}$. Equilibrium manipulation and protest thresholds are denoted by θ^* and $S_{2,N}^*$, respectively.

opposition is to the incumbent’s claim of a victory (low $\hat{S}_{2,N}$), the smaller the maximum margin of the opposition’s victory that the incumbent dares to manipulate (low $\hat{\theta}$).

In equilibrium, $\hat{\theta}$ and $\hat{S}_{2,N}$ satisfy indifference conditions (1) and (7) simultaneously. Since $\hat{S}_{2,N}$ is a weakly decreasing step function in $\hat{\theta}$ while $\hat{\theta}$ is increasing in $\hat{S}_{2,N}$, this will happen at most once. Figure 2 plots the opposition’s protest threshold $\hat{S}_{2,N}$ (solid line) and the incumbent’s manipulation threshold (square markers connected by dashed lines). The intersection of the two, labelled θ^* and $S_{2,N}^*$, represents the unique equilibrium of the benchmark model.

The plot in Figure 2 is based on parameter values $N = 10$ and $c_1 = c_2 = \frac{2}{3}$. In equilibrium, $\theta^* = 0.68$ and $S_{2,N}^* = 6$. That is, the incumbent manipulates elections that the opposition has won by up to a margin of 18 percentage points; meanwhile, the opposition

protests if it thinks it is supported by at least 7 out of 10 voters but concedes the election otherwise.

As Figure 2 illustrates, however, the indifference conditions (1) and (7) may not intersect for some parameter values. In such cases, the unique equilibrium of the benchmark model entails mixed strategies in which the opposition randomizes between between two neighboring values of the signal $S_{2,N}$. (See the appendix for a characterization.) In the rest of the paper, we restrict attention to equilibria in pure strategies. Equilibria in mixed strategies are an artefact of the discreteness of the signal $S_{2,N}$ and their substantive implications are identical to those of equilibria in pure strategies.¹⁷ Proposition 1 summarizes equilibrium behavior in the benchmark model.

Proposition 1 (Election Manipulation and Post-Election Protest). *The unique perfect Bayesian equilibrium of the benchmark model takes one of the following two forms:*

- (i) **An equilibrium in pure strategies:** *When a solution to indifference conditions (1) and (7) exists, the incumbent and opposition use threshold strategies $s_1(\theta)$ and $s_2(S_{2,N})$ with the thresholds θ^* and $S_{2,N}^*$.*
- (ii) **An equilibrium in mixed strategies:** *When a solution to the indifference conditions (1) and (7) does not exist, the unique equilibrium of the benchmark model entails mixed strategies in which the opposition randomize between between two neighboring values of the signal $S_{2,N}$*

Proof. See the appendix. □

¹⁷An alternative formulation according to which the opposition's signal is drawn from a uniform distribution on the interval $[\theta - \sigma, \theta + \sigma]$, where $\sigma < \frac{1}{4}$ has a unique equilibrium in pure strategies with a closed form solution for equilibrium thresholds; see the appendix.

2.1 Comparative Statics and Political Implications

Self-enforcing compliance with election outcomes: We may say that compliance with election outcomes is *self-enforcing* when i) the incumbent claims a victory and the opposition concedes the election if $\theta \leq \frac{1}{2}$, and ii) the incumbent steps down if $\theta > \frac{1}{2}$.

According to Proposition 1, the equilibrium probability of self-enforcing compliance with election outcomes is therefore

$$\begin{cases} \Pr [S_{2,N} \leq S_{2,N}^* | \theta] & \text{if } \theta \leq \frac{1}{2}; \\ 0 & \text{if } \frac{1}{2} < \theta \leq \theta^*; \\ 1 & \text{if } \theta > \theta^*. \end{cases} \quad (8)$$

Figure 3 plots these equilibrium probabilities using the parameter values introduced earlier. When $\theta \leq \frac{1}{2}$, compliance with election outcomes fails to be self-enforcing when the opposition incorrectly believes that it is supported by a majority of the electorate. This most likely occurs at values of θ just below $\frac{1}{2}$. Compliance with election outcomes entirely fails to be self-enforcing when the election is narrowly won by the opposition, $\frac{1}{2} < \theta \leq \theta^*$. In these scenarios, the opposition worries that it may be overoptimistic about its victory, and the incumbent exploits these doubts by manipulating the election. Finally, when $\theta > \theta^*$, compliance with election outcomes will be self-enforcing: this is when the incumbent concludes that the opposition has won by a margin so large that it would be too risky to manipulate the election.

As Figure 3 indicates, the threat of a post-election protest does create incentives for self-enforcing compliance with election outcomes, but these incentives are imperfect – they depend on the opposition’s level of popular support. The threat of post-election protest most likely fails as an instrument of self-enforcing democracy in close elections, especially those narrowly won by the opposition.

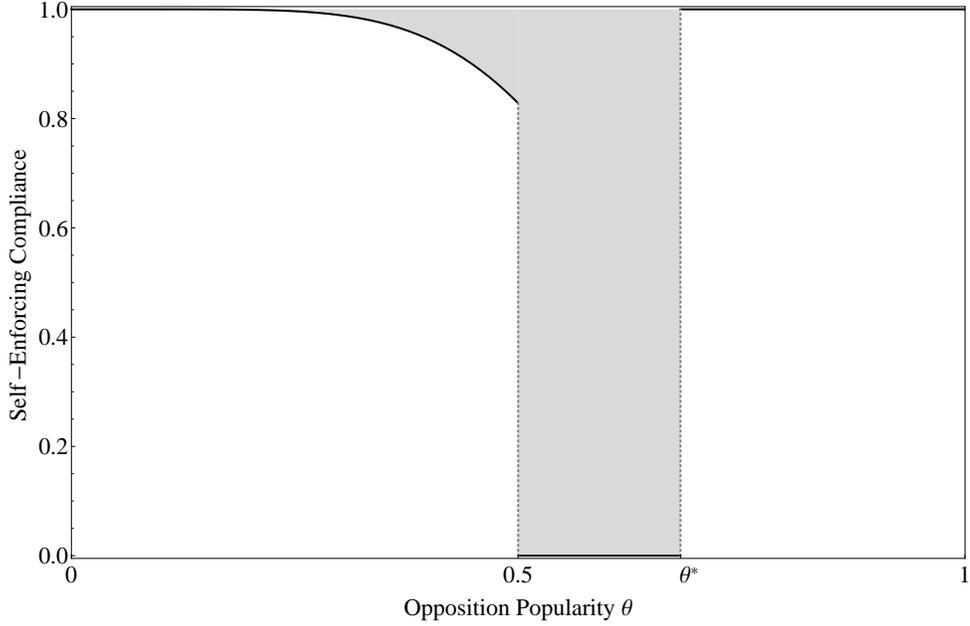


Figure 3: The effect of the opposition’s popularity θ on the equilibrium probability of self-enforcing compliance with election outcomes; the shaded area represents the failure of self-enforcing compliance with election outcomes

Wasteful post-election conflict: Post-election conflict occurs whenever the incumbent claims a victory and the opposition protests. According to Proposition 1, this occurs in equilibrium with the probability,

$$\begin{cases} 1 - \Pr [S_{2,N} \leq S_{2,N}^* | \theta] & \text{if } \theta \leq \theta^*; \\ 0 & \text{if } \theta > \theta^*. \end{cases} \quad (9)$$

Figure 4 plots the equilibrium probability of post-election conflict as a function of the opposition’s popularity θ . When $\theta \leq \frac{1}{2}$, post-election conflict is unnecessary (the shaded area). These are the scenarios when the incumbent actually won the election but the opposition incorrectly believes that it was stolen. When $\theta > \frac{1}{2}$ on the other hand, post-election protest is warranted: it reverses the outcome of an election that the incumbent attempted to manipulate.

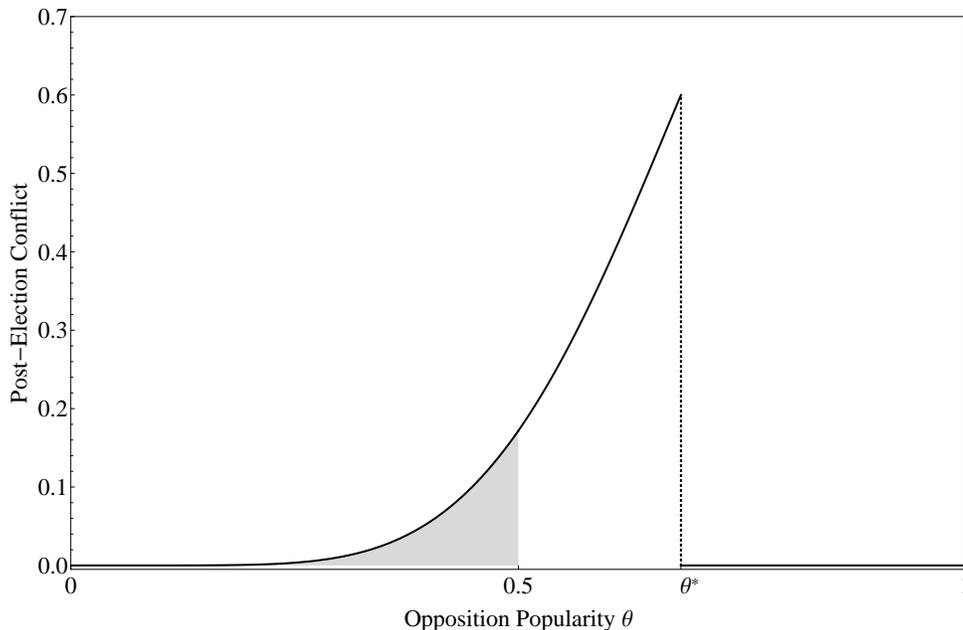


Figure 4: The effect of the opposition’s popularity θ on the equilibrium probability of post-election conflict; the shaded area represents unnecessary post-election conflict

The limited deterrent effect of post-election protest: The two results discussed above – the failure of self-enforcing compliance with election outcomes and wasteful post-election conflict – obtain because the deterrent effect of post-election protest is *limited*. In general, the incumbent manipulates elections that the opposition has narrowly won (when $\frac{1}{2} < \theta \leq \theta^*$) and the opposition concedes elections that it believes to have narrowly won (when $\frac{N}{2} < S_{2,N} \leq S_{2,N}^*$).

The limited deterrent effect of post-election protest is the consequence of two aspects of the benchmark model: the *costliness* of post-election confrontation and *the incumbent’s information advantage*. Consider first how the equilibrium manipulation and protest thresholds depend on the incumbent’s and opposition’s cost of post-election confrontation c_1 and c_2 . Indifference conditions (1) and (7) imply that θ^* is decreasing in c_1 and $S_{2,N}^*$ is weakly increasing in c_2 . Intuitively, an increase in the incumbent’s cost of post-election

protest c_1 is matched by a smaller margin of the opposition's victory that the incumbent dares to manipulate (a lower θ^* and a leftward shift in $\hat{\theta}$ in Figure 2.) Meanwhile, when the opposition is more concerned about the cost of post-election protest (an increase in c_2), it is more cautious about initiating a post-election confrontation (a weak increase in $S_{2,N}^*$ and an upward shift in $\hat{S}_{2,N}$ in Figure 2.) The costliness of post-election confrontation thus explains why both the incumbent and the opposition have an interest in avoiding a post-election confrontation – for any level of their popularity.

The incumbent's information advantage, on the other hand, explains why the limited deterrent effect of post-election protest hurts primarily the opposition. Recall that we take the size of the opposition's sample of voters N in the opposition's signal $S_{2,N}$ as a metric of the incumbent's information advantage. The smaller N is, the greater the incumbent's information advantage. In equilibrium, the opposition concedes elections that it estimates to have narrowly won (for $\frac{N}{2} < S_{2,N} \leq S_{2,N}^*$) because of doubts about its true popularity and the ensuing concern about instigating a costly post-election confrontation in which it will be defeated. These doubts are exploited by the incumbent who in turn claims a victory in precisely such narrowly lost elections (for $\frac{1}{2} < \theta \leq \theta^*$). As the incumbent's information advantage diminishes, the opposition's concern about overestimating its popularity abates and, in turn, self-enforcing compliance with election outcomes improves and the likelihood of a wasteful post-election confrontation declines.

These comparative statics and their political implications are summarized in the following proposition:

Proposition 2 (Comparative Statics). *In the unique perfect Bayesian equilibrium of the benchmark model,*

- (i) *the deterrent effect of post-election protest is limited, $\theta^* > \frac{1}{2}$ and $\hat{S}_{2,N}^* \geq \frac{N}{2}$;*

- (ii) the manipulation threshold θ^* is decreasing in c_1 while the protest threshold $S_{2,N}^*$ is weakly increasing in c_2 ;
- (iii) the manipulation threshold θ^* and the protest threshold $S_{2,N}^*$ are (weakly) decreasing in N .

Proof. See the appendix. □

3 Electoral Commissions, Courts, and Observers as Instruments of Self-Enforcing Democracy

We now extend our benchmark model and examine how three types of a third party – electoral commissions, courts, and observers – shape the incumbent’s and the opposition’s equilibrium behavior.

Consider first an electoral *commission* with a pro-incumbent *bias* β that either certifies or rejects the incumbent’s claim of a victory by issuing a costless message $r^{EC} = \{1, 2\}$. More precisely, after the incumbent claims a victory but before the opposition protests or concedes the election, the commission observes the true election result – and hence the opposition’s popularity θ – and announces

$$r^{EC} = \begin{cases} 1 & \text{if } \theta \leq \beta; \\ 2 & \text{if } \theta > \beta. \end{cases}$$

For $1/2 \leq \beta \leq 1$, the commission is impartial when $\beta = 1/2$, fully subservient to the incumbent when $\beta = 1$, and favors the incumbent for any β between these values.¹⁸

¹⁸Of course, most electoral commissions not only certify but also announce election results. The present setting is equivalent to one in which an electoral commission is willing to inflate a losing incumbent’s vote share by at most $\beta - 1/2$.

How does the commission's announcement r^{EC} affect the incumbent's and the opposition's equilibrium behavior? Whenever $\theta > \beta$, the electoral commission would reject the incumbent's claim of a victory and thus reveal to the opposition that it is supported by a majority of the electorate. Anticipating that the opposition will protest and prevail in any post-election confrontation, the incumbent has no choice but to step down. Hence for $\theta > \beta$, the presence of an electoral commission precludes the incumbent from manipulating the election.

When $\theta \leq \beta$, however, the commission's announcement $r^{EC} = 1$ affects the incumbent's and the opposition's behavior in a more subtle way, by changing equilibrium manipulation and protest thresholds θ^* and $S_{2,N}^*$. When $\theta \leq \beta$, the opposition's best response $\hat{S}_{2,N}$ is the largest signal of the opposition's popularity $S_{2,N}$ that satisfies inequality (5) for $\theta \leq \beta$. The opposition's equilibrium protest threshold $S_{2,N}^*$ is therefore bounded from below by the largest $S_{2,N}$ that satisfies (5) for $\theta = \beta$. Meanwhile, the incumbent's best response solves indifference condition (7) as long as $\hat{\theta} \leq \beta$, but it is equal to β for any solution that is greater than β . The incumbent's equilibrium manipulation threshold θ^* is thus bounded from above by β . Jointly, these changes imply that the opposition's equilibrium protest thresholds $S_{2,N}^*$ will be weakly decreasing and the incumbent's equilibrium manipulation threshold θ^* will be weakly increasing in the commission's pro-incumbent bias β .

This result is portrayed in Figure 5. We see that the presence of an electoral commission does not change the opposition's equilibrium protest threshold $S_{2,N}^*$ when the commission's pro-incumbent bias is large, $\beta > \hat{\beta}$. Such electoral commissions are too biased to be politically consequential. But for $\beta \leq \hat{\beta}$, the presence of an electoral commission results both in a decrease in the incumbent's manipulation threshold and an increase in the opposition's protest threshold, improving self-enforcing compliance with election outcomes and reducing the likelihood of post-election conflict.

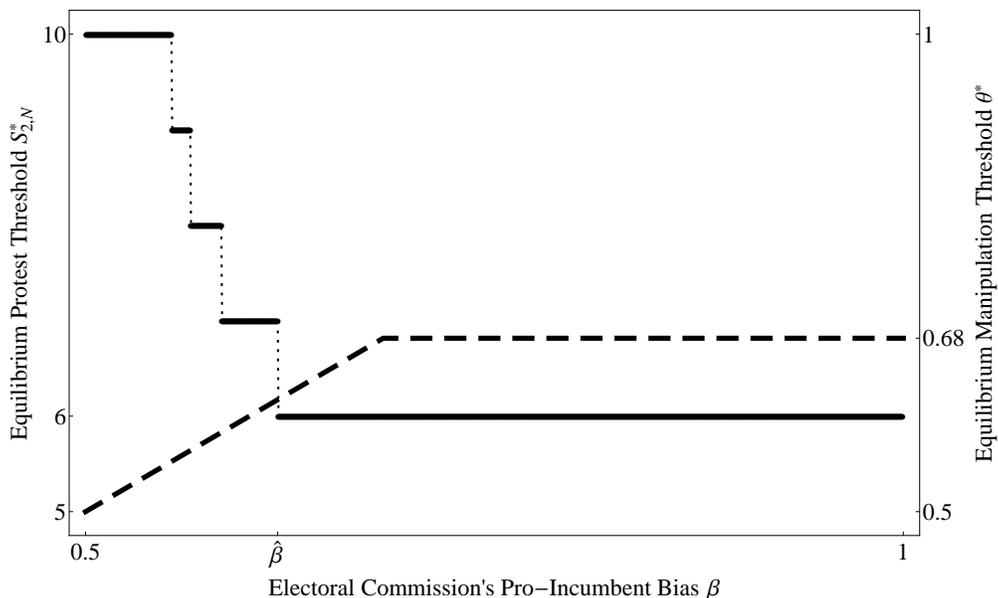


Figure 5: The effect of the electoral commission's pro-incumbent bias β on equilibrium manipulation and protest thresholds θ^* (dashed) and $S_{2,N}^*$ (solid).

The threshold $\hat{\beta}$ thus denotes the largest pro-incumbent bias β for which the presence of the electoral commission changes the opposition's equilibrium behavior. In general, $\hat{\beta} > 1/2$. That is, the commission does not need to be impartial in order to be politically consequential. Furthermore, since the thresholds θ^* and $S_{2,N}^*$ are weakly decreasing in N in a model without an electoral commission according to Proposition 2, $\hat{\beta}$ will also be weakly decreasing in N . Put differently, even electoral commissions with substantial pro-incumbent bias may affect equilibrium play when the incumbent's information advantage is large.

Figure 6 illustrates how moderately biased electoral commissions improve self-enforcing compliance with election outcomes. When using the same parameter values as earlier, $\hat{\beta} = 0.62$. Letting $\beta = 0.57$, for instance, changes θ^* from 0.68 to 0.57 and $S_{2,N}^*$ from 6 to 8. In turn, compliance with election outcomes improves and post-election conflict abates. In Figure 6, solid black lines plot the equilibrium probability of self-enforcing compliance with

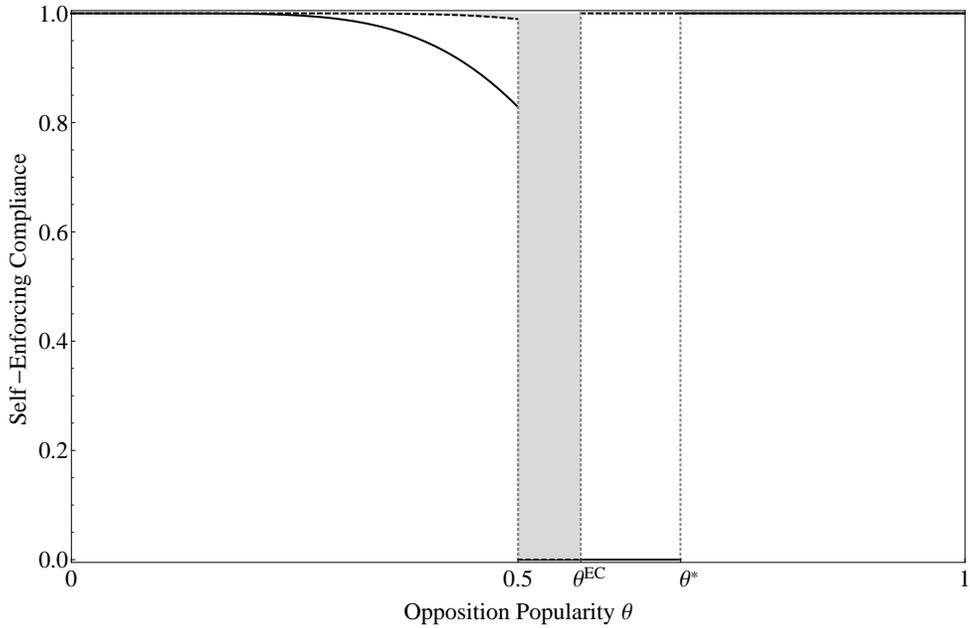


Figure 6: The improvement in self-enforcing compliance with election outcomes caused by an electoral commission with a politically consequential pro-incumbent bias

election outcomes that obtains without an electoral commission or with an electoral commission that is politically inconsequential; dashed black lines plot the equilibrium probability of self-enforcing compliance with election outcomes that obtains when an electoral commission is moderately biased but nonetheless politically consequential. Figure 6 also illustrates that only close to perfectly impartial electoral commissions will prevent a post-election confrontation in elections that are almost perfectly tied. These results are summarized in Proposition 3.

Proposition 3 (Politically Consequential Electoral Commissions). *In the unique perfect Bayesian equilibrium of the model with an electoral commission with a pro-incumbent bias β ,*

- (i) *the protest threshold $S_{2,N}^*$ is weakly decreasing in β while the manipulation threshold θ^* will be weakly increasing in β ;*

(ii) the commission need not be impartial ($\beta = 1/2$) in order to be politically consequential, $\hat{\beta} > 0$;

(iii) $\hat{\beta}$ is weakly decreasing in N ;

(iii) $\lim_{\theta \rightarrow \frac{1}{2}} \Pr(\text{post-election conflict}) > 0$ if $\beta > \frac{1}{2}$.

Proof. See the appendix. □

3.1 Politically Acceptable Electoral Commissions

The reduction in post-election conflict associated with politically consequential electoral commissions suggests that their adoption should be in the interest of not only the opposition but also the incumbent. Consider therefore the following extension of our setting: Before the election, the incumbent observes an imperfect public signal $S_{1,N}$ of the opposition's popularity θ and chooses the pro-incumbent bias β of the electoral commission. As earlier, we interpret the size of the sample N from which the *pre-election signal* $S_{1,N}$ is drawn as a metric of its precision.

Before deriving the incumbent's optimal choice of β in light of the pre-election signal $S_{1,N}$, it will be useful to compare the incumbent's expected payoff with and without a politically consequential commission for a known level of the opposition's popularity θ . In the absence of an electoral commission, the incumbent's expected payoff is

$$\begin{cases} \Pr [S_{2,N} \leq S_{2,N}^* | \theta] + (1 - c) \Pr [S_{2,N} > S_{2,N}^* | \theta] & \text{if } \theta \leq \frac{1}{2}; \\ \Pr [S_{2,N} \leq S_{2,N}^* | \theta] - c \Pr [S_{2,N} > S_{2,N}^* | \theta] & \text{if } \frac{1}{2} < \theta \leq \theta^*; \\ 0 & \text{if } \theta > \theta^*. \end{cases}$$

The incumbent's expected payoff in the presence of a politically consequential electoral commission is analogous after accounting for the fact that the incumbent steps down for

any $\theta > \beta$. The difference in the incumbent's expected payoff with and without a politically consequential electoral commission is therefore

$$\begin{cases} c \Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | \theta, \beta] > 0 & \text{if } \theta \leq \frac{1}{2}; \\ (1 - c) \Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | \theta, \beta] > 0 & \text{if } \frac{1}{2} < \theta \leq \beta; \\ - (\Pr [S_{2,N} \leq S_{2,N}^* | \theta] - c \Pr [S_{2,N} > S_{2,N}^* | \theta]) < 0 & \text{if } \beta < \theta \leq \theta^*; \\ 0 & \text{if } \theta > \theta^*. \end{cases} \quad (10)$$

In (10), $S_{2,N}^{EC}$ denotes the equilibrium protest thresholds in the presence of a politically consequential electoral commission; whenever $\beta < \hat{\beta}$, $S_{2,N}^{EC} > S_{2,N}^*$.

$\Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | \theta, \beta]$ is therefore positive and corresponds to

$$\sum_{S_{2,N}=S_{2,N}^*+1}^{S_{2,N}^{EC}} \binom{N}{S_{2,N}} \theta^{S_{2,N}} (1 - \theta)^{N-S_{2,N}} > 0.$$

We see that a politically consequential electoral commission will be in the incumbent's interest in elections that he anticipates to either win ($\theta \leq \frac{1}{2}$) or to narrowly lose ($\frac{1}{2} < \theta \leq \theta^*$). When the incumbent expects to win, he prefers an impartial electoral commission because his only concern is to avoid an unnecessary post-election confrontation ($\beta = 1/2$ maximizes $\Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | \theta, \beta]$ because $S_{2,N}^{EC}$ is weakly increasing in β). Meanwhile when $\frac{1}{2} < \theta \leq \theta^*$, adopting a politically consequential electoral commission increases the incumbent's chance of getting away with manipulating the election. The incumbent's expected payoff is increasing in β and positive as long as $\theta \leq \beta$, but it is negative for $\beta > \theta$ when the electoral commission rejects the incumbent's claim of a victory. The incumbent therefore optimally adopts a politically consequential electoral commission with the bias $\beta = \theta$. Finally, the electoral commission's bias is inconsequential when $\theta > \theta^*$, because the incumbent optimally steps down; any $\beta \in (0, 1)$ is optimal.

The incumbent's optimal choice of the commission's bias β^* in light of the pre-election signal $S_{1,N}$ therefore maximizes his expected payoff with respect to β over the first three intervals over θ in (10),

$$\beta^* = \arg \max_{\beta} \left\{ \int_0^{\frac{1}{2}} c \Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | x, \beta] f_{\theta}(x | S_{1,N}) dx \right. \\ + \int_{\frac{1}{2}}^{\beta} (1 - c) \Pr [S_{2,N}^* < S_{2,N} \leq S_{2,N}^{EC} | x, \beta] f_{\theta}(x | S_{1,N}) dx \\ \left. - \int_{\beta}^{\theta^*} (\Pr [S_{2,N} \leq S_{2,N}^* | x] - c \Pr [S_{2,N} > S_{2,N}^* | x]) f_{\theta}(x | S_{1,N}) dx \right\} \quad (11)$$

Since the bias β does not affect the incumbent's payoff when $\theta > \theta^*$, this interval is left out from (11) and the equilibrium choice of β^* will be driven by the three intervals to its left.

In (11), $f_{\theta}(x | S_{1,N})$ is the density function of the $Beta(S_{1,N} + 1, N - S_{1,N} + 1)$ distribution, which summarizes the incumbent's belief about the opposition's popularity after observing the pre-election signal $S_{1,N}$. Note that $f_{\theta}(x | S_{1,N})$ is unimodal.¹⁹ The precision of the incumbent's pre-election signal $S_{1,N}$, which is increasing in N , will therefore determine the extent to which β^* balances the incumbent's distinct concerns in the three intervals over θ . For a large N , the incumbent's pre-election belief about the opposition's popularity θ will be very precise and β^* will approximate the case when θ is perfectly observed. For a very diffuse pre-election belief on the other hand, β^* will weigh all three intervals about evenly. In general, however, because the optimal β when θ is known is weakly increasing on the interval $\theta \in (0, \theta^*]$ and bound by $1/2$ and θ^* , β^* will also be weakly increasing and bound by $1/2$ and θ^* .

Figure 7 illustrates these results. The top row of Figure 7 plots the effect of the incumbent's pre-election signal $S_{1,N}$ on the electoral commission's equilibrium

¹⁹The *Beta* density is unimodal when both of its two parameters are greater than one; its mode and mean are $\frac{S_{1,N}}{N}$ and $\frac{S_{1,N}+1}{N+2}$, respectively. See e.g. Johnson, Kotz, and Balakrishnan (1994, 219).

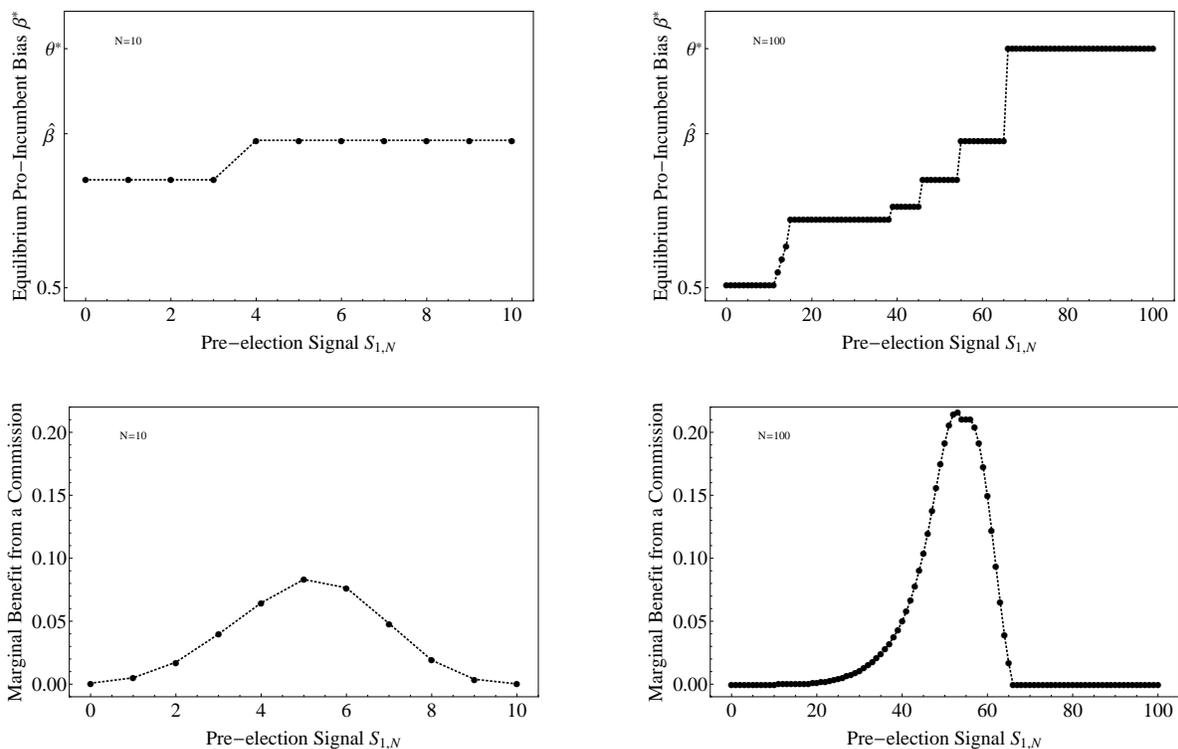


Figure 7: The effect of the incumbent's pre-election signal $S_{1,N}$ on the electoral commission's equilibrium pro-incumbent bias β^* (top) and on the incumbent's marginal benefit from an electoral commission (bottom) for $N = 10$ (left) and $N = 100$ (right)

pro-incumbent bias β^* at $N = 10$ and $N = 100$. We see that β^* is weakly increasing in $S_{1,N}$ and, for the fairly precise signal ($S_{1,N}$ at $N = 100$), it approximates the optimal choice of β when θ is perfectly observed. The bottom row of Figure 7 plots the effect of the incumbent's pre-election signal $S_{1,N}$ on the incumbent's marginal benefit from an electoral commission with equilibrium pro-incumbent bias β^* . We see that the incumbent benefits from an electoral commission most when elections are close. When the incumbent expects to win narrowly, the fairly independent commission lowers the odds that his narrow victory will be incorrectly perceived as the opposition's victory and followed by a costly post-election confrontation. When the incumbent expects to lose narrowly, an endorsement by a moderately biased commission may be credible enough to discourage the opposition

from protesting. Proposition 4 summarizes these results.

Proposition 4 (Politically Acceptable Electoral Commissions). *The equilibrium pro-incumbent bias of the electoral commission β^* is*

(i) *weakly increasing in the pre-election signal $S_{1,N}$;*

(ii) *bound by $1/2$ from below and by θ^* from above, $\beta^* \in [1/2, \theta^*]$;*

(iii) *approximates the optimal choice of β when θ is perfectly observed as N tends to infinity,*

$$\lim_{N \rightarrow \infty} \beta^* = \begin{cases} 0 & \text{if } \theta \leq \frac{1}{2}; \\ \theta & \text{if } \frac{1}{2} < \theta \leq \theta^*; \\ \theta^* & \text{if } \theta > \theta^*. \end{cases}$$

Proof. See the appendix. □

3.2 Election Observers

Consider now the political implications of a related third-party actor, an election *monitor* with the *capacity* M . Just like a commission, a monitor either endorses or rejects the incumbent's claim of a victory by issuing a costless message $r^{EM} = \{1, 2\}$. But unlike a commission, a monitor does not directly observe the unmanipulated election result θ and must rely on an imperfect signal $S_{3,M}$ of θ , where $S_{3,M}$ is the number of voters in a sample of M who actually voted for the opposition.²⁰ We interpret M as a metric of the monitor's capacity, e.g. the number of polling stations that the monitor observes.

²⁰Naturally, the primary focus of election observers is fraud. The present setting is equivalent to one in which the monitor observes how many votes out of M were counted for the incumbent when they should have been counted for the opposition. The signal $S_{3,M}$ then reflects the monitor's information about what the opposition's vote share should be after accounting for fraud.

After the incumbent claims a victory but before the opposition protests or concedes the election, the monitor observes $S_{3,M}$ and announces

$$r^{EM} = \begin{cases} 1 & \text{if } \Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}] \leq \mu; \\ 2 & \text{if } \Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}] > \mu. \end{cases}$$

Above, $\Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}]$ is the monitor's belief after observing the signal $S_{3,M}$ that the opposition is supported by a majority of the population and the threshold $\mu \in [0, 1]$ reflects the monitor's concern about "convicting the innocent": as μ tends to 1, the monitor is increasingly concerned about unfairly rejecting the incumbent's claim of a victory. We may therefore think of μ as measure of the monitor's *restraint*.²¹

Since $\Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}]$ is increasing in the monitor's signal $S_{3,M}$, there will be a threshold signal $S_{3,M}^*$ above which the monitor endorses the opposition, $r^{EM} = 2$ if $S_{3,M} > S_{3,M}^*$, but endorses the incumbent otherwise, $r^{EM} = 1$ if $S_{3,M} \leq S_{3,M}^*$. That is, $S_{3,M}^*$ corresponds to the largest signal $S_{3,M}$ for which $\Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}] \leq \mu$ and it is increasing in μ . We may therefore refer to $S_{3,M}^*$ as the monitor's *endorsement* threshold.

How does the presence of a monitor affect the incumbent's and the opposition's equilibrium behavior? Unlike a commission's rejection of the incumbent's claim of a victory, a monitor's rejection does not perfectly reveal to the opposition that it is supported by a majority of the electorate. Rather, a monitor's rejection or endorsement respectively strengthens and weakens the opposition's belief about its popularity by revealing that $\Pr [\theta > \frac{1}{2} \mid r = 1, S_{3,M}]$ is either greater or smaller than the monitor's

²¹We may endogenize μ by specifying the monitor's payoff function explicitly. The present setup is equivalent to one where the monitor's payoffs are 0, $-\mu$, and $-(1 - \mu)$ when it endorses the true winner, incorrectly rejects the incumbent's victory, and incorrectly endorses the incumbent's victory, respectively, as in Feddersen and Pesendorfer's (1998) model of juries. A politically richer model of the monitor would explicitly model the restraint μ as arising out of a trade-off between the monitor's concern for fairness and its desire to avoid a violent post-election confrontation.

restraint μ . The magnitude of this effect is increasing in the monitor's capacity M .

Election monitors with a sufficiently high capacity thus potentially improve self-enforcing compliance with election outcomes. Whether that will be the case depends on the monitor's restraint μ . When a monitor is present, the opposition optimally employs two protest thresholds, $S_{2,N}^E$ and $S_{2,N}^R$, depending on whether the monitor endorsed or rejected the incumbent's victory. Intuitively, the opposition is more reluctant to protest after the monitor endorses it, $S_{2,N}^E \geq S_{2,N}^R$. However, the size of each threshold depends on the monitor's restraint μ . An endorsement by a highly restrained monitor (μ close to 1) conveys little politically relevant information to the opposition because a highly restrained monitor almost always endorses the incumbent's victory. A rejection by a highly restrained monitor, on the other hand, is highly informative and implies an almost certain protest by the opposition. An analogous argument explains why a rejection (endorsement) by an unrestrained monitor conveys a little (lot of) information. In general, therefore, $S_{2,N}^E$ and $S_{2,N}^R$ are weakly decreasing in the monitor's restraint μ .

Figure 8 illustrates how the monitor's restraint μ affects the protest thresholds $S_{2,N}^E$ and $S_{2,N}^R$. We continue with the parameters $N = 10$ and $c_1 = c_2 = \frac{2}{3}$ and set the monitor's capacity at $M = 40$. As the monitor's restraint μ varies from 0.01 to 0.99, the monitor's endorsement threshold $S_{3,M}^*$ changes from 12 to 28, the incumbent's manipulation threshold θ^* from 0.59 to 0.69, and the opposition's protest thresholds $S_{2,N}^E$ and $S_{2,N}^R$ from 10 to 7 and from 5 to 0, respectively. Self-enforcing compliance with election outcomes improves because the monitor refines the opposition's information about its popularity. In turn, the possibility that the monitor might reject the incumbent's victory discourages him from manipulating elections, while the monitor's endorsement of the incumbent's victory deters the opposition from protesting. Proposition 5 summarizes these results.

Proposition 5 (Election Monitors). *In the unique perfect Bayesian equilibrium of the*

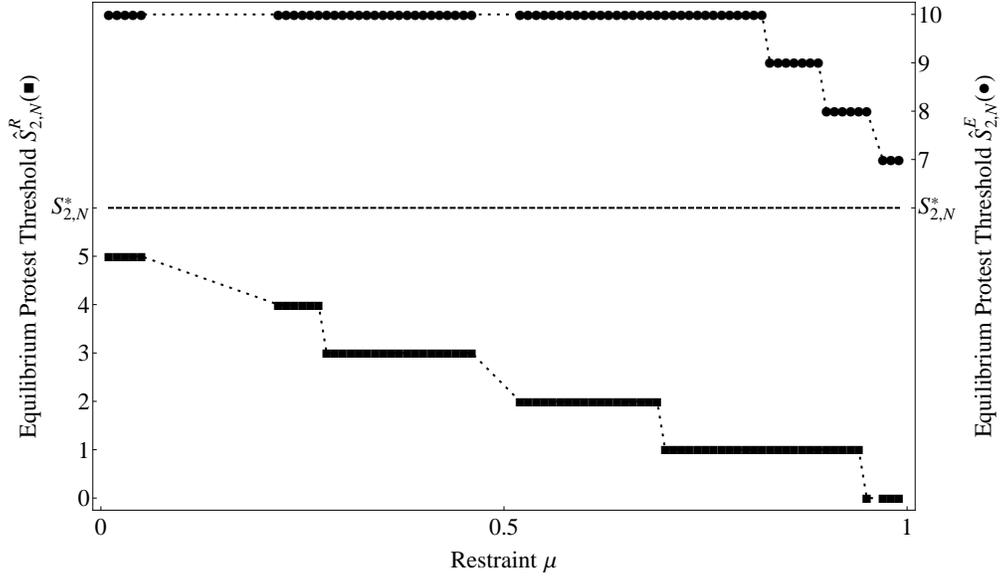


Figure 8: The effect of the monitor's restraint μ on the opposition's protest thresholds when the monitor endorses and rejects the incumbent's victory, $S_{2,N}^E$ (circles) and $S_{2,N}^R$ (squares), respectively

model with an election monitor with capacity M and restraint μ ,

- (i) the opposition employs two protest thresholds, $S_{2,N}^E$ and $S_{2,N}^R$, corresponding to the monitor's endorsement or rejection of the incumbent's victory, $S_{2,N}^E \geq S_{2,N}^R$;
- (ii) the protest thresholds $S_{2,N}^E$ and $S_{2,N}^R$ are weakly decreasing in μ ;
- (iii) the incumbent's manipulation threshold θ^* is decreasing in the monitor's capacity M , while both $S_{2,N}^E$ and $S_{2,N}^R$ are weakly increasing in M .

Proof. See the appendix. □

3.3 Electoral Courts

Finally, consider the political implications of another frequently encountered third-party, an electoral *court*. Just like a monitor, a court observes only an imperfect signal $S_{3,M}$ of θ ; we think of the capacity M as a measure of the court's resources and jurisdiction. The

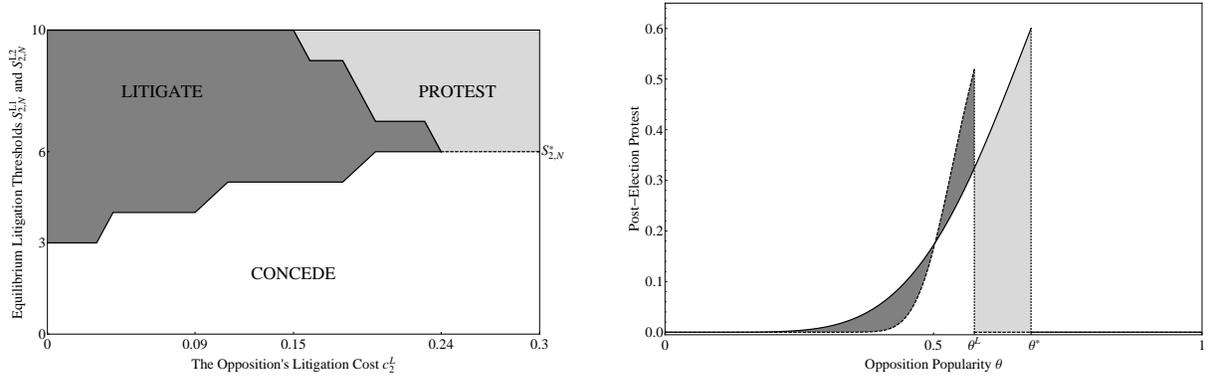


Figure 9: The effect of the opposition's litigation cost c_2^L on its equilibrium litigation thresholds $S_{2,N}^{L1}$ and $S_{2,N}^{L2}$ (left); the decline in the probability of a violent post-election confrontation due to the presence of an electoral court (right)

court also has a concern about “convicting the innocent” and therefore a degree of restraint μ , which implies that when the court eventually either endorses or rejects the incumbent's victory by issuing a costless message $r^L = \{1, 2\}$ it employs an endorsement threshold $S_{3,M}^*$.

But unlike a monitor, the court acts only if the opposition challenges the incumbent's victory in court. That is, after the incumbent claims a victory, the opposition has the option to *litigate*, in which case the court first either endorses or rejects the incumbent's victory and then the opposition either protests or concedes the election. If the opposition does not litigate, it must decide whether to protest or concede the election without any additional information that a court ruling might reveal. Hence in addition to the two protest thresholds $S_{2,N}^E$ and $S_{2,N}^R$ that the opposition uses after the court endorses or rejects the incumbent's victory, the opposition also employs two *litigation thresholds* $S_{2,N}^{L1}$ and $S_{2,N}^{L2}$ that determine the range of signals between which it will challenge the incumbent in court and a protest threshold $S_{2,N}^*$ that the opposition uses when it does not litigate. Crucially, a legal challenge is costly to both the incumbent and the opposition, but we assume that such litigation costs are smaller than the cost of a violent post-election confrontation, $0 < c_i^L < c_i$ for $i = 1, 2$.

Key insights from our analysis of monitors extend to the case of courts with one key difference: When the opposition decides whether to challenge the incumbent's victory in court, it is in effect weighing litigation costs against the political value of the additional information that a court ruling might reveal. The left panel in Figure 9 illustrates how the opposition's litigation cost c_2^L affects equilibrium behavior. As in earlier examples, we let $N = 10$, $c_1 = c_2 = \frac{2}{3}$, $M = 40$, and set the incumbent's litigation cost to $c_1^L = \frac{1}{5}$. As the opposition's litigation cost c_2^L varies from 0 to 0.23, its litigation thresholds $S_{2,N}^{L1}$ and $S_{2,N}^{L2}$ change from 3 and 10 to 6 and 7, respectively. For very low litigation costs ($0 < c_2^L \leq 0.09$), the opposition litigates even if it expects the court to endorse the incumbent's victory; the small chance that the opposite might occur is worth the low cost of litigation. For medium cost levels ($0.1 < c_2^L \leq 0.24$), the opposition litigates only if it expects the court to reject the incumbent's victory. But as the cost of litigation grows past $c_2^L = 0.15$, the opposition increasingly bypasses the courts even when it expects the court to reject the incumbent's victory. In this cost range, the opposition's own information indicates that it will prevail in a post-election confrontation strongly enough that the additional information that a court ruling might reveal is not worth its cost. That is, when the cost of litigation are significant, the opposition only litigates close elections; it outright concedes when it expects to clearly lose a post-election confrontation and it outright protests when it expects to win. Finally, when the litigation costs are high ($c_2^L > 0.24$), the additional information that a court ruling might reveal is not worth its cost. In these scenarios, the opposition behaves just as it would if there were no court.

Electoral courts thus potentially improve self-enforcing compliance with the outcomes of elections but their capacity to do so depends on how accessible they are to the opposition as well as the political value of the information revealed by their rulings. As in the case of commissions and monitors, courts are most valuable when elections are close.

The right panel in Figure 9 compares the equilibrium probability of a violent post-election confrontation with and without a court (dashed and solid lines, respectively.) We see that the option to litigate has two distinct consequences. First, it deters the incumbent from manipulating some elections as the incumbent’s manipulation threshold drops from $\theta^* = 0.68$ to $\theta^L = 0.58$. The decline in the probability of a post-election confrontation associated with such deterrent effect corresponds to the light-gray shaded area in Figure 9. The second consequence of courts is to encourage the opposition to litigate elections that the incumbent claims to have won. Because the court will most likely endorse obvious incumbent victories and thus discourage the opposition from protesting, this information effect narrows the zone of most likely post-election confrontation toward close opposition victories. Proposition 6 summarizes these results.

Proposition 6 (Electoral Courts). *In the unique perfect Bayesian equilibrium of the model with an electoral court with capacity M and restraint μ ,*

- (i) θ^* is decreasing in c_1^L and increasing in c_2^L ;
- (ii) the litigation thresholds $S_{2,N}^{L1}$ and $S_{2,N}^{L2}$ are respectively weakly increasing and decreasing in c_2^L ;
- (iii) there is a threshold litigation cost \bar{c}_2^L and restraint $\bar{\mu}$ above which the opposition does not litigate.

Proof. See the appendix. □

4 Repression and Pro-Opposition Urban Bias

Consider now the implications of two factors that we have ignored so far: the incumbent’s capacity for repression and pro-opposition urban bias. Rather than assuming that the

candidate supported by the majority prevails in a post-election confrontation, suppose that the opposition succeeds if and only if it is supported by more than a $\frac{1+\rho-\nu}{2}$ fraction of the electorate. By letting $0 \leq \rho < 1$ and $0 \leq \nu < 1$, we account for two political concerns.

Whenever $\rho > 0$, the incumbent's *repressive capacity* raises the bar for the success of opposition protest from a simple majority to a supermajority. Meanwhile, the cases when $\nu > 0$ lower the bar for the success of opposition protest and capture the tendency for the opposition to be concentrated in major cities, which are also the most likely sites of a decisive post-election confrontation.²² We refer to the scenarios when $\nu > 0$ as pro-opposition *urban bias*. Until now, we effectively assumed that $\rho = 0$ and $\nu = 0$.

In this extended setting, the opposition prefers to concede the election unless it is supported by more than a $\frac{1+\rho-\nu}{2}$ fraction of the electorate, $\theta > \frac{1+\rho-\nu}{2}$. Indifference conditions (1) and (7) therefore become

$$\begin{aligned} c_2 &\geq 1 - \frac{F_\theta\left(\frac{1+\rho-\nu}{2} \mid S_{2,N}\right)}{F_\theta(\hat{\theta} \mid S_{2,N})} \quad \text{for } 0 \leq S_{2,N} \leq N, \quad \text{and} \\ \frac{c_1}{1+c_1} &= \Pr\left[S_{2,N} \leq \hat{S}_{2,N} \mid \theta\right] \quad \text{for } \frac{1+\rho-\nu}{2} \leq \theta \leq 1. \end{aligned}$$

Recall that the probability $F_\theta\left(\frac{1+\rho-\nu}{2} \mid S_{2,N}\right)$ corresponds to the cumulative distribution function of the $Beta(S_{2,N} + 1, N - S_{2,N} + 1)$ density evaluated at $\frac{1+\rho-\nu}{2}$ and is therefore (by the definition of a CDF) increasing in ρ and decreasing in ν . In turn, the thresholds $S_{2,N}^*$ and θ^* are also increasing in ρ and decreasing in ν , which is also the case for any corresponding thresholds in the models with a third party. Hence when the incumbent's repressive capacity is large, the incumbent manipulates and the opposition concedes the election at greater levels of the opposition's popularity; the opposite holds in the case of a significant urban bias. Proposition 7 summarizes this result.

²²In the controversial 1988 Mexican presidential election that we discussed in the introduction, for instance, the opposition won all districts in Mexico City (Castañeda 2000, 231-239).

Proposition 7 (Repression and Pro-Opposition Urban Bias). *In any of the unique perfect Bayesian equilibria in Sections 2 and 3, the incumbent’s manipulation threshold θ^* and any of the opposition’s protest thresholds*

(i) are (weakly) increasing in the incumbent’s repressive capacity ρ ;

(ii) are (weakly) decreasing in urban bias ν .

Proof. See the appendix. □

5 Concluding Remarks

The predominantly empirical research on electoral malpractice increasingly studies the multitude of instruments that incumbents employ in order to retain power. The “menu of manipulation,” to borrow Schedler’s (2002) expression, ranges from voter intimidation to media control to ballot fraud.²³ Our analysis contributes to this research by shifting focus from the particular instruments of manipulation to the incumbent’s strategic decision to manipulate an election in the first place. After all, the choice of a particular instrument or level of manipulation is most often only the operational implementation of such a top-level political decision.

Our approach highlights that one frequently evoked deterrent to manipulation, the threat of a post-election opposition protest, alone fails to ensure compliance with the outcomes of elections. Especially when elections are close, wasteful post-election conflict occurs because the opposition either rejects an election that it actually lost or, more likely, because the incumbent exploits the opposition’s doubts about its popularity and claims a victory in an election that he knows should belong to the opposition. Electoral commissions, courts, and monitors – whose only de facto power may be to endorse the

²³See Schedler (2012), Lehoucq (2003), Magaloni (2010), Birch (2011) and Simpser (2012).

winner of an election – nonetheless have the capacity to prevent wasteful post-election conflicts. Their verdicts reveal politically valuable information about the popularity of the contending parties even when they face limits on their political independence, judicial authority, or monitoring capacity. In fact, it is precisely such imperfect third parties that will be at the same time politically consequential and in the interest of not only the opposition but also the incumbent.

One extension of these arguments suggests that a new democracy’s form of government – presidential or parliamentary – may account for significant differences in incentives for electoral manipulation. Throughout our analysis, we have treated the election outcome as an indivisible prize. A natural extension would consider whether a compromise in the form of power-sharing or policy concessions might avoid the wasteful post-election conflicts that occur in our models. The relevance of such compromise solutions however crucially depends on their credibility.²⁴ A post-election compromise might be credible in parliamentary systems where the legislative majority holds an effective veto over the government’s survival, but its credibility is questionable in presidential systems where the executive and the legislature are independent from each other.²⁵ Elections in presidential systems may therefore more likely turn into all-or-nothing contests and thus amplify both the incumbent’s incentive to manipulate and the opposition’s reluctance to concede a defeat. Third-parties should therefore play a particularly vital role in elections in new and transitioning presidential democracies.

Another extension of our analysis might consider the differences between pre-election and election-day manipulation. The present formalization of manipulation best

²⁴Gandhi (2011) examines a related concern, the credibility of pre-election coalitions among opposition candidates. In a seminal article, Fearon (1995) identifies issue indivisibilities and credibility problems as key obstacles to negotiated solutions to international crises.

²⁵See Cheibub (2007) for a comprehensive discussion of the differences between presidential and parliamentary democracies.

corresponds to the kind of manipulation that typically occurs on election day or soon after, as exemplified by the 1988 Mexican election that we evoke in the introduction. We nonetheless consider it a useful analytical starting point. In its most blatant form, election-day manipulation amounts to winning the counting as opposed to winning the voting, to paraphrase Anastasio Somosa’s oft-cited brag.²⁶ At the same time, election-day manipulation is the “manipulation of last resort” – available to the incumbent even when other forms have failed to secure a victory. Our analysis of the role of protest and third parties in deterring this last-resort, blatant form of manipulation thus represents a useful analytical starting point toward a better understanding of the more subtle forms of pre-election manipulation.

Finally, our analysis implies that in order to draw valid conclusions, empirical research evaluating the deterrent effect of post-election protests or election monitoring needs to pay closer attention to strategic selection effects. Election observers are meaningfully consequential only when their presumed deterrent effect plausibly turns an undeserved victory for the incumbent into one for the opposition. Yet our models suggest that it is in precisely such circumstances that incumbents will avoid allowing for politically consequential third parties.²⁷ To our knowledge, the literature on election monitoring has yet to evaluate its deterrent effect when it seriously threatens the incumbent’s hold on power. An association between the presence of monitors and a polling station-level decline in the incumbent’s vote share alone is therefore at best a weak test of the deterrent effect of election monitoring.

When it comes to post-election protests, on the other hand, the present model

²⁶In response to an opponent accusing him of rigging an election, Somosa is reported to have said “Yes indeed, you won the elections but I won the count.” See Gott, Richard, “The Spanish left settles down for the long haul,” *The Guardian*, June 17, 1977, p. 13.

²⁷Consistently with our predictions, [Ichino and Schüdeln \(2012\)](#) and [Simpser and Donno \(2012\)](#) find evidence of displacement and substitution in response to election monitoring.

highlights that the threat of a violent post-election confrontation is a plausible deterrent to electoral manipulation only when manipulation amounts to the stealing of an election that would have otherwise been won by the opposition. We thus confirm Tucker's (2007) conjecture that it is such "major" electoral fraud that will most likely spark a violent post-election confrontation. Our analysis explains why many elections where opposition candidates and observers allege irregularities by otherwise highly popular incumbents are followed by only minor and inconsequential protests, as in the case of Vladimir Putin's 2004 re-election to the Russian presidency.

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