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**Regional Protest and Electoral Fraud: Evidence from Analysis of New Data on Russian
Protest**

Abstract

Does electoral fraud encourage citizen post-electoral political protest? Much of the scholarship on electoral protests has focused on nationally-prominent street rallies occurring in national capitals. By contrast, the proclivity of citizens to pick up on fraud perpetrated in the sub-national region in which they reside and vote, and to challenge it by engaging in street rallies in provincial towns, has remained under-researched. To nuance existing scholarship, we analyse the likelihood that local citizens would pick up on electoral irregularities perpetrated in their locality / region and engage in post-electoral protest. Specifically, we analyse author-gathered data for some 5,000 regional protests, and voting results for 95,415 precincts in Russia's 2012 Presidential elections. These data, which we aggregate at the level of the regions, cover virtually all of the eighty-five constituent subjects (regions) of the Russian Federation. We find that local fraud is associated with post-electoral protests. Our analysis has important theoretical and policy implications. Protests that not only target specific issues like fraud, but show awareness of specific precincts in which it had been perpetrated, and can name and shame its concrete perpetrators, can be much more effective than those where blame attribution is vague and generic.

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Introduction

Does fraud in competitive authoritarian states galvanize post-electoral protest? This question goes to the root of the debates about sources of competitive authoritarian regime survival or demise (Diamond 2002; Gandhi and Przeworski 2006; Howard and Roessler 2006; Levitsky and Way 2010; Schedler 2002; Wolchik 2012; Donno 2013a,b; Thompson and Kuntz 2006). Yet despite the known implications of street contention against “electoral atrocities” (Lehoucq 2003) for regime uncertainty, there have been few studies analysing the effect of electoral fraud on post-electoral protest mobilization. A growing body of studies have explored why some states are more or less likely to perpetrate fraud, mostly with reference to institutionalized aspects of the electoral process, such as electoral rules; electoral commissions; election monitoring; courts; and party systems (Birch 2007; Chernykh and Svolik 2015; Elklit and Reynolds 2005; Donno 2013a; Herron 2010; Kelley 2011; Lehoucq 2003; Mozaffar and Schedler 2002; Pastor 1999). On the other hand, established social movement literature (McAdam, McCarthy et al. 1996; Tarrow 1996) has rarely analysed fraud as a “focal point” (Tucker 2007) for protests or as a survival instrument of competitive authoritarian regimes. Recent protests in Eastern Europe, North Africa, and Latin America have underlined the *extra-electoral* (Bunce and Wolchik 2011) power of mass protesters in challenging electoral irregularities. Some studies have sought to model the interaction between the two variables; these however have remained under-specified (Fearon 2011; Simpser 2013).

One under-theorized dimension of the interactions between fraud and protests that we address in this paper is the ability of citizens to find out about fraud perpetrated in the particular regions in which they reside and vote, and to act upon this information by taking to the streets and protesting. Our paper seeks to redress this omission. Our key concerns are whether protesters would show sensitivity to local fraud and engage in protest to challenge it,

as opposed to solely responding to general signals about “national” electoral misconduct that they might pick up from national media broadcasts. Much of the scholarship on electoral mobilizations has analysed national-level citizen protests targeting “autocrats,” “incumbents,” or “the regime” and the effects of such nationally-prominent mobilizations on the stability of autocracies. We conjecture that such a preoccupation with national-level protests is somewhat misplaced considering that much of the fraud is local in the sense that it is perpetrated by precinct-level officials who are in turn accountable to, or can otherwise be influenced by, officials in specific sub-national regions. In turn, in any given region, we would expect civil society groups and political opposition activists to seek to engage in election monitoring activities in order to expose irregularities and to disseminate information about them to the local citizenry. We therefore expect protests to be contingent upon signals about sub-national electoral malpractice—that is, fraud perpetrated in specific regions or localities—because citizens are often aware of local manipulations, and can even name and shame individuals perpetrating them.

Our analysis has important theoretical and policy implications. Protests that not only target particular issues like fraud, but show awareness of the specific precincts, towns, and regions in which it had been perpetrated, and can name and shame its concrete perpetrators, can be much more effective than those where targets are vague and generic (Javeline 2003; Snow, E. Burke Rochford et al. 1986). If citizens are prepared to protest locally-perpetrated fraud, the national leaders’ potential to rely on their local clients to deliver pro-incumbent results in future electoral contests could be compromised. This is because protests may generate a variety of risks and uncertainties for low-level officials engaged in the mechanics of fraud. Alternatively, local protests might well prompt the national centre to engage in citizen repression to deter future protests. These are important considerations that might illuminate longer-term processes of competitive authoritarian regime erosion or

consolidation. At the same time, the policy community promoting free and fair elections worldwide may want to consider sub-national citizen protests as a barometer of regional variations in electoral misconduct, and therefore engage in greater capacity building for local citizen monitoring of elections at a sub-national level.

To test our assumptions, we perform sub-national analysis of the effect of fraud on the probability of post-electoral protests following Russia's March 2012 Presidential elections. There is substantial evidence that electoral fraud marred successive federal elections accompanying Russia's slide into authoritarianism in the 2000s (Moraski and Reisinger 2003, 2010). Yet, the 2011-2012 State Duma (Parliamentary) and Presidential elections stood out: not only were they accompanied by unprecedented in scale mass protests, but protesters rallied around the issue of fraud (Greene 2013; Krastev and Holmes 2012; Shevtsova 2012; Smyth, Sobolev et al. 2013). The announcement on 24 September 2011 by then President Dmitry Medvedev of the infamous "swap" served as an initial trigger to the protests. Vladimir Putin would resume his role as President, interrupted in 2008 due to a constitutional limit of two consecutive terms in office, while Medvedev would revert to being Prime Minister. The "swap" made farce of the electoral process. Electoral fraud had been allegedly perpetrated during both the Parliamentary and Presidential elections that followed (Gel'man 2013). Four out of six people reportedly believed that the elections, which produced victory for the ruling United Russia (UR) Party and returned Putin to the Presidency, had been fraudulent (Aron 2013).

Although Western media zoomed in on images of crowds on Moscow's streets, similar events were unfolding in Russia's regions. Numerous press reports corroborate our theoretical expectations of the likely effect of fraud on galvanizing protest. For instance, we know that protests helped publicise manipulations and served as venues for recruiting election monitors: street rallies sported tents where people could sign up as volunteers. We

also know that there was significant heterogeneity in post-electoral protest activism across Russia's regions. Yet, we still lack a nuanced understanding of the spatial dimension of the interaction between contentious politics and electoral malpractice. Specifically, we have yet to ascertain systematically whether post-electoral protest activism was more intense in regions that actually showed a greater propensity to commit fraud, or whether protests ought to be regarded simply as proxies for generally higher levels of citizen engagement that in Russia—as in many other hybrid regimes—vary from region to region.

Our empirical analysis of fraud is based on the application of the last-digit fraud detection method (Deckert, Myagkov et al. 2011; Lukinova, Myagkov et al. 2011, Skovoroda and Lankina 2016). Considering that vote counts in fair elections should have uniformly distributed last digits, the test could identify election counts that are likely tainted with fraud. Bernd Beber and Alexandra Scacco (2012) review the literature on the ability of individuals to generate random number sequences and suggest that individuals do not select digits with equal frequency even when they have strong incentives to randomise properly. When applied to turnout counts in four consecutive Russian presidential and parliamentary elections (2003–2008), the test typically rejects the null hypothesis of uniformly distributed last digits (Mebane and Kalinin, 2009). A similar test applied to Sweden's 2002 parliamentary elections reveals no deviations from uniform distribution (Beber and Scacco 2012).¹

For our analysis, we employ data for nearly 5000 regional protests that we compiled from the opposition website *namarsh.ru*, and vote count statistics for 95,415 polling stations (for a discussion of the dataset, see (Lankina 2015; Lankina and Voznaya 2015)). To our knowledge, other than Graeme Robertson's (Robertson 2007; 2011) important work on Russian protest, which relies on data from alternative sources (Institute of Collective Action; Ministry of Interior) and does not analyse fraud, there have been no such attempts to systematically gather Russian regional protest data and apply it to analysing fraud. Although

Robertson (2013) relies on different sources, there is strong correlation (coefficient of 77%) in protest counts among our respective datasets. We discuss the cross-validation in the Supporting Information materials (SI). This lends credibility to our data as a reliable tool for analysing regional protests.

Our analysis supports our expectation that citizens in Russia's sub-national regions were sensitive to signals about fraud perpetrated in their particular regions and were more likely to take to the streets and protest in those regions. In the next section, we elaborate upon our theoretical framework and generate hypotheses. We then perform statistical analysis. The final section concludes with some reflections on the wider implications of our findings.

Theorizing fraud-protests interactions

We begin our analysis by defining the key terms employed in this paper. For the sake of consistency, we apply the label “competitive authoritarian” to refer to Russia's regime on the eve of the March 2012 presidential elections and up to the inauguration of Vladimir Putin to serve his third presidential term, in April 2012. Steven Levitsky and Lucan Way apply this label to regimes in which the opposition can compete for power with the ruling regime incumbents or regime-supported parties, but in the context of a playing field that is skewed towards the ruling regime (Levitsky and Way 2010; Way and Levitsky 2002). “In competitive authoritarian regimes,” they write, “formal democratic institutions are widely viewed as the principal means of obtaining and exercising political authority. Incumbents violate those rules so often and to such an extent, however, that the regime fails to meet conventional minimum standards for democracy” (Way and Levitsky 2002, p. 52). They distinguish such regimes from electoral authoritarian (for a discussion of electoral authoritarian systems, see (Schedler 2006)) in that the latter system is arguably essentially non-competitive. Although the choice of the particular label—electoral authoritarian;

competitive authoritarian; or authoritarian—is contested and is often highly subjective, we believe that the label competitive authoritarian is appropriate for the regime in the time frame covered by our study. While under both the electoral and competitive authoritarian systems, elections allow for opposition parties and candidates to compete for power, there is a difference in the degree to which such competition has a mere symbolic nature, as opposed to allowing for the possibility of opposition candidate victory in some races. The 2012 presidential race and the December 2011 State Duma (parliamentary) elections that it preceded coincided with the agenda of limited political liberalization of the outgoing President Dmitry Medvedev and that came to be known as “managed democracy.” Not only was the opposition allowed to contest the race, but considerable effort was made to reassure citizens that the electoral process will be transparent. Thus, cameras were installed in electoral precincts; and election monitors representing opposition parties were allowed access to polling stations (Skovoroda and Lankina 2016). This, of course, as we demonstrate in the paper, does not mean that fraud did not occur in the elections; rather, it allowed for the possibility of political competition at least in some electoral districts. The turning point in Russia’s transition to a consolidated authoritarian system, in our view, came after Putin’s victory in the March 2012 presidential race, whereupon the regime proceeded to systematically emasculate the political opposition; erode media pluralism; and pursue repression against politically-motivated anti-regime street activism.²

Because of the vast “menu” (Schedler 2002) of manipulative activities that competitive authoritarian regimes pursue in order to stay in power, electoral fraud is likewise a notoriously slippery concept. Scholars have distinguished between election-day fraud, or interference with balloting, counting, and tabulation of results, and the more “subtle” forms of reinforcing incumbent advantage through economic patronage, blackmail, intimidation, vote buying, bribery, and other legal and quasi-legal ways of eliminating challengers

transcending election day ballot stuffing (Argersinger 1985; Calingaert 2006; Cox and Kousser 1981; Daxecker 2012; Gerring and Thacker 2004; Lehoucq 2003; Way and Levitsky 2002). In this study we use the terms fraud and manipulation to refer to the two distinct sets of activities, respectively. We use the term “misconduct” to refer to both sets of irregularities. At the outset, we note that our statistical analysis does not capture electoral manipulations, as defined above. Our measure of misconduct only captures a particular type of election-day fraud, namely last-digit fraud. Further, we do not make assumptions regarding the relative strength and “effectiveness” of pre-election manipulation strategies versus election-day fraud, nor do we make assumptions on substitution or, alternatively, complementarity effects that are likely to have an impact on strategic choice of individual misconduct types. We assume, however, that the extent to which citizens respond to *pre-election* manipulations (as opposed to election-day fraud) is captured by *pre-election* protest intensity. This makes pre-election protest intensity a critical control variable in the analysis below. The impact of election-day *fraud* on protest is, then, isolated by analysing post-electoral *change* in protest intensity. We refer to manipulations when we discuss the literature on the electoral playing field that is skewed towards the regime in many Russian regions and in other contexts and to highlight the overall political context in which the specific elections that we analyse took place.

We define protests as “contentious episode[s]” (Tarrow 1996) during which citizens gather in public spaces for a concentrated period of time with the objective of either dislodging, or challenging the practices of, a regime and actors and institutions associated with it that block citizen influence on political decision making and participation through democratic channels. Our definition of protests thus precludes the inclusion of regime-staged rallies, for instance, those organised by the Kremlin-sponsored youth group *Nashi* (Smyth, Sobolev et al. 2013). If anything, activities of such regime-sponsored groups, which stage often disruptive rallies with the deliberate attempt to intimidate, undermine or otherwise

delegitimise the opposition, are more appropriately classified as electoral manipulations rather than protests. As Regina Smyth et al. discuss, “The Kremlin utilized these rallies as political theater, designed to convey an image of overwhelming support for the president and heavily reliant on its control of state media to present its point of view. Pro-Putin rallies became campaign venues in which the Kremlin used political symbols—woven into a narrative of nationalism and tradition—to define and activate core voters across the Federation. The rallies also stigmatized the opposition by defining their demands as foreign and illegitimate—claims that were subsequently codified in new laws that could be used to imprison opposition activists” (Smyth, Sobolev et al. 2013, p. 24).

How likely are citizens to protest against *locally-perpetrated* electoral misconduct? A number of studies have either directly explored the effects of electoral fraud on mass contentious politics, or have suggested general causal mechanisms linking electoral misconduct and political participation. Scholars however disagree as to whether fraud can have a dampening effect on citizen political mobilization and specifically street rallies, or, conversely, whether it can galvanize citizens to engage in non-institutionalised forms of participation. We begin by discussing the argument that fraud can have a dampening effect on anti-regime protests. We struggled to find systematic evidence to support this proposition. An important exception is Alberto Simpser’s “cheating big” argument (Simpser 2008, 2013). Simpser develops a causal story linking incentives to generate fraudulent super-majorities for leaders in competitive authoritarian regimes with political participation. By “cheating big,” the argument goes, incumbents are striving to, and often succeed at, creating a psychological effect of apathy because of the perception of a pre-determined outcome no matter what actions the challengers—be they opposition parties or ordinary citizens—undertake. Simpser does address the possibility that “electoral manipulation could backfire” in that “the ruling party could face popular unrest” (2013, pp. 24-25). The probability of this scenario, he

contends, “*depends on the information conveyed by the manipulation*. Excessive and blatant manipulation can convey the message that the manipulator is strong, while failure to manipulate excessively/ blatantly can make the manipulator be publicly perceived as weak,” he writes (emphasis original). Accordingly, “popular protests are less likely to arise following excessive electoral manipulation than following marginal manipulation” (Simpser 2013, p. 25). Simpser admits that his statistical finding on the significant association between marginal manipulation and protest is tentative given the availability of protest data for a small number of countries in his dataset though he also backs his analysis with case studies of Russia and Zimbabwe. Recent analyses of the temporally patchy nature of blatant fraud-inspired mobilizations in Belarus, Armenia, and Azerbaijan would also lend credence to this argument (Beissinger 2007; Bunce and Wolchik 2011; Tucker 2007).

The reverse argument that electoral fraud can spur protests is in tune with the assumptions of much of the classic social movement scholarship. While recognizing that collective action problems often hamper participation (Lichbach 1995; Olson 1965), this literature generally assumes that mass contentious acts occur when institutionalized channels for influencing decision making are blocked (McAdam 1982). Electoral fraud constitutes *prima facie* attempt at setting curbs to participation and access to decision making by contenders. The electoral “Colour” Revolutions in Serbia, Georgia, Ukraine, and Kyrgyzstan have stimulated further vigorous theorizing on how fraud might galvanize street action. Joshua Tucker has suggested that unlike other sources of grievances, which are often not sufficient to surmount collective action problems, electoral fraud can constitute an important “focal point” for action. The simultaneity of the abuse suffered by citizens in an electorally fraudulent context, it goes, increases the certainty of each protester that others will take to the streets, encouraging more and more people to join in (Tucker 2007). Andrew Little et al. have developed a formal model demonstrating how signals about high levels of fraud can

incentivise citizens to take to the streets and protest (Little, Tucker et al. 2013). Valerie Bunce and Sharon Wolchik have likewise argued that rather than dampening participation, as Simpson's model suggests, fraudulent elections may be in fact "unusually good at bringing people out into the streets (Bunce and Wolchik 2011, p. 272). "Stolen elections," they argue "focus discontent," creating new "large and outraged" communities of "'robbed voters'" (Bunce and Wolchik 2011, p. 272). Mark Beissinger's analysis of the Orange Revolution, while highlighting a different causal mechanism of a "negative coalition," likewise illuminates how fraud can constitute a "veneer," however thin, for uniting fractured groups with very different values, agendas, and causes, and thereby igniting the flames of discontent against a deeply unpopular regime (Beissinger 2013, p. 585). Relatedly, Paul Chaisty and Stephen Whitefield find that perceptions of fraud in Russia's 2011 elections constituted one of the most significant triggers of mass support for post-electoral protest (Chaisty and Whitefield 2013). A handful of large-n studies have also suggested that electoral malfeasance can have powerful mass mobilization effects. For instance, Susan Hyde and Nikolay Marinov find that protests are more likely to occur, and last longer, when credible public allegations of fraud are made (Hyde and Marinov 2014). A cross-national study of African states has found positive effects of fraud on the likelihood of violent mass contentious acts (Daxecker 2012). And Emily Beaulieu, based on cross-national analysis of electoral protests in developing countries argues that under certain conditions, electoral malpractice can galvanize politicians and activists to encourage electoral protests as a means to enhance their prospects in electoral races (Beaulieu 2014). (On the point about electoral protests driven by opposition party-political actors, see also (Schedler 2013)). "Contentious action," writes Andreas Schedler about electoral protests, "responds to [both] grievances and opportunities" (Schedler 2013, p. 14).³

How does the incidence of sub-national fraud affect the intensity of post-electoral mass protest? The underlying assumption in much of the above rich and innovative recent theorizing and empirical scholarship on fraud-inspired mobilizations is that citizens respond uniformly to “national” signals about fraud and manipulations that they might pick up from national independent media and other channels (Bunce and Wolchik 2011; Fearon 2011; Tucker 2007). Localised, sub-national protests are therefore unlikely to be affected by the specific information about fraud perpetrated in a particular region. Yet, we know from other studies that local exit polling and exposure by precinct election monitors of irregularities can also help expose locally-perpetrated fraud (Myagkov, Ordeshook et al. 2009). Furthermore, Todd Eisenstadt’s (2004, p. 113) work on electoral protests in Mexico suggests that credible *proof* of fraud is not always necessary for sub-national mobilizations; these can flare up before irregularities can be conclusively established. Pre-election manipulations occurring in specific regions can be another way of signalling local officials’ willingness to commit election-day fraud (Hale 2007).

In light of the above conflicting logics of arguments about citizens’ potential responses to fraud, we advance the following hypotheses:

HY1: Sub-national fraud will have no independent effect on the intensity of mass post-electoral protest

HY2: Sub-national fraud will positively affect the intensity of mass post-electoral protest

HY3: Sub-national fraud will negatively affect the intensity of mass post-electoral protest

While testing for HY1-HY3, it is important to control for other factors and variables conventionally employed in analyses of regional democratic variations, particularly in territorially-large countries like Russia. Scholarship on federalism and decentralization has highlighted the spatially uneven nature of democratic governance in many settings (Fox 1994; Gel'man and Ross 2010; Gerring and Thacker 2004; Gervasoni 2010; Lankina and

Getachew 2006, 2012; Lankina, Libman et al. 2016a, 2016b; Lankina and Getachew 2008; Putnam 1993; Snyder 2001). Pockets of sub-national authoritarianism may coexist with national democratic governance, and sub-national localities may display far greater degrees of political openness and competition than does a national regime. These regional variations could be products of asymmetrical federal design, long-term socio-structural conditions, ethno-national factors, nature of partisan competition, or shorter-term contingent variables (Argersinger 1985; Gelman, Ryzhenkov et al. 2003; Hale 2005; Heller 2000; Lankina 2004, 2016; McMann and Petrov 2000; Obydenkova 2008; Obydenkova and Libman 2012; Remington 2010; Sharafutdinova 2007; Snyder 2001; Treisman 1997; Varshney 2002; Ziblatt 2009). It is important for us to incorporate the effects of these variables into our analysis to ensure that our measure of fraud does not proxy for other variables that might shape citizen propensity to mobilize. We discuss these relevant variables in the statistical analysis section that follows.

Analysis

Data

We employ two author-constructed datasets (summary statistics, graphs, and maps of fraud and protests are in SI Tables 1-2 and Figures 1-5). The first dataset contains precinct-level data for the March 2012 Presidential elections obtained from the Russian Electoral Commission website. We have turnout and vote count statistics for each candidate, which, in disaggregated form, cover 95,415 polling stations subordinated to the Territorial Electoral Commissions. We compiled the second dataset by analysing 4,935 street protest event reports (aggregated at the level of regions) posted on the opposition website *namarsh.ru*. The data are based on dispatches from the website's network of regional correspondents and media reports. The website is run by activists sympathetic to the cause of the opposition and

therefore interested in ensuring comprehensive harvesting of protest news. Because we include web links to the original source for each dataset entry, the accuracy of our data and coding could be verified (please see SI for more detail on the data).

Our dataset covers protests beginning in March 2007, when the *namarsh.ru* website had been first set up, and ending in April 2013. Our protest intensity indicator is aggregate number of protests in a given region and time period; this is a more reliable measure than numbers of protesters, which are often under- or over-reported (Robertson 2013).

Furthermore, Russian national legislation against unsanctioned rallies has often encouraged protesters to intentionally limit the number of protest participants, so that the police could not legitimately disperse them. Below we discuss the variables employed in our analysis. Tables 1 and 2 provide the summary statistics and the correlation analysis of the variables used.

Variables and measures

Pre-election and Post-electoral protest; Political protest. Protests reported in the period between 16 March 2007 and 3 March 2012 are classified as *Pre-election protests*. *Post-electoral protests* pertain to the period between 4 March 2012 and 24 April 2013. The regression analysis below uses the post-electoral protest counts as dependent variables and gets around the problem of unobserved heterogeneity by using the pre-election protest levels as control variables to capture the effects of the unobserved region-specific factors common to pre-election and post-electoral protest environment. We also categorize protests based on the core set of target issues and construct region-specific political protest counts (*Political protests*). By distinguishing political from other types of protests (e.g. social, economic, and civic) we seek to capture challenges to the regime related to the electoral process, and, more broadly, challenges to the wider political system that facilitates electoral misconduct. We acknowledge that many protests that we code as *political* tend to address a host of issues

which may not be exclusively concerned with fraud, but may also address general issues of electoral fairness and competition. The *namarsh.ru* data that we draw on contains only brief reports about an event that has taken place and a general summary of the issues addressed in the protest. The criteria used for coding political protests were as follows. We categorise as political protests those primarily critical of the political regime or containing demands for political rights. Usually, such protests are organised by political opposition leaders and include large-scale events like March of the Millions, an opposition-staged political march; and the Strategiya-31 meetings demanding respect for the right to peaceful assembly. Political protests also include rallies against electoral fraud at various levels of authority; protests against the abuse of power and against violations of citizens' democratic rights; protests with demands for the resignation of political leaders in power; and protests calling for the release of political prisoners. Often, activists from various opposition parties jointly stage a rally, advancing numerous political demands. However imperfect, the *political* protests variable is the best data that we have at hand to capture political challenges to the regime considering the paucity of sub-national information on street rallies.

In contrast to protests that we code as political, generally, protests coded as social, economic, and civic are concerned with issues far removed from the electoral and wider political processes. Thus, a civic protest might be challenging waste dumping; and a social protest might target delays in wage payments by a local enterprise. As a result, if the regression analysis shows that general *protest* counts co-vary with fraud and if the relationship is causal, we would expect to observe a similar/stronger link between *political protest* and fraud. To be sure, political protest counts and civic, economic, and social protest counts are strongly correlated across the regions (correlation coefficient of 84%). This suggests that different protest categories are, in part, driven by common factors, some unobserved, that may affect the general participatory environment of a region. The regression

analysis below controls for this unobserved heterogeneity. (For further detail on protest coding, please see SI).

Last Digit Fraud. Psychological biases and the inability of individuals to generate truly random number sequences make last digit tests—tests based on last digit frequencies in vote counts reported by electoral commissions—a widely used methodology that helps detect and study potential cases of systematic vote count stage fraud (Beber and Scacco 2012; Deckert, Myagkov et al. 2011; Lukinova, Myagkov et al. 2011). In free and fair elections, last digits $j \in \{0,1, \dots, 9\}$ in turnout counts reported by individual precincts with at least 100 registered voters can be regarded as outcomes of identical and independent multinomial trials while individual digits, and, in particular, last digit zeros, should be observed with uniform probability $P_j = P = 0.1$. Last digit tests that pool data across polling stations in Russia’s March 2012 Presidential elections, while ignoring the differences across individual regions, strongly reject the hypothesis that the probability of last digit zeros is 10 percent for turnout counts, valid vote counts, and votes cast for the March 2012 Presidential elections winner Vladimir Putin (Skovoroda and Lankina 2016), while the hypothesis of uniform distribution of digits 1 to 9 (excluding last digit zeros) is rejected for turnout counts.

Our measures of *region-specific* last digit fraud $Deviance_0$ and $Deviance_{1-9}$ are based on the likelihood ratio statistic and on the concept of deviance and are defined as

$$Deviance_{0,i} = 2 \left(o_{i0} \log \left(\frac{o_{i0}}{0.1n_i} \right) + (n_i - o_{i0}) \log \left(\frac{n_i - o_{i0}}{0.9n_i} \right) \right)$$

, and

$$Deviance_{1-9,i} = 2 \left(o_{i1} \log \left(\frac{o_{i1}}{(n_i - o_{i0})/9} \right) + \dots + o_{i9} \log \left(\frac{o_{i9}}{(n_i - o_{i0})/9} \right) \right),$$

where O_{ij} is the observed frequency of digit j in region i , and n_i is the total number of polling stations in the region. Relatively larger values of $Deviance_{0,i}$, for a fixed n_i , indicate that the proportion of observed last digit zeros deviates from the 10% benchmark and signal deficiencies in electoral integrity in region i . Relatively larger values of $Deviance_{1-9,i}$, on the other hand, indicate that digits 1 to 9 are unlikely to be uniformly distributed.

Oblast and Russians. Russia's ethnically-defined republics have been consistently generating anomalous voting results for ruling political parties in Russia or parties known to be supported by the incumbent, at least from the mid-1990s. These patterns cannot be simply explained with reference to the electorate's programmatic preferences—there is no consistency in the ideological positions of the succeeding “parties of power.” Indeed, there are numerous accounts of both widespread fraud and pre-electoral manipulations in the ethnically-defined republics (Hale 2007; Myagkov, Ordeshook et al. 2005). Because the North Caucasus republics in particular are among Russia's poorest and most dependent on federal fiscal transfers, perhaps these patterns can be explained in terms of socio-economic vulnerabilities. The wealthier republics of Tatarstan and Bashkortostan are also however strongly deferential towards the national ruling parties and incumbents, so the ethnicity variable might have something to do with patterns of electoral support. Bryon Moraski and William Reisinger (2009) found that a higher share of ethnic Russians in regional populations is a consistent predictor of lower levels of regional support for national ruling parties and Presidency incumbents. Henry Hale (2007) argues that the pro-Kremlin patterns of deferential voting might reflect the survival of soviet-era ethno-patronage networks whereby elites in the ethnic autonomies could count on federal affirmative action policies in exchange for regime support. To capture these potential influences on the propensity of regions to perpetrate fraud, we employ the ethnic Russians as a share of regional populations variable

(*Russians*); and the institutional status variable, which takes the value of one if the region has *oblast* status and zero otherwise (*Oblast*).

Media freedom. In our analysis, we also control for ***Media freedom***, which captures regional media pluralism, censorship, and independence from municipal and regional authorities. This measure is obtained from the indices of regional political openness compiled by the scholars affiliated⁴ with the Moscow Carnegie Center Nikolay Petrov and Alexei Titkov (Petrov and Titkov 2013). We know that local officials can be highly sensitive to public exposure of their involvement in irregularities. (For a discussion, see SI). This would explain why some other studies have found media freedom to have a significant moderating effect on fraud (Birch and Ham 2014). This variable also captures general levels of regional political openness, so including it helps to alleviate concerns that our protest measures are not capturing variations in regional democratic conditions.

Fiscal transfers, Income, and Urbanization. We also control for per capita regional GDP (*Income*), urbanization (*Urbanization*), and federal fiscal transfers as a proportion of regional budgets in 2010 (*Fiscal transfers*). These variables serve as proxies for regional developmental variations and for the extent of dependence on the federal centre, factors which could in turn affect citizen socio-economic vulnerabilities (and corresponding propensity to succumb to pressures to deliver a pro-incumbent vote or to challenge electoral misconduct). Some scholars have also argued that fiscal “rentierism”—that is, regional dependence on the national centre for politically-motivated fiscal transfers—could be propitious for sub-national authoritarianism, which in turn could facilitate electoral misconduct (Gervasoni 2010). Fiscal transfers and income data are obtained from the Federal State Statistics Service.

Methodology

We use negative binomial regressions to model the expected number of post-electoral protests in region i as follows:

$$E_i(\text{Post} - \text{electoralProtests}) \\ = \exp(\alpha + \beta_1 \log(\text{Deviance}_{0,i}) + \beta_2 \log(\text{Deviance}_{1-9,i}) + \beta \text{controls})$$

where control variables include $\log(1 + \text{Pre} - \text{election Protests}_i)$. This specification allows us to control for the unobserved factors that might affect the general participatory environment of a region both before and after the elections. The aim is to test whether post-electoral protest intensity co-varies with the measures of last-digit fraud. A similar regression is fitted for *Political protests*. Negative binomial specifications account for overdispersion in the dependent variables. Control variables also include the (log) of the total number of polling stations n_i in the region. This is due to the fact that deviance measures of fraud Deviance_0 and Deviance_{1-9} both reflect the amount of region-specific fraud and the (region-specific) power of the statistical tests at the same time: if the sample size n_i and all frequencies O_{ij} are multiplied by a factor k , so are $\text{Deviance}_{0,i}$ and $\text{Deviance}_{1-9,i}$. As a result, if sample size n_i is omitted from the regression specification and if n_i varies systematically with the true measure of last digit fraud, the estimates are likely to be biased.

Table 1. Variables, definitions, and descriptive statistics

	Definition	N	Mean	St. dev	Min	Median	Max
(1) <i>Post-electoral Protest</i>	Total protest counts period 4.03.2012 to 24.04.2013	77	7.53	24.50	0	2	205
(2) <i>Post-electoral Political Protest</i>	Political protest counts period 4.03.2012 to 24.04.2013	77	4.04	13.96	0	1	115
(3) <i>Pre-election Protest</i>	Total protest counts period 16.03.2007 to 3.03.2012	77	54.79	155.34	0	24	1289
(4) <i>Pre-election Political Protest</i>	Political protest counts period 16.03.2007 to 3.03.2012	77	21.27	64.80	0	10	552
(5) <i>Deviance₀</i>	Last digit fraud index based on observed frequencies of last digit zeros and the likelihood ratio statistics	77	3.27	13.84	0.00	0.91	121.5
(6) <i>Deviance₁₋₉</i>	Last digit fraud index based on relative frequencies of last digits 1 to 9 and the likelihood ratio statistics	77	8.97	5.34	2.29	7.94	35.67
(7) <i>Total number of polling stations</i>	Total number of polling stations in the region	77	1152	788	52	973	3390
(8) <i>Urbanization</i>	Urbanization index, 2010	77	69.6	12.8	27.6	70.2	100
(9) <i>Income</i>	Income per capita ('000s RUB per month), 2010	77	16.4	6.06	7.54	14.67	43.9
(10) <i>Fiscal transfers</i>	Share of fiscal transfers in regional public expenditures, 2009, fraction	77	0.34	0.20	0.04	0.278	1.35
(11) <i>Media freedom</i>	Index of regional media freedom for 2006-2010	77	2.91	0.95	1	3	5
(12) <i>Russians</i>	Share of ethnic Russians in the regional populations, fraction	77	0.78	0.24	0.01	0.90	0.97
(13) <i>Oblast</i>	Regions with oblast status, dummy	77	0.74	0.44	0	1	1

Table 2. Correlation matrix, * p<.05

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>(1) Post-electoral Protest</i>	1											
<i>(2) Post-electoral Political Protest</i>	0.9903*	1										
<i>(3) Pre-election Protest</i>	0.9796*	0.9824*	1									
<i>(4) Pre-election Political Protest</i>	0.9796*	0.9827*	0.9939*	1								
<i>(5) Deviance₀</i>	-0.0323	-0.0436	-0.0328	-0.0309	1							
<i>(6) Deviance₁₋₉</i>	-0.0432	-0.0526	-0.0629	-0.0605	0.5753*	1						
<i>(7) Total number of polling stations</i>	0.4552*	0.4164*	0.4495*	0.4242*	0.0924	0.0498	1					
<i>(8) Urbanization</i>	0.3794*	0.3792*	0.3954*	0.3695*	-0.2412*	-0.106	0.2827*	1				
<i>(9) Income</i>	0.5494*	0.5372*	0.5460*	0.5367*	-0.0309	-0.127	0.196	0.5513*	1			
<i>(10) Fiscal transfers</i>	-0.2501*	-0.2377*	-0.2380*	-0.2192	0.2822*	0.0863	-0.4963*	-0.6224*	-0.2474*	1		
<i>(11) Media freedom</i>	0.2445*	0.2536*	0.2889*	0.2608*	-0.0284	0.0553	0.3565*	0.3779*	0.1097	-0.3438*	1	
<i>(12) Russians</i>	0.1094	0.1031	0.1298	0.1137	-0.4250*	-0.2198	0.175	0.5725*	0.1405	-0.5985*	0.3507*	1
<i>(13) Oblast</i>	0.1407	0.134	0.1537	0.1336	-0.2385*	-0.1761	0.2523*	0.5312*	0.1408	-0.4863*	0.3515*	0.8490*

Hypotheses testing

Table 3 reports the results of a set of negative binomial regressions. In specification M1, post-electoral *Protest* is regressed on the baseline (pre-election) protest intensity, on the last digit fraud measures *Deviance₀* and *Deviance₁₋₉*, and on control variables *log(Total number of polling stations)*, *Urbanization*, *Fiscal Transfers*, *Russians* and *Media Freedom*. Not unexpectedly, the pre-election protest intensity is identified as highly significant. Controlling for the baseline protest intensity, *Deviance₀* is found to be positively and significantly correlated with post-electoral political protests. This indicates that regions where the deviations in the proportion of observed last digit zeros from the 10% benchmark are statistically more significant are characterized by relatively higher levels of post-electoral protest intensity. As far as the control variables are concerned, regions relatively more dependent on federal transfers (*Fiscal transfers*) are characterised by a somewhat steeper decline in post-electoral *Protest*, even though this effect is not statistically significant. Model 2 introduces an alternative set of control variables that includes *Oblast* and *Income*, while *Russians*, *Fiscal Transfers*, and *Urbanization* are excluded due to multicollinearity. The key last digit fraud measure *Deviance₀* is identified as positive and statistically significant in this new specification. These results lend support for HY2 and suggest that regional last digit fraud positively affects the intensity of mass post-electoral protests. The *media freedom* variable is not significant, which may indicate that other channels are likely to be more effective in exposing fraud and galvanizing post-electoral protest. Pre-electoral protest activism (statistically significant and positive in Models 1-2), which could encourage citizens to show vigilance in exposing fraud during the elections, may be one such alternative channel. Another potential channel of information dissemination about fraud (not captured by our media freedom measure) would be online social media networks (Greene 2013; Smyth

and Oates 2015). The interaction effects between fraud and media freedom have also been tested and are not statistically significant.

If hypothesis HY2 is correct, we would also expect to see the evidence of the fraud-to-protest link in *Political protest* regressions, as the *Political protest* category should be particularly sensitive to the issues of the electoral process. Models 3 and 4 (Table 3), investigate this proposition. Similar to the first two regressions and consistent with HY2, *Political protest* regressions identify last digit fraud measure *Deviance₀* as statistically significant, suggesting that regional last digit fraud positively affects the intensity of mass post-electoral *political* protests.

Robustness checks

In order to be reassured about the robustness of our results, we perform two sets of additional checks. In the first set of robustness checks, we employ alternative control variables that are related to regional democratic variations. The index of regional democracy that we employ in our robustness checks has been developed in the 1990s-2000s by two experts affiliated with the Moscow Carnegie Centre, Nikolay Petrov and Alexei Titkov (both presently employed at the Higher School of Economics in Moscow. Further details on the indices are contained in SI). The index is constructed relying on subjective expert assessments, as well as systematic electoral competition data that are referred to as “instrumental” measures (such as effective number of candidates in governor elections; winning candidate’s share of vote in governor elections; governor turnover rates; and recorded instances of electoral malpractice). These latter types of “instrumental” measures are frequently employed in studies of cross-national democracy (Lankina & Getachew, 2012; Vanhanen, 2000). As Lankina et al. (2016b) write, there is a high degree of correspondence between Petrov and Titkov’s evaluations of Russian

regional democracy and assessments by scholars relying on alternative measures of regional democratic variations. This provides additional confidence in the validity of the Petrov and Titkov democracy measures employed in our study's robustness checks.

The indicators that we employ, constructed based on an assessment of regional democratic characteristics for the years 2006-2010, are *Media Freedom, Economic Liberalism, Civil Society, Political Structure, Elites, Corruption, Local Self-Governance, Openness, Democratic Elections, and Political Pluralism*. These indicators are highly correlated. We therefore run multiple alternative specifications where we control for each of these indicators separately in order to avoid multicollinearity problems. We also tested the aggregate "democracy index" that represents a simple average of the individual indicators listed above. We find that the central result of the positive relationship between last-digit fraud and post-electoral change in protest intensity is robust and is confirmed in all the specifications. (The selected results with alternative sets of control variables are presented in SI, Tables 4a and 4b).

Second, we test whether the results discussed in the previous section (where post-electoral protest intensity is measured over a thirteen-month period between 4 March 2012 and 24 April 2013) hold when post-electoral protest intensity is measured over a shorter, three-month, period between 4 March 2012 and 4 June 2012. A causal interpretation of our results hinges on the assumption that the strength of election-day fraud is indeed the *immediate* cause of the post-electoral change in protest intensity. However, it is increasingly unlikely that protests that happened six, nine, and twelve months after the election have election fraud as their immediate source of grievance and are not caused, instead, by issues related to post-electoral regional developments that might be correlated (not necessarily via a causal link) with the strength of election-day fraud. Post-electoral protests reported immediately after elections are perhaps more likely to be directly related to electoral process

issues. The tests that we report in SI, Table 5, confirm that the last-digit fraud measure $Deviance_0$ is statistically significant both in the *3-month Post-electoral Protest* regressions and in the *3-month Post-electoral Political protest* regressions, supporting HY2. We further show that the positive correlation between fraud and post-electoral change in protests is robust to the inclusion of a control variable that measures the geographical *Distance from Moscow* (in '000s km), both in the thirteen-month and in the three-month specifications. Overall, we are satisfied that the results are robust to alternative specifications.

Table 3. Determinants of post-electoral regional protest intensity, negative binomial regressions

	M1 <i>Post-electoral Protest</i>	M2 <i>Post-electoral Protest</i>	M3 <i>Post-electoral Political Protest</i>	M4 <i>Post-electoral Political Protest</i>
<i>Log(Deviance₀)</i> <i>(Last Digit Fraud Index</i> <i>based on observed</i> <i>frequencies of Last Digit</i> <i>Zeros)</i>	0.0994* (0.0446)	0.109** (0.0373)	0.138+ (0.0776)	0.149* (0.0696)
<i>Log (Deviance₁₋₉)</i> <i>(Last Digit Fraud Index</i> <i>based on relative frequencies</i> <i>of last digits 1 to 9)</i>	-0.0477 (0.167)	-0.0216 (0.189)	-0.0455 (0.219)	0.00695 (0.247)
<i>Log total number of</i> <i>polling stations in the</i> <i>region</i>	0.124 (0.208)	0.316 (0.192)	-0.188 (0.315)	0.155 (0.230)
<i>Urbanization</i>	0.00808 (0.0128)		-0.00383 (0.0138)	
<i>Fiscal transfers</i>	-1.521 (0.975)		-2.494+ (1.362)	
<i>Russians</i>	-0.513 (0.666)		-0.573 (0.823)	
<i>Media freedom</i>	-0.184 (0.118)	-0.167 (0.117)	-0.0651 (0.151)	-0.0936 (0.171)
<i>Oblast</i>		0.265 (0.295)		0.437 (0.464)
<i>Income</i>		0.00783 (0.0149)		-0.00972 (0.0172)
<i>Log (1+ Pre-election</i> <i>protest)</i>	1.062** (0.117)	1.041** (0.114)		
<i>Log, (1+ Pre-election</i> <i>political protest)</i>			1.272** (0.157)	1.256** (0.124)
<i>Constant</i>	-2.301 (2.023)	-4.302** (1.050)	0.405 (3.044)	-3.772** (1.446)
Pseudo R ²	0.2892	0.2791	0.2856	0.2762
Obs.	77	77	77	77
Wald chi2	Chi2(8) = 305.53	Chi2(7) = 401.17	Chi2(8) = 170.69	Chi2(7) = 288.82
LR test for overdispersion	33.66**	42.01**	10.47**	15.06**

Note: Robust standard errors in parentheses; + p<.1, * p<.05, ** p<.005

Conclusion

Our study indicates that Russian citizens were sensitive to signals about fraud perpetrated in their regions and challenged it by participating in post-electoral street rallies. As such, it corroborates insights from cross-national analyses suggesting that “the general public—individually and collectively—is capable of making fairly accurate assessments about the quality of elections occurring in their own country” (Norris 2014, p. 91). As Pippa Norris found, popular perceptions of the likelihood that fraud and other types of malpractice have occurred can be remarkably congruent with those of independent international experts specifically tasked with monitoring and assessing the quality of elections (Norris 2014, p. 99). The analysis presented in this paper makes several, more specific, contributions to the literature on electoral protest. First, our methodological strategy highlights the importance of incorporating sub-national street rallies into analyses of post-electoral mobilization. We accept that large-scale protests occurring in national capitals—which have been the focus of much of the literature on electoral protest—can have significant implications for regime stability in competitive authoritarian states. Yet, a preoccupation with protesters congregating in large cities might obscure the significance of provincial rallies, which, as our study has demonstrated, may have important signalling effects in terms of generating awareness among the citizenry about fraud. Second, as noted earlier, there is some ambiguity in the literature as to whether fraud has a galvanizing effect on protest, or, alternatively, whether it can in fact dampen enthusiasm for street mobilization to challenge the regime. Many more studies have tended to regard fraud as a galvanizing force for protest than those which have argued that the opposite tendency is usually at work. Yet, the former have drawn their empirical insights from a handful of high-profile successful electoral revolutions. Our sub-national approach allows us to further interrogate—and find support for—those assumptions that highlight the protest-generating potential of fraud. Unlike the earlier research however, we do not select

our cases based on a successful electoral protest outcome; rather, we employ a large number of observations corresponding to virtually all of Russia's regions, among which we find significant variations both in terms of their propensity to commit fraud and in terms of the intensity of street protest.

We accept that there may be a tendency of sub-national clients of the national regime to resort to multiple strategies of malpractice to ensure the desired result in the elections. In fact, in another paper we demonstrate that regional officials are likely to have used a variety of complementary types of electoral misconduct in the 2012 elections (Skovoroda and Lankina 2016). For instance, the strategy of tampering with ballots and vote counts is likely to have been augmented with both the pre-electoral manipulations, such as pressurising citizens to vote for the “right” candidate; and other election-day types of misconduct, such as, for instance, obstructing the work of electoral monitors at a given polling station. Our results may thus pick up the sensitivity of citizens to these different, more easily observable, manipulative and fraudulent tactics, and not just the sensitivity to the type of fraud used as a measure in our study.⁵ Yet, insofar as regional officials tend to resort to the fraudulent and manipulative strategies in a complementary fashion, the last-digit fraud measure that we employ may be regarded as a reasonably accurate measure of the general propensity of regions to commit violations of electoral integrity. Furthermore, unlike with many other types of misconduct, the value of the last-digit type of fraud measure that we employ is that it can be systematically captured in statistical analysis.

Finally, our findings indicate that sub-national post-electoral protest could be regarded as an additional mechanism for uncovering spatial variations in fraud, complementary to the “forensic” techniques discussed in this paper. Protests could also complement the formal mechanisms of electoral scrutiny such as election monitoring and observation, which, as a number of recent studies have noted, can be effective both at

exposing fraud and preventing it (Birch and Ham 2014; Hyde and Marinov 2014; Hyde 2007) (but see (Simpser and Donno 2012)). Although beyond the scope of this study, relatedly, we may also conjecture that protest may serve as an additional signalling mechanism in cases where rulers seek to “displace” (Ichino and Schuendeln 2012) fraud from one locality to another as a way of avoiding electoral scrutiny by monitors who are often spread thinly across the territory of a particular country and do not usually cover each and every electoral precinct.

We accept that there are a number of scope restrictions qualifying the conditions under which our findings apply. As noted earlier, some scholars see fraud as *the motor* of street contention (Tucker 2007). This line of theorizing however would stop short of explaining why fraud often goes unchallenged (Beissinger 2007; Bunce and Wolchik 2011; Simpser 2013; Tucker 2007). Our objective has been to analyse the implications of locally-perpetrated fraud for sub-national protest during a period of heightened mobilization against an autocratic regime. Such episodes of contention occur where factors conducive to the genesis of protests are already at work, most notably a constellation of propitious national political opportunities (Greene 2013; Tarrow 1996). Street action might also represent a culmination of a long-term process of accumulation of skills, experiences, and cultural capital essential for generating anti-systemic challenge (Robertson 2007; 2013). Furthermore, fraud might go unchallenged during several electoral periods, yet, over the long-term it may erode system legitimacy, galvanizing protests.

Further analysis is also warranted of the mechanisms of signalling fraud, which might mediate the causal links between fraud and protest uncovered in our research. Does mass protest indicate political opposition strength in a given region and its capacity to furnish electoral monitors, who then expose fraud? We know that political competition may promote the exposure of dirty tricks by rival candidates, for instance (Sharafutdinova 2011). Is it the

case that regions with more protest also those where the media environment is relatively open enabling the dissemination of credible signals about fraud? While our analysis and robustness checks do not indicate that independent regional media significantly affect the propensity to protest, we are aware that online social media, which we do not incorporate into the statistical analysis part of our study, had been particularly instrumental in exposing fraud in Russia's 2011-2012 elections. Although we provide some illustrative examples of the information dissemination role of the social media in exposing fraud in Russia (see SI), more systematic analysis is required to ascertain how these signalling effects worked to rally citizens in the various regions.

Finally, as a post-script to our study, we would like to acknowledge the uncertain implications of dramatic citizen mobilization for a country's democratic prospects (Bermeo 1997; Goldstone 2001). Nevertheless, our research underlines the potentially corrosive effects of local contention on the spatial component of hybrid regimes' efforts at self-reproduction.

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Notes

¹ The approach also has limitations. The tests are robust to various data generating processes, but target a particular type of fraud mostly consisting of writing in made-up numbers in the polling stations' return sheets. These tests may not detect forced voting, multiple voting, and ballot stuffing.

² We are grateful to the anonymous referee for encouraging us to justify and sharpen our use of the various terms. Smyth et al. (2013, p. 25), in what is different from our approach, characterise Russia's regime at the time of the 2012 elections as electoral authoritarian in that electoral competition is combined with "elements of coercion and manipulation."

³ Oxford Scholarship Online pagination

<http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199680320.001.0001/acprof-9780199680320-chapter-10?print=pdf>

⁴ Currently, they are affiliated with the Higher School of Economics in Moscow, but the ratings have been developed as part of the Moscow Carnegie Centre's project to monitor democratic variations in Russia's regions.

⁵ We are grateful to the anonymous referee for suggesting this point.