Abstract

Popular protest is one of the few checks that citizens and opposition parties have against election fraud in repressive regimes, but why are some fraudulent elections met with popular protest while others are not? Using data from elections in 108 countries from 1980 to 2004, we show that the regime’s choice of election manipulation tactics affects the likelihood of post-election protest. Leaders signal their strength and resources by manipulating elections, but some manipulation tactics send stronger signals than others. We find that opposition groups are less likely to protest when they observe extra-legal voter mobilization (a costly manipulation tactic) than when less-costly administrative fraud is employed. When both are employed, extra-legal mobilization reduces the risk of protest relative to administrative fraud alone. This study demonstrates the importance of accounting for the choice of electoral manipulation tactics when analyzing post-election protests. It also contributes to the literature on election manipulation by analyzing variation in the degree of regime strength communicated by different manipulation tactics.

1 Introduction

Beginning in late November 2003, tens of thousands of protesters took to the central square in Kiev, Ukraine to protest the victory of Prime Minister Viktor Yanukovych in an allegedly fraudulent presidential election. Fifteen years earlier in Mexico, as many as 250,000 people marched on the capital’s main square to protest the results of a presidential election in which the challenger, Cuauhtemoc Cardenas, had appeared on track to win until officials declared victory for the ruling party after a suspicious computer crash brought the count to a halt. The Orange Revolution in Ukraine, one of the most prominent recent examples of major post-election protest, led to the annulment of the original results and victory for the opposition challenger in a re-vote. The protests in Mexico bolstered opposition parties that would eventually unseat the ruling party.

However, such dramatic examples are rare. Most manipulated elections in hybrid or authoritarian regimes pass by with little, if any, post-election protest. This paper investigates whether the mix of election-manipulation tactics that governments employ affects the probability of protests challenging the results. In particular, we argue that manipulation tactics that involve directly influencing voters (such as vote-buying)
send signals about the organizational and financial strength of the incumbents—thus a strong extra-legal voter mobilization effort can deter protest by making it look less likely to succeed. By contrast, administrative fraud of the kind seen in Mexico in 1988 and in Western Ukraine in 2003 communicates weakness, making protest more likely.

We consider two broad categories of electoral manipulation: administrative fraud and extra-legal voter mobilization. Administrative fraud is committed by election officials and includes tactics such as vote padding, ballot stuffing, and tampering with ballots. Administrative fraud does not involve voters, or the use of agents who interact with voters, to ensure they vote for a particular candidate. In contrast, extra-legal voter mobilization involves direct contact with voters in the form of vote-buying, patronage, multiple-voting, and similar tactics; it is not committed by election officials. These tactics require organizational networks that link patrons with voters, mobilize and monitor clients, and distribute resources. While mobilization and administrative fraud are our theoretical focus in this article, we control for other means by which authoritarian leaders can control elections, including the fairness of the pre-election political environment, the level of repression, and the degree of voter intimidation.

The two types of manipulation that we emphasize require different investments of time and money. Administrative manipulation is less expensive and easier for leaders to control than extra-legal voter mobilization. The latter relies on material rewards or workplace pressure, both of which require the construction and monitoring of networks of voters and agents. We argue that extra-legal voter mobilization is a costlier signal than administrative manipulation; as a result, extra-legal voter mobilization sends a stronger signal of strength and resources than administrative manipulation. We therefore predict that opposition parties and activists are more likely to protest elections when leaders rely on administrative manipulation. We test our claim with a statistical matching technique that allows us to approximate the benefits of random assignment to treatment and control groups for observational data.

This article contributes to a growing literature on election manipulation in two main ways. First, most existing research focuses either on the role of authoritarian leaders in committing election fraud (Lehoucq, 2003; Howard and Roessler, 2006; Ziblatt, 2009), or on the capacity of opposition groups to mobilize (Magaloni, 2010; Bunce and Wolchik, 2010); we help unify these two viewpoints by considering the importance of how the opposition evaluates the strength of the incumbent. Second, this project advances our understanding of electoral manipulation by moving from a focus on the level of manipulation generally to an analysis of the costs and benefits of particular types of manipulation.

The article proceeds as follows. In the next section, we situate our research question within the literature
on authoritarian institutional manipulation, electoral fraud, collective action, and protest. Then, we develop a theory of electoral manipulation tactics and post-electoral protest. Next, we test the theory using a series of empirical tests to assess the impact of administrative manipulation and extra-legal voter mobilization on post-electoral protest. We conclude with a summary and discuss the implications of our findings.

2 Elections, Electoral Manipulation, and Protest

2.1 Authoritarian Institutional Manipulation

Many authoritarian leaders confronted with the global spread of democracy brought in by the third wave of democratization in the late 1990s responded by giving into demands for democratization by legalizing opposition parties and allowing competitive elections. They did so, however, while manipulating the process in order to maintain their hold on power (Howard and Roessler, 2006). Hybrid regimes, which combine democratic and authoritarian elements (Diamond, 2002), are deliberately pseudodemocratic; they have formally democratic political institutions to mask and legitimate authoritarian domination (Diamond, Linz and Lipset, 1989). While they exist in a “gray zone” (Carothers, 2002) or “foggy zone” (Schedler, 2002) between democracy and dictatorship, they are likely not in transition from one type to another (Carothers, 2002). Scholars of hybrid regimes have classified them as “competitive authoritarian” (Levitsky and Way, 2002), “electoral authoritarian” (Diamond, 2002; Schedler, 2002), and “semi-authoritarian” (Ottaway, 2003) regimes.

The manipulation of elections is one of several ways in which the leaders of hybrid regimes use manipulative tools to inhibit institutional autonomy and assert their dominance over formally representative institutions (Schedler, 2010). Authoritarian leaders often deploy strategies to control the legislature, judiciary, media, civil society, and elections and use manipulative tools to minimize the risk of losing elections. Schedler (2010) identifies different categories of manipulative tools for elections. Leaders can disempower elected officials by removing particular policy areas from their portfolio or giving veto powers to unelected actors. Rulers can also limit the choices available to voters with market restrictions: excluding opposition parties, denying the opposition fair access to public spaces, and disenfranchising citizens. Leaders can use vote buying or threats of violence to prevent voters from expressing their true preferences at the ballot box. Finally, rulers can manipulate elections by distorting results through discriminatory practices or institutions.

As authoritarian elections have become increasingly common, researchers have devoted considerable attention to understanding the roles that elections and political parties perform in settings where those
institutions do not directly determine the fates of incumbents. Authoritarian elections have been shown to benefit rulers in a variety of ways, including co-optation of the opposition (Gandhi and Przeworski, 2007, 2006), information-gathering, and managing elite disagreements (Magaloni, 2006; Brownlee, 2007; Lust-Okar, 2006; Blaydes, 2011; Reuter and Robertson, 2015). Yet, these institutions also allow for the possibility of pro-opposition contestation. Authoritarian leaders face a dilemma: they set up liberal-democratic institutions to help prop up their regimes and ensure their survival, but these same institutions can become sites of resistance: “[U]nless political institutions are granted at least a minimal range of power and autonomy, they cannot make an independent contribution to authoritarian governance and survival. But as soon as political institutions are granted some power and autonomy, they can turn against the dictator. They open up arenas of struggle and sites of resistance…where multiple actors test in multiple ways the limits of the permissible” (Schedler, 2010, 77). Tactics of election manipulation are part of a larger toolkit of institutional manipulation strategies (Birch, 2011); authoritarian leaders choose strategies from this toolkit to ensure that nominally democratic institutions - including multiparty elections - remain under their control (Levitsky and Way, 2010).

2.2 Electoral Fraud, Collective Action, and Protest

While elections and other representative institutions can serve as sites for opposition resistance, collective action problems often block popular mobilization. All ordinary citizens living in an abusive regime where citizens are unable to place appropriate limits on state (Weingast, 1997) would benefit from joining together in resistance against the government, but individuals do not cooperate because they believe the cost of participating in protests is too high and the likelihood of success is too low. As a result, people falsify their preferences (Kuran, 1989), “shirk,” and tolerate political abuses. A solution to this problem would need to change participation costs, benefits of the goal, or beliefs about the likelihood of success (Chong, 1991).

Electoral fraud can provide a solution to this collective action problem (Tucker, 2007). People normally face abusive actions on an individual level and have to decide to react alone. Efforts at resisting day-to-day abuses are likely to be fruitless, and the chance and cost of punishment are too high. Electoral manipulation differs from day-to-day violations because everyone experiences the same abusive act at the same time. The cost of participating in protests drops because people believe they are less likely to be individually punished as the number of protesters increases. In addition to lowering the cost of participation, electoral fraud also increases beliefs in the likelihood of success. As Tucker (2007) notes, electoral fraud increases hopes about success partly because a mass post-election protest will have a louder voice than any individual
acts of resistance or protest. More importantly, post-election protest offers the chance of changing the country's leadership: “if you are successful, the bums actually can be thrown out” (Tucker, 2007, 541). Thus, by reducing the cost of participation and increasing beliefs about the likelihood of success, electoral manipulation provides a clear focal point for action (Schelling, 1960; Chong, 1991; Weingast, 1997). Since manipulation tactics vary in how they influence the election result, it is possible that different tactics affect the protest opportunity structure in different ways.

3 Theory: Signals from Election Manipulation Tactics

The circumstances under which mass protests challenge election fraud can inform us about how electoral manipulation works as an authoritarian tool. Popular protest is one of the few checks that citizens and opposition parties have against election fraud in electoral authoritarian states (Tucker, 2007; Magaloni, 2010; Fearon, 2011). In this paper, we test whether the particular methods that leaders use to manipulate elections have an effect on the likelihood of post-electoral protest. Our results help test and extend the signaling model of election manipulation, which holds that authoritarian leaders manipulate elections—even when they would likely win in the absence of election-day tampering—in order to display their organizational strength and material resources to other political actors (Simpser, 2013). This theory suggests that election fraud alone is not a signal of regime weakness, since even popular and secure incumbents regularly resort to manipulation to demonstrate their strength.

However, leaders have many different tactics at their disposal with which to manipulate elections (Schedler, 2002). These tactics vary in how strongly they signal regime strength and resources. Extra-legal voter mobilization with material rewards (Lehoucq and Molina, 2002) or workplace pressure (Frye, Reuter and Szakonyi, 2014) requires investments in networks of brokers and monitoring of voters and agents. By contrast, administrative manipulation involves relatively few people and produces publicly observable results. Direct manipulation of the results using agents in the electoral administration is thus relatively cheap and easy for leaders to monitor. We argue that extra-legal voter mobilization is a costly signal of strength and resources. When leaders rely heavily on administrative manipulation, opposition parties and activists will be more willing to challenge the elections in the streets.

Leaders use extra-legal mobilization to directly influence voters in several ways. Political machines can make payments directly to individuals in exchange for their support (Stokes, 2005; Nichter, 2008), pressure employers to ensure their employees vote for the ruling party (Frye, Reuter and Szakonyi, 2014), and more.
In any case, voters must be rewarded for voting correctly. Consequently, extra-legal mobilization of any kind requires the creation of patronage networks, whereby patrons can monitor clients’ behavior, and punish or reward them appropriately. These networks are usually mediated by layers of brokers, with individuals at each level responsible for overseeing a larger number of actors at the level below (Knoke, 1990; Lazar, 2007; Auyero, 2007; Holzner, 2007). These pyramidal networks are inherently vulnerable to principal-agent problems, as brokers and clients both may face incentives to shirk their responsibilities when monitoring is imperfect (Kitschelt and Wilkinson, 2007).

The resulting networks are complex, costly and inefficient. At every level of the network, brokers must be prevented from diverting resources for their own private gain and clients must be monitored (Kitschelt and Wilkinson, 2007). One study of vote-buying in a district election in Taiwan illustrates the costliness of such efforts. Wang and Kurzman (2007) found that at least 45 percent of voters who had received a payment from the Kuomintang voted for a different candidate. Motivating large numbers of voters to support the ruling party in one district in that election could cost as much as $4 million, not including necessary payments to brokers (Wang and Kurzman, 2007). A survey of Nigerian voters found a similar problem with defection by voters (Bratton, 2008). This problem increases with scale: a study of Costa Rica’s elections in the first half of the twentieth century found that a major vote-buying effort in a presidential election could consume as much as twenty percent of a candidate’s budget (Lehoucq and Molina, 2002; Lehoucq, 2007). Persistent principal-agent problems and defections mean that extra-legal mobilization requires patrons to devote considerable resources if they are to rely on this method to influence an election. Incumbents who make use of this tactic are likely to be well funded, with effective organizations and significant local knowledge.

Administrative manipulation, by contrast, relies on the cooperation of a relatively small number of easily monitored officials on the state payroll. Election commissioners working on behalf of a party or candidate can falsify election protocols, adjusting vote-totals as necessary. They can also stuff ballot boxes themselves, or turn a blind eye when others do so. In authoritarian countries, coercing or co-opting precinct officials is relatively straightforward: electoral commissions can be dominated by the ruling party, and judicial punishment for electoral malfeasance is likely to be rare (Magaloni, 2010; Popova, 2006). Under such conditions, large numbers of pro-government votes can be manufactured (or opposition votes discarded) at relatively low cost. This process becomes more efficient and less costly in administrative resources the higher the level of aggregation at which the manipulation is carried out. That is, wholesale manipulation at the level of the central election commission requires the complicity of many fewer people than ‘retail’ manipulation at the level of the precinct.
Consequently, we argue that administrative manipulation creates grievances while only weakly signaling the incumbent regime’s capacity to marshal financial and organizational resources. By contrast, the ability to manipulate large numbers of voters on election day indicates deep pockets, and a deep bench of allies. Administrative fraud alone, then, is a potential sign of weakness—the government needs to manipulate the results in order to maintain its control, but may lack the organizational capacity to back up the results if challenged by the opposition. Extra-legal voter mobilization is just as contrary to the spirit of clean elections, but communicates information about the strength of the regime which may deter post-election protest. This argument complements recent findings that pre-election manipulation of the electoral laws increases the likelihood of opposition protest (Chernykh, 2014), because adjustment of the electoral laws communicates little information about the strength of the regime other than its ability to control the legislative process.

An alternative explanation for the limited protests after an election in which leaders use extra-legal voter mobilization is that extra-legal mobilization itself deters protest. This explanation does not involve signaling. Instead, voters satisfied by the benefits of patronage may be unmotivated to protest and unwilling to overcome the collective action problem. This may be the case for the mobilized individuals who are embedded in clientelistic networks. Still, there are far fewer mobilized individuals than overall voters; mobilization efforts are not broad enough to materially satisfy everyone. Furthermore, we argue that the individuals who are least likely to be embedded in clientelistic networks—opposition leaders and activists—are also the people who are most likely to protest. It is these individuals who respond to the information signaled by extra-legal voter mobilization by staying home.

Our theory generates the following hypotheses, summarized below. First, we argue that extra-legal mobilization efforts will not have a statistically significant effect on protest (positive or negative). This is because extra-legal mobilization has two simultaneous, countervailing effects. The manipulation of the election through voter-mobilization does create a grievance for the opposition and a potential rallying point for collective action (a positive effect). However, it also communicates information about regime strength that serves to deter protest. We expect these two effects to cancel each other out. Second, we argue that administrative fraud will have a positive and significant effect on post-election protest. Like extra-legal mobilization, administrative fraud creates and opportunity for opposition collective action; however, it sends a much more tenuous signal of regime strength. As a result, we expect the probability of protest to increase as administrative fraud worsens. Finally, we believe it is theoretically appropriate to include an interaction term between extra-legal mobilization and administrative fraud in our models—high administrative fraud does not signal weakness if it is accompanied by a strong extra-legal mobilization effort. If, as we argue, adminis-
trative fraud communicates little information, the probability of protest should increase most dramatically as administrative fraud worsens in the absence of extra-legal mobilization. Likewise, when extra-legal mobilization is severe, the probability of protest should not rise considerably as administrative fraud worsens. These predictions correspond to Hypotheses 1 through 3 below.

3.1 Hypotheses

We are primarily interested in the combined effect of extra-legal voter mobilization and administrative fraud on protest and the relationship between the two. Regimes often choose both strategies, rather than choosing one over the other. We predict that citizens will perceive extra-legal voter mobilization as a believable signal of regime strength and stay home rather than protest. When a regime engages in widespread extra-legal voter mobilization, the additional effect of administrative fraud on the likelihood of protest should be negligible. When a regime does not rely heavily on extra-legal voter mobilization, however, citizens should be more likely to protest as the use of administrative fraud increases. Administrative fraud in the absence of extra-legal voter mobilization does not send a credible signal of regime strength.

H1: In the absence of extra-legal voter mobilization, increases in administrative fraud will increase the probability of post-election protest.

H2: In the absence of administrative fraud, increases in extra-legal voter mobilization will have no effect on the probability of post-election protest.

H3: As extra-legal voter mobilization increases, the effect of administrative manipulation on the probability of protest decreases.

4 Data, Methods, and Results

To test these hypotheses, we combine existing data to create a new dataset on the type and severity of electoral manipulation, underlying economic and political conditions, and protest. There are two major sources for our dataset: the National Elections Across Democracy and Autocracy (NELDA) dataset on elections in democratic and authoritarian contexts (Hyde and Marinov, 2012) and the Data on International Election Monitoring (DIEM) dataset (Kelley, 2012). Political context is measured using data from the Polity IV dataset (Marshall, Gurr and Jaggers, 2014). Finally, additional data on unemployment and gross domestic product are taken from the World Bank (World Bank Development Indicators, 2014). NELDA covers all elections from 1945-2010, while DIEM (which relies on monitoring organizations reports) includes
data from elections in 108 countries over the period from 1980 to 2004. The combined dataset includes 593 observations of elections and protest from 1980 to 2004.

We analyze the data using three different, complementary methods. Analysis of the raw data is straightforward, and provides a baseline for interpretation of our results. It can only be carried out on a small dataset, however. We address this in two ways. By reducing bias and model dependence, statistical matching allows us to estimate causal effects with greater confidence, despite the small size of the dataset. A second approach, multiple imputation, attempts to maximize the amount of information used, though by estimating multiple datasets this approach results in increased uncertainty regarding the regression coefficients. Each method and its results are discussed separately, below. All three approaches are supportive of our hypotheses.\footnote{It would be possible to combine matching with imputation: Hill (2004) proposes two methods for doing so, but makes use of a different matching technique than we do. However, we do not do so in this case, in an attempt to limit complexity of the model.}

### 4.1 Dependent Variable

The dependent variable for this study, post-election protest, comes from NELDA (Hyde and Marinov, 2012), and records whether or not protests or riots occurred after the election. The codebook states that these protests must be “at least somewhat related to the handling or outcome of the election” in order to be counted. Because this is a binary variable, we employ a logit model to test our hypotheses.

### 4.2 Explanatory Variables

The theory described above predicts that protest will be more likely when administrative fraud is employed to manipulate an election, compared to elections in which extra-legal voter mobilization is used or when both tactics are used together. This prediction is tested using two variables from election-observation mission data from DIEM.

The first explanatory variable, *administrative fraud*, is operationalized as a measure of problems in election-day vote processing. This variable estimates the severity of “vote padding, ballot stuffing, tampering with ballots or the ballot box, and falsification of election protocols”. As such, it captures the kind of electoral malfeasance that affects results directly, but does not involve voters or signal deep organizational strength. The second explanatory variable, *extra-legal voter mobilization*, is operationalized as a measure of problems such as multiple voting by individuals, voter impersonation, vote-buying, and the distribution of favors by political parties. This variable measures the kinds of manipulation that involve extensive
Table 1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protests</td>
<td>282</td>
<td>0.184</td>
<td>0.388</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Opposition vote-gain</td>
<td>264</td>
<td>0.485</td>
<td>0.501</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Transitional election</td>
<td>283</td>
<td>0.131</td>
<td>0.338</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pre-election cheating</td>
<td>289</td>
<td>1.436</td>
<td>0.995</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Administrative fraud</td>
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<td>1.101</td>
<td>1.053</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Extra-legal mobilization</td>
<td>287</td>
<td>0.829</td>
<td>0.890</td>
<td>0</td>
<td>3</td>
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<tr>
<td>Election-day intimidation</td>
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<td>0.951</td>
<td>0.925</td>
<td>0</td>
<td>3</td>
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<tr>
<td>parcomp2</td>
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<td>0.321</td>
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<td>parcomp3</td>
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<td>0.472</td>
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<td>parcomp4</td>
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<td>0.339</td>
<td>0.474</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>parcomp5</td>
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<td>0.255</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Executive election</td>
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<td>0.452</td>
<td>0.499</td>
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<td>1</td>
</tr>
<tr>
<td>Pre-election violence</td>
<td>290</td>
<td>0.993</td>
<td>1.131</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Unemployment (lagged)</td>
<td>260</td>
<td>11.093</td>
<td>7.296</td>
<td>0.600</td>
<td>39.300</td>
</tr>
<tr>
<td>GDP growth (lagged)</td>
<td>282</td>
<td>2.444</td>
<td>7.188</td>
<td>−32.119</td>
<td>34.390</td>
</tr>
<tr>
<td>Log GDP per capita (lagged)</td>
<td>278</td>
<td>6.970</td>
<td>0.991</td>
<td>4.284</td>
<td>10.589</td>
</tr>
<tr>
<td>Log inflation (lagged)</td>
<td>237</td>
<td>2.506</td>
<td>1.731</td>
<td>−2.995</td>
<td>8.463</td>
</tr>
</tbody>
</table>

organizational networks, resource distribution, and the mobilization of actual voters. Both explanatory variables are categorical and measured on a scale from zero (no problems) to three (major problems). We discuss the correlation between the two explanatory variables in the upcoming section on statistical matching.

4.3 Control Variables

We control for other types of manipulation, pre-election violence, and other relevant social and political characteristics. First, we control for one other type of election-day manipulation: voter intimidation. This variable covers a variety of behaviors, including political pressure on voters, extraordinary tax inspections, administrative fines, intimidation of candidates, arrest of voters, and martial law. We also control for the overall pre-election political conditions, which evaluates pre-election abuse of public funds, campaign freedom, media openness, and intimidation. In addition, we control for pre-election violence, which could easily be correlated with post-election riots and protests. All of these variables are drawn from DIEM, and range from zero to three.

Next, we control for characteristics of the election itself that may be associated with the likelihood of protest. A binary variable drawn from NELDA records whether the election resulted in an increase in the opposition’s vote-share, compared to the previous election. Such an opposition gain might signal to opposition parties and voters that protest may be successful, due to weakening support for the ruling party.
among voters or elites. We also use data from NELDA to measure whether the election is transitional, or the first election following the collapse of an authoritarian regime. Protest may be more likely in such uncertain contexts. Both of these are binary variables. Lastly, we include a dummy variable for executive elections because it is possible that electoral manipulation tactics differ when control of the executive or legislature is at stake (Simpser, 2013).

We also use data from Polity to measure the overall level of repression, outside the context of the particular election. For example, are independent political parties institutionalized and able to compete for office, or are they sharply limited? In order to avoid collinearity with our explanatory measures, for this control we require a measure that evaluates political openness but does so without measuring the quality of elections. To fill this role, we selected the competitiveness of participation, a subcomponent of Polity. This categorical variable measures the extent to which alternative preferences for policy and leadership can be pursued in the political arena, and ranges from one (no opposition activity permitted) to five (regular competition among stable groups), corresponding to the following categories: repressed (no opposition activity permitted), suppressed (systematically limited competition), factional (competition among ethnic or parochial factions), transitional, and competitive (regular, institutionalized competition). Since these are distinct categories, we treat them as categorical variables in our model.

The final set of control variables measure economic conditions that may give rise to political unrest. These are: GDP per capita (logged), election-year GDP growth, election-year unemployment, and election-year inflation (logged). We take the natural logarithm of GDP per capita and election-year inflation because these variables are very non-normal in their natural state, and heavily influenced by distant outliers. See Table 1 for information on these variables.

4.4 Results from Raw Data

The model which relies on the unmatched data is simple, and makes use of all available data. It establishes two important findings. First, administrative fraud is positively and significantly associated with post-election protest, while there is no statistically significant relationship between extra-legal mobilization and protest. This supports our first hypothesis. Second, it bears out our prediction that the interaction of the two kinds of electoral manipulation is important for understanding the likelihood of protest. Next, we use analysis of the matched data to isolate the causal effect of each form of manipulation. This approach confirms that administrative fraud increases the likelihood of post-election protests, while extra-legal mobilization has no effect.
Table 2: Analysis of data without pre-processing

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Coefficient</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>2.81</td>
</tr>
<tr>
<td>Opposition gain</td>
<td>-0.24</td>
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<td>Transitional</td>
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<td>Pre-election cheating</td>
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<td>PARCOMP2</td>
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<td>1.01</td>
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<td>0.89</td>
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<td>PARCOMP4</td>
<td>-2.01*</td>
<td>0.94</td>
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<td>PARCOMP5</td>
<td>-16.93</td>
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<tr>
<td>Executive</td>
<td>1.04*</td>
<td>0.52</td>
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<tr>
<td>Pre-election violence</td>
<td>0.60*</td>
<td>0.26</td>
</tr>
<tr>
<td>Unemployment</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>GDP Growth</td>
<td>0.00</td>
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<td>GDP per capita (log)</td>
<td>0.31</td>
<td>0.36</td>
</tr>
<tr>
<td>Election-day intimidation</td>
<td>0.06</td>
<td>0.34</td>
</tr>
<tr>
<td>Inflation (log)</td>
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<td>0.18</td>
</tr>
<tr>
<td>Administrative fraud</td>
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<td>0.43</td>
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<td>Extra-legal mobilization</td>
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<tr>
<td>AIC</td>
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<tr>
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</table>

* p < 0.05

Table 2 presents the results of the raw data, before any matching or imputation is conducted. Administrative fraud (or falsification) has a clear positive effect on the probability of post-election protest, while extra-legal mobilization does not. Executive elections appear to be more likely to spark protest, as do problems related to pre-election violence. Protest is significantly less likely at intermediate levels of competition, relative to a baseline where competition is sharply limited. One unexpected result that is consistent across the unmatched and matched data is a strong negative relationship between inflation and the probability of protest. A final note about the raw data is that there are very few elections with a competitive rating from Polity (PARCOMP 5) in the dataset (since few elections are monitored in highly democratic countries); as a result, its confidence interval is extremely wide.

(FIGURE 1 HERE)

Figure 1 illustrates the interactive relationship between administrative fraud, extra-legal mobilization, and protest that is central to our theory. It shows the predicted probability of post-election protest at varying levels of electoral manipulation of both types, holding all other variables constant. In this example, we examine the predicted probability of protest in a country where pre-election cheating was moderate (but there was no pre-election violence), and the opposition gained ground in an executive election. In such a
case, post-election protest is predicted in fewer than ten percent of cases when neither administrative fraud nor extra-legal mobilization is observed. Even at its most likely — when administrative fraud is severe but extra-legal mobilization is absent — protest is predicted to occur only about half the time.

The relationship between administrative fraud and protest changes as extra-legal mobilization becomes more intense, as we predict. When extra-legal mobilization does not occur, the probability of protest increases steadily as falsification becomes more severe. In the absence of a voter-mobilization effort, severe administrative fraud increases the probability of protest from approximately six to forty-five percent — over a seven-fold increase. By contrast, when extra-legal mobilization is severe, increases in administrative fraud have almost no effect on the probability of protest. In this case, moving from no administrative fraud to major administrative fraud doubles the probability of protest, from nine percent to twenty — a much smaller increase. Thus, while it appears that more intensive extra-legal mobilization efforts are more likely to generate protest, a strong extra-legal mobilization effort can allow incumbents to implement administrative fraud with little additional penalty. By contrast, administrative fraud in the absence of extra-legal voter mobilization is the riskiest course of action for governments seeking to manipulate an election.

4.5 Pre-Processing: Statistical Matching

We analyze the data using three methods; each method compensates for a shortcoming in the others. First, we use a logit model to analyze the raw data, without any pre-processing. This approach is the most straightforward, but due to missing data can only be performed using slightly over half of the available observations. We take two separate steps to ensure that the results are not driven by idiosyncrasies in the reduced sample. First, we analyze the data after it has been pre-processed using statistical matching, which reduces bias and model dependence. This step allows us to more accurately distinguish the effect of administrative fraud from that of extra-legal mobilization. Finally, we perform multiple imputation to estimate values for missing data, which allows us to analyze a complete dataset. Matching and imputation methods are discussed in this section.

Statistical matching techniques attempt to approximate the benefits of random assignment to treatment and control groups for observational data (where random assignment is not possible). A variety of techniques exist, which attempt to match untreated and treatment observations with regard to the control variables. Any unmatched observations are discarded. This pre-processed data is then used in place of the full dataset when running the intended statistical analysis. Matching data in this way can reduce estimation error, bias, and model dependence, and increase confidence in the causal nature of statistical patterns found in

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observational data (Iacus, King and Porro, 2015). In our case, matching is used to isolate the independent effect of each treatment variable on the probability of protest. We use nearest-neighbor matching with Mahalanobis distance, the most common form of multivariate matching (Sekhon, 2009), to pre-process the data before running the logistic regressions.

Matching is an important step in our research design because the severity of administrative manipulation correlates closely with the severity of extra-legal mobilization. This correlation between the two variables of interest may result in imprecise estimates of the coefficients, large standard errors, and regression results that are sensitive to small changes in the model or data. Matching helps reduce model dependence, and can enable us to tease out the independent effect of a treatment variable. For example, consider a group of elections in which extra-legal mobilization was severe. In some of these cases administrative manipulation also took place (treated units), while in others it did not (controls). By matching similar treatment and control observations, and discarding the rest, we can more accurately estimate the independent causal effect of administrative fraud on protest. Furthermore, by swapping the treatment and control variable in a second model, we can test for the independent effect of extra-legal mobilization controlling for administrative fraud.²

In order to determine the independent effects of the two manipulation tactics of interest, we conduct two separate analyses of post-election protest. In the first, we designate vote-processing problems as the treatment variable, while in the second model extra-legal mobilization performs that function. Note that treatment variables are not designated in the logit phase of the analysis, but in the matching phase —observations are sorted into control and treatment groups, and then matched based on their values for the control variables. Since both of our treatment variables have four categories by default, we first collapse each one into a binary variable. For each treatment variable, we marked elections that received a zero or one (no problems or minor problems) as untreated, while elections that received a two or three (moderate or major problems) were considered treated.

This division into binary treatments is theoretically justifiable based on the coding procedure used in the DIEM dataset (Kelley, 2011). Minor problems were coded when election observation reports noted a problem in passing, using words like rare, uncommon, unusual, exceptional, and so on. These isolated incidents can have little impact on the outcome of the election or on the signal sent to other political actors, and so we consider them untreated (along with elections in which no problems were recorded). By contrast, elections were coded as experiencing moderate problems if observation mission reports described violations that were

²The Pearson’s correlation coefficient between administrative fraud and extra-legal mobilization before matching is .50. After matching, the correlation coefficient between the two raw variables is .40, and the correlation coefficient between the binary administrative fraud treatment variable and extra-legal mobilization is .30.
“considerable” or “not uncommon”—somewhere between “negligible” and “egregious.” We consider that such activities do have a signaling effect and may affect the outcome of the election, especially given the incentives that election monitors may have to downplay their findings (Kelley, 2012). Together with elections coded as having major problems, we mark such elections as treated. ³

Ho et al. (2007) note that “All variables...that would have been included in a parametric model without pre-processing should be included in the matching procedure” (p. 216), with the exception of variables that are themselves affected by the treatment (see also (Stuart, 2010). We follow this guideline by matching treatment and control along all explanatory and control variables with the exception of opposition vote-gain, which has the potential to be affected by the level and type of manipulation employed. In this first attempt at matching, some variables experienced a reduction in balance between the control and treatment groups (meaning that matching along those variables was not beneficial). These variables were then excluded from the final matching procedure.

Ho et al. (2007) also advocate that, after matching, researchers should employ the same parametric analysis they would have employed in the absence of pre-processing; a simple difference-in-means between control and treatment groups is prone to omitted variable bias unless exact matching is possible (p. 223). In our case, we use a logit regression model that includes the treatment variable as well as the controls provided above. A similar approach is employed by Daxecker (2012) in her investigation of election monitoring and the likelihood of post-election violence.

Model 2 uses administrative fraud as the treatment variable; this allows us to match elections with and without administrative fraud across varying levels of severity of extra-legal mobilization. Matching successfully improves the balance between the treatment and control groups for all of the election-quality variables, GDP per capita, unemployment, and all competitiveness categories except parcomp3 (the third category). One hundred twenty-four observations were matched, with sixty-two each in the treatment and control groups. Forty observations were discarded.

Model 3 uses extra-legal mobilization as the treatment. Just as in Model 2, this allows us to compare control and treated units with regard to extra-legal mobilization at varying levels of administrative fraud. Matching improves balance for all variables except GDP growth and inflation. In this case, there are only forty-two observations marked as treated, and only eighty-four observations are matched as a result. Eighty control observations are pruned. Though the number of observations is much reduced, the matching process

³ An alternative approach, coding an election as treated if any election manipulation at all was observed, yields substantively similar results. However, this method produces far more treatment observations than controls, which limits the usefulness of matching.
helps reduce bias without sacrificing much in terms of variance (Ho et al., 2007; Smith, 1997).

Statistical matching is one approach to improving confidence in our results, by reducing bias and model
dependence. Another approach, multiple imputation, maximizes the amount of information that can be
used from the available data. The DIEM dataset often includes information from more than one election-
observation report for the same election, if multiple organizations were present to monitor the vote. While
there are 593 observations in our overall dataset, there are only 301 unique elections. We eliminate duplicate
observations by taking the highest (that is, the worst) score reported by any observer mission for each DIEM
variable. This approach has the benefit of incorporating information from multiple observer missions, though
it naturally pushes the value of all DIEM variables upward. It also reduces the number of missing values,
since any individual observation mission may have recorded no score for particular variables.

4.6 Results from Matched Data

Despite the fact that the matching the data results in pruning over a third of the observations in both
cases (and requires collapsing a four-level categorical variable into binary treatments), analysis of the matched
data supports the unmatched results. Table 3 and the figures below present the results of matched data.
Note that in both models, the fifth category of PARCOMP is excluded. This is a result of the small number
of such cases in the dataset; no such observations were successfully matched.

Model 2 uses administrative fraud as the treatment variable, while controlling for other forms of ma-
nipulation in addition to relevant social, economic, and political factors that may influence the probability
of protest. The treatment condition—moderate or severe administrative fraud—has a statistically signifi-
cant, positive effect on the probability of protest, compared to the control group. That this result holds
after matching increases confidence that the effect is real, rather than a statistical artifact. Mobilizational
manipulation has no effect, as predicted.

That extra-legal mobilization shows no effect on protest when used as a control variable in Model 2 is
supportive of our theory, but a stronger test is presented in Model 3. In this model, extra-legal mobiliza-
tion is the treatment variable along which observations are matched. After comparing the treatment and
control groups, Model 3 shows no significant difference in the probability of protest in countries where extra-
legal mobilization was moderate or severe compared to countries where such mobilization was isolated or
nonexistent. By comparing matched samples in this way, we help isolate the causal effect of administrative
manipulation from that of extra-legal mobilization. These results support Hypotheses 1 and 2.

The below figure shows support for Hypothesis 3, on the interaction of the two types of manipulation,
Table 3: Analysis of matched data

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-7.23 (4.0)</td>
<td>-1.22 (3.61)</td>
</tr>
<tr>
<td>Opposition gain</td>
<td>0.15 (.79)</td>
<td>-0.84 (.85)</td>
</tr>
<tr>
<td>Transitional</td>
<td>1.11 (1.1)</td>
<td>0.77 (1.08)</td>
</tr>
<tr>
<td>Pre-election cheating</td>
<td>-0.33 (.49)</td>
<td>-0.30 (.49)</td>
</tr>
<tr>
<td>PARCOMP2</td>
<td>0.67 (1.25)</td>
<td>0.10 (1.36)</td>
</tr>
<tr>
<td>PARCOMP3</td>
<td>-0.17 (1.08)</td>
<td>1.12 (1.20)</td>
</tr>
<tr>
<td>PARCOMP4</td>
<td>-3.01 (1.24)*</td>
<td>-0.96 (1.27)</td>
</tr>
<tr>
<td>PARCOMP5</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Executive</td>
<td>1.07 (.64)</td>
<td>0.46</td>
</tr>
<tr>
<td>Pre-election violence</td>
<td>0.68 (.31)*</td>
<td>0.69 (.31)*</td>
</tr>
<tr>
<td>Unemployment</td>
<td>0.03 (.04)</td>
<td>-0.13 (.07)</td>
</tr>
<tr>
<td>GDP Growth</td>
<td>0.02 (.07)</td>
<td>0.08 (.07)</td>
</tr>
<tr>
<td>GDP per capita (log)</td>
<td>0.61 (.51)</td>
<td>0.03 (.50)</td>
</tr>
<tr>
<td>Election-day intimidation</td>
<td>-0.02 (.46)</td>
<td>-0.66 (.48)</td>
</tr>
<tr>
<td>Inflation (log)</td>
<td>-0.43 (.21)*</td>
<td>-0.04 (.24)</td>
</tr>
<tr>
<td>Administrative fraud treatment (binary)</td>
<td>3.39 (1.36)*</td>
<td></td>
</tr>
<tr>
<td>Extra-legal mobilization (categorical)</td>
<td>0.58 (.64)</td>
<td></td>
</tr>
<tr>
<td>Administrative fraud (categorical)</td>
<td></td>
<td>0.49 (.52)</td>
</tr>
<tr>
<td>Extra-legal mobilization treatment (binary)</td>
<td>-0.33 (1.50)</td>
<td></td>
</tr>
<tr>
<td>Administrative fraud: extra-legal mobilization</td>
<td>-0.93 (.70)</td>
<td>0.43 (.70)</td>
</tr>
<tr>
<td>Number of observations</td>
<td>124</td>
<td>84</td>
</tr>
<tr>
<td>AIC</td>
<td>115.2</td>
<td>110.5</td>
</tr>
</tbody>
</table>

*p < 0.05

by moving from logit coefficients to the predicted probabilities of protest. Figure 2 shows that the predicted probability of protest behaves similarly for the matched and unmatched data. For clarity, it shows the predicted probabilities of protest when extra-legal mobilization is very high or non-existent, leaving out the intermediate categories. When administrative fraud is employed, but extra-legal mobilization is absent, the predicted probability of protest increases to approximately sixty percent, compared to approximately five percent when neither tactic is used. By contrast, there is a much smaller change in the probability of protest when falsification occurs in the context of a major extra-legal mobilization effort. In this case, the probability of protest is roughly twenty percent with no administrative manipulation, and thirty percent when administrative manipulation and extra-legal mobilization are both intense. In particular, it is worth noting that adding intensive extra-legal mobilization to an election in which administrative fraud is used reduces the predicted probability of protest by almost half. Post-election protest is much less likely after a flawed election in which the ruling party displays the organizational strength associated with a serious extra-legal mobilization effort than in an election in which the results are altered only at the administrative level. This result is strongly supportive of a signaling theory of electoral manipulation.

(FIGURE 2 HERE)
4.7 Pre-Processing: Multiple Imputation

In order to make use of as much data as possible given the modest size of the dataset, we use multiple imputation to estimate values for missing data. Without multiple imputation, almost half of the data —137 observations —is lost due to missingness; after imputation, we can make use of all 301 elections. Excluding observations with missing values reduces the amount of information available, but may also introduce worse problems. The bulk of the missing observations are attributable to the economic variables: unemployment, inflation, GDP growth, and GDP per capita. These values are more likely to be missing for developing countries. Dropping those observations can lead to biased parameter estimates because the missingness is not random (King et al., 2001). Because our data include multiple elections over time and across countries, we implement the multiple imputation procedure for time-series cross-sectional data proposed by Honaker and King (2010).

To reduce the risk that an outlier in the imputation process might drive the results, we created five distinct imputed datasets (Rubin, 2004). Since the imputed observations are slightly different for each imputation, the regression coefficients, standard errors, and significance levels will vary across the five datasets. Combining the results from all five datasets according the procedure laid out by (Rubin, 2004) accounts for variance within each estimate as well as across the imputed datasets, and avoids cherry-picking results from a favored dataset. The imputed datasets are analyzed using the same logit model employed in Models 1 through 3. Coefficients and standard errors are calculated for the imputation datasets, and then combined using a procedure that accounts for variance within and across estimates.

4.8 Results from Imputed Data

As a final robustness check, we show the results from analysis of the multiple-imputation data. We imputed five datasets; each dataset will vary from the others in the particular value assigned to missing observations. The same logit model is used to analyze each dataset, and the resulting coefficients and standard errors are combined according to Rubin (1987) to produce the estimates in the table below. The results are in line with those from the raw data, as well as from the matched data. Administrative fraud has a significant and positive effect on fraud, while extra-legal mobilization does not.

Figure 3 shows the predicted probability of protest as the values of administrative fraud and extra-legal mobilization change. The results are not identical to those of the raw data; in particular, they show a higher probability of post-election protest at low levels of manipulation. However, they are still generally supportive of our hypotheses. Increases in administrative manipulation result in progressively smaller increases in
the probability of protest as extra-legal manipulation intensifies. When administrative fraud is minimal, stronger extra-legal mobilization efforts increase the probability of protest. This is consistent with the idea that electoral manipulation of any kind produces a rallying point for opposition protest. However, as in Figure 1, when extra-legal mobilization is most severe, it reduces the probability of protest relative to severe administrative manipulation alone. This result supports our hypothesis that effective extra-legal mobilization sends a signal of strength that can deter protest.

[FIGURE 3 HERE.]

4.9 Discussion

All three approaches confirm our hypotheses. Analysis of the raw data is the least complex approach, and shows that administrative fraud has a positive and statistically significant relationship with post-election protest, while extra-legal mobilization does not. To compensate for a sizable amount of non-random missing data, we also pre-process the data using multiple imputation before conducting the logit analysis of protest. This approach also shows a positive and significant relationship between administrative fraud and protest, an effect that is similar in size to that found in the raw data. Finally, we employ statistical matching to increase confidence in the causal nature of our findings. We create a binary treatment variable for
both forms of manipulation, match treatment and control observations, and show that the administrative fraud treat positively predicts protest, while extra-legal mobilization does not. The effect size under the matching procedure differs from those found in the unmatched data due to the shift from categorical to binary explanatory variables, but in all cases the effect is substantively meaningful (as shown in Figures 1 and 2). The interaction between the two manipulation tactics shows, when administrative fraud is present, increasing the intensity of extra-legal mobilization reduces the probability of protest relative to administrative fraud alone. These results are supportive of a broader theory of election manipulation, which holds that political parties and governments can use their ability to influence elections to send signals of organizational strength. Extra-legal mobilization on a large scale requires a significant investment of resources, and shows the ability of the incumbent to mobilize people in support of the regime. Those resources, networks, and individuals might be mobilized or demobilized during a major protest event. By contrast, administrative fraud signals control over the electoral apparatus; administrative fraud carries little information about the resources the incumbent can deploy or the regime’s ability to influence ordinary citizens. These signals then influence the behavior of other political actors—in this case, by influencing the likelihood that citizens and opposition activists will engage in anti-regime protests.

5 Conclusion

By considering the impact of different manipulation tactics on post-election protest, this article deepens our understanding of the role that electoral manipulation plays in maintaining (or threatening) authoritarian stability. We have argued that taking manipulation tactics into account helps explain why citizens sometimes decide to protest fraudulent elections, but often do not. Our theory builds upon and expands the signaling model of election manipulation (Simpser, 2013), in which authoritarian leaders manipulate elections in order to display their organizational strength and material resources. Leaders can choose from many manipulation tactics; it is crucial that we take into account the different costs, benefits and signals that are associated with each tactic when evaluating the causes and effects of electoral manipulation.

In the traditional understanding of election manipulation, political parties and governments tamper with elections in order to increase their likelihood of victory. Such attempts create an opportunity for protest or other forms of collective action by the opposition - an opportunity that opposition groups may seize if they are organized and united. We show that this is only part of the story. As Simpser (2013) argues, electoral manipulation also sends signals about the organizational capacity of the government; these signals
can be read by voters, opposition activists, and wavering elites when deciding whether to join in an anti-regime action. This study demonstrates that post-election protest is most likely when the government’s reach exceeds its grasp; that is, when it seeks to change the results of the election without demonstrating any organizational muscle outside the context of the election administration.

We identify two categories of manipulation tactics, administrative fraud and extra-legal voter mobilization. When the government alters the results of the election using only administrative tools, it sends a signal of weakness to potential protesters and their supporters. Such an approach communicates that the incumbents needed administrative fraud in order to win the election, but may lack the organizational support to counteract opposition protest. Public protest may appear like a reasonable option for overcoming the collective action problem and confronting the regime, in such circumstances. On the other hand, when elections are heavily manipulated using both administrative and mobilizational tools, opposition leaders and potential protesters face a different calculus. When the regime has demonstrated its mobilizational capacity in the election, taking to the streets may appear more likely to lead to violent confrontation with the security forces or their proxies, or to clientelistic penalties for those who take part (such as job loss). For this reason, protest is less likely in the context of such comprehensive manipulation than when administrative fraud alone is employed.

Using data from approximately 300 elections around the world from 1980 to 2004, we find support for our hypotheses. Our results hold after analysis of the raw data, when statistical matching is performed in order to isolate causal effects, and when multiple imputation is used to maximize the amount of information available. The effect of manipulation tactics on protest is detectable even when controlling for numerous other factors known to influence protest, including economic and political factors. Protesters respond differently to the use of different manipulation tactics. They are less likely to respond in the streets after a fraudulent election in which the regime signals strong organizational capacity and material resources through the use of extra-legal mobilization. When citizens perceive regime weakness due to the use of only administrative manipulation, they are more likely to protest. When both costly and cheap signals are sent through the use of both extra-legal mobilization and administrative fraud, changes in the cheap signal have predictably small effects. These findings support our theory that citizens and opposition parties respond to the signals sent by manipulation tactics when they decide whether to protest a fraudulent election. Consequently, we argue that the mix of tactics that incumbents use to manipulate elections is an important cause of post-election protest (or the lack thereof), an understanding which helps explain why some fraudulent elections lead to major social upheavals, while others do not.
These results improve our understanding of electoral manipulation and post-election protest. They lend support to the theory that election manipulation is as much about influencing the broader political environment as it is about winning elections. We also contribute to a literature on protest against manipulated elections which emphasizes factors such as opposition unity and the resources available to the opposition. To this, we add that opposition groups must weigh their chances in a confrontation with the government over the outcome of the election, and do so in part by observing the type and severity of manipulation employed. A government that has manipulated an election by mobilizing large numbers of voters in an extra-legal way has displayed considerable patronage resources—the financial resources, organizational capacity, and local knowledge necessary to manipulate the election could also be deployed to counteract opposition protests. The revelation of this information about the strength of the incumbent regime makes opposition groups less likely to protest, compared to elections in which incumbents rely more heavily on cheaper, administrative fraud.

Figure 1:
Figure 2:

Logit model predicted probability of protest (Matched data)

Figure 3:

Logit model predicted probability of protest
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