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LETTER

Do More Disaggregated Electoral Results Deter Aggregation Fraud?

Miguel R. Rueda[1], Guy Grossman[2] and Shuning Ge[3]

[1]Department of Political Science, Emory University, Atlanta, GA, USA, [2]Department of Political Science, University of Pennsylvania, Philadelphia, PA, USA and [3]Massachusetts Institute of Technology, Cambridge, MA, USA
Corresponding author: Miguel R. Rueda; Email: miguel.rueda@emory.edu

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Abstract
The level of aggregation at which electoral results are published can impact election integrity. Publishing results at a more granular level – such as at the level of the polling station – enables civil society watchdogs to independently verify vote totals, helping to deter aggregation fraud. While this logic undergirds the recommendations of the international organizations monitoring elections to publish more granular electoral results, to date there have not been systematic assessments of how variation in aggregation is linked to electoral miscounting. We address this gap by assembling a novel dataset on the granularity of electoral results in 123 low- and middle-income countries since 2000. Our findings revealed a strong negative relationship between reporting granularity and indicators of vote count irregularities. Importantly, we found no evidence that greater transparency leads to substitution into other forms of electoral manipulation, such as violence or clientelism, as measured by expert-based indicators.

Keywords: electoral results transparency; aggregation fraud in elections; electoral manipulation

Efforts to safeguard elections' integrity have gained significant attention in recent years. Often considered important in the context of authoritarian regimes and new democracies, allegations of electoral manipulation have become a salient issue (also) in consolidated democracies (Albertson and Guiler, 2020). The frequency of post-election violence (Daxecker, 2012) underscores some of the dangers of the public losing confidence in elections. Therefore, a better understanding of the factors that affect election integrity is a first-order concern.

The importance of election integrity has led to significant and growing bodies of work on the efficacy of election observers (for example, Hyde, 2007; Kelley, 2012), and on the independence and capacity of election management bodies (EMBs) (for example, James et al., 2019). By contrast, except for a handful of country-specific studies discussed below, the reporting of election results at different levels of aggregation has received, to date, (too) little scholarly attention. While some countries make election returns publicly available at the polling station level (for example, Uganda 2011), other countries only release them at higher aggregation levels, such as the district (for example, Costa Rica 2014) or the province levels (for example, Angola 2008). Countries also change the level at which they publish election results over time. Does the level of voting aggregation reporting practice matter for election integrity?

There are good reasons to believe that the level at which voting results are published structures politicians' incentives to engage in voting aggregation fraud. Following Callen and Long (2015),

we define voting aggregation fraud as the manipulation of vote totals that occurs during the tallying process. When EMBs report electoral results at high aggregation levels, they cannot be checked against lower-level returns. Moreover, high aggregation reduces the number of electoral units publishing their vote totals, which can lower the manipulation costs. If only national totals are published, a corrupt regime only needs to alter one unit's results. In contrast, if results are published at the polling station level, the regime must tamper with multiple stations, requiring the management of such tampering in each of them. Based on these ideas, international organizations overseeing elections recommend publishing disaggregated results. For example, when discussing best practices for election management, the European Commission (2008, p.86) recommends that results get published 'in full, including a breakdown of results by individual polling station/counting center, as well as regional constituencies, to allow for crosschecking of results'.

Consistent with this concern, two country-specific studies found evidence of voting aggregation fraud. In a 1988 Mexican presidential election study, Cantú (2019) found evidence of aggregation fraud in approximately one-third of vote tallies. Similarly, recent work on Afghan elections suggests fraud patterns during the aggregation process (Callen and Long, 2015). The fact that scholars identified traces of fraud in Mexico and Afghanistan, however, does not necessarily mean that differences in election returns reporting practices affect the extent of aggregation fraud. This is the key hypothesis we set out to test.

To date, there is no systematic catalog of voting aggregation practices across countries and time to test the above hypothesis (for a review of existing datasets, see Appendix A). This gap exists partly due to the challenges of collecting such data, including language barriers and the difficulty of accessing election returns published online in complex formats. To address this, we have created a novel dataset on voting aggregation practices for 123 low- and middle-income countries over 21 years (2000–20). This dataset is our first contribution to the study of election organization and integrity.

Using our data, we documented a negative association between the granularity of published electoral results and counting irregularities. Our primary outcomes used experts' coding from the Varieties of Democracy project (V-Dem). We found that an increase in reporting granularity that was larger than one standard deviation (above the reporting level observed in the first election period) was associated with a significant reduction in counting irregularities measured by V-Dem's *Other Voting Irregularities* Index. The reduction represented 56 per cent of the mean of the index. The negative association was robust to controlling for the most important determinants of reporting granularity and electoral malpractice and to other fraud measures.

One concern with the results is that experts' coding of counting irregularities might be influenced by changes in election results reporting practices. While we lack direct measures of voting aggregation fraud, we explore related implications. If voting aggregation fraud is less likely with more granular electoral results (as we argue), an increase in reporting granularity should, therefore, correlate with a reduction in incumbent vote share. This is indeed what we found. In addition, we observed that increased reporting granularity was linked to fewer delays in reporting election outcomes, as significant delays are often associated with fraud in the voting aggregation process (Alvarez et al., 2009).

Because incumbents could switch to other forms of manipulation when voting aggregation fraud is harder to undertake, we also checked whether the granularity of published electoral results correlated with other forms of election misconduct. We do not find evidence of substitution. Consistent with that result, we further found that higher disaggregation of electoral results was positively associated with experts' coding of overall electoral quality.

Our estimates reflect partial correlations. The robust negative relationship between fraud measures and result granularity suggests that corrupt regimes may choose aggregated results trying to conceal fraud or that granular reporting forces all leaders to avoid manipulation. Both interpretations highlight how election results get published shapes the incentives of pseudo-democratic leaders when considering undermining electoral processes.

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Data and Measurement

Our original data include two components:

1) longitudinal dataset that locates the lowest aggregated level of election results, including the smallest unit at which results are reported and the number of such units; and
2) dataset on the provenance of those reported election results (that is, the format and location of publicly available election data, including ease of accessing).

Our sample includes 123 low- and middle-income countries (LMICs), listed in Table A2. We included all LMICs identified as publishing electoral results online by a national official entity. We focused on online sources, as those particular sources facilitated the hypothesized crosschecking of vote totals with lower-level units (for example, publishing physical copies of polling station results by the stations without uploading them online would not easily allow aggregation verification). The data retrieval occurred in 2021–22 and focused exclusively on national-level government sources (for example, electoral commissions, interior ministries, and statistical bureaus). Data available online from non-government sources that might differ from what official sources published in 2021–22 (for example, researchers' websites) were not collected, as we were interested in information that was chosen to be widely and directly provided by authorities. Using the National Elections Across Democracy and Autocracy dataset (NELDA) to map the universe of elections, we located electoral results for 76.4 per cent of presidential elections and 72.3 per cent of legislative ones, with the bulk of missing elections concentrated in the first ten years of the analysis period. Additional information on constructing and describing our data can be found in Appendixes B and C.

We focused on variations in voting aggregation reporting levels (granularity) for national legislative or presidential elections. The measures we used in our regression analysis captured changes in reporting granularity of different magnitudes. The first was the (logged) number of smallest units at which electoral results are published. The second was a dichotomous measure indicating whether a country election 'jumped' in reporting granularity (for example, from district to polling station) compared to its first election period. This measure captures changes in levels but not significant changes within a level, such as a large increase in the number of districts after a reform.[1] To account for such situations, the second dichotomous measure of granularity takes the value of one in periods where the number of the most disaggregated units at which EMBs published electoral results was larger than one standard deviation of the number of units for that country-election type over its first period's units. We adjusted both dichotomous measures for the possibility that a country could already be publishing the most granular results in the first election period. In Appendix D, we provide more details on the construction of these and alternative voting reporting granularity measures that capture different definitions of what a 'big' change in aggregation represents.

A first look at our data revealed that in the study period (2000–20), 14 per cent of all elections in our sample had electoral returns reported at the country level, 19 per cent reported at the polling station level, and the rest at some other level of aggregation.

Figure 1 shows the evolution of reporting granularity. The boxplot captures the pooled distribution of our continuous measure normalized by population (left), showing an increase in voting granularity reporting over time.[2] We used panel view (Mou et al., 2023) to further illustrate the trend towards higher disaggregation in the past two decades. Figure 1 (right) shows the spatial and temporal variation of our first dichotomous measure of granularity, which captures changes in levels. In the figure, each row represents a country-election type and a darker color indicates

[1]There is important variation in the number of units, even within a given level of reporting (Appendix D).

[2]Normalization avoids overstating disaggregation when the results are reported at intermediate and low levels (that is, more populated countries have more districts, etc.).

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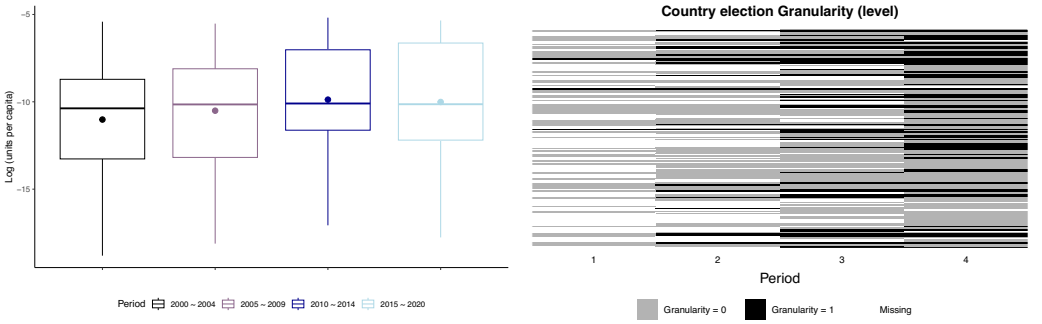

Figure 1. Granularity in reported electoral outcomes over time.

greater reporting granularity. Overall, during the study period, 81 country-election-type units experienced an increase in the level of reporting granularity, and 21 country-election-type units experienced a decrease. Appendix H also lists the continuous granularity measures per country per period.

Outcomes Measures

Our primary outcomes captured voting aggregation fraud. First, we used V-Dem's *Other Voting Irregularities* Index. This index is based on experts' assessments of intentional voting irregularities, including vote misreporting, false collation, use of double IDs, ballot stuffing, and deliberate lack of voting materials.[3] It excludes other forms of misconduct like registration access restrictions, opposition harassment, voter registry manipulation, or vote buying. Figure 2 shows the relationship between this index and our continuous measure of reporting granularity after controlling for population.

Second, we tested the robustness of our findings using the *Fair Count* variable from the Perceptions of Electoral Integrity (PEI) dataset (Garnett et al., 2022). This variable, reflects experts' coding of whether votes were counted fairly. It has the advantage of directly capturing voting aggregation fraud but has the disadvantage of a narrower temporal coverage. We recoded the outcome variables (when needed) such that higher values pointed to worse outcomes. Table 1 provides descriptive statistics of the alternative reporting granularity measures and of our dependent variables. Note that we were unable to use election forensic tools (such as those in Mebane et al. (2022)) since the number of the smallest units at which EMBs publish electoral results was often too small for forensics.

Empirical Strategy

Our unit of analysis was the country-election-type period, with periods capturing five-year intervals. This unit accounted for the fact that our key outcomes were election-specific and for differences we observed in the level at which EMBs reported the results of presidential and legislative elections (see Appendix H). We used periods to reduce data sparseness and to smooth out any volatility caused by idiosyncratic short-term shocks affecting perceptions that were not linked to election quality changes. Our outcome measures are the averages of yearly values in the period. We also report an annual data analysis in Appendix J.3.

To explore the relationship between voting granularity practices and electoral malpractice, we estimate the following model:

[3]The use of double IDs refers to voters using falsified documents to vote more than once, and ballot stuffing, any practice involving the illegal addition of extra ballots.

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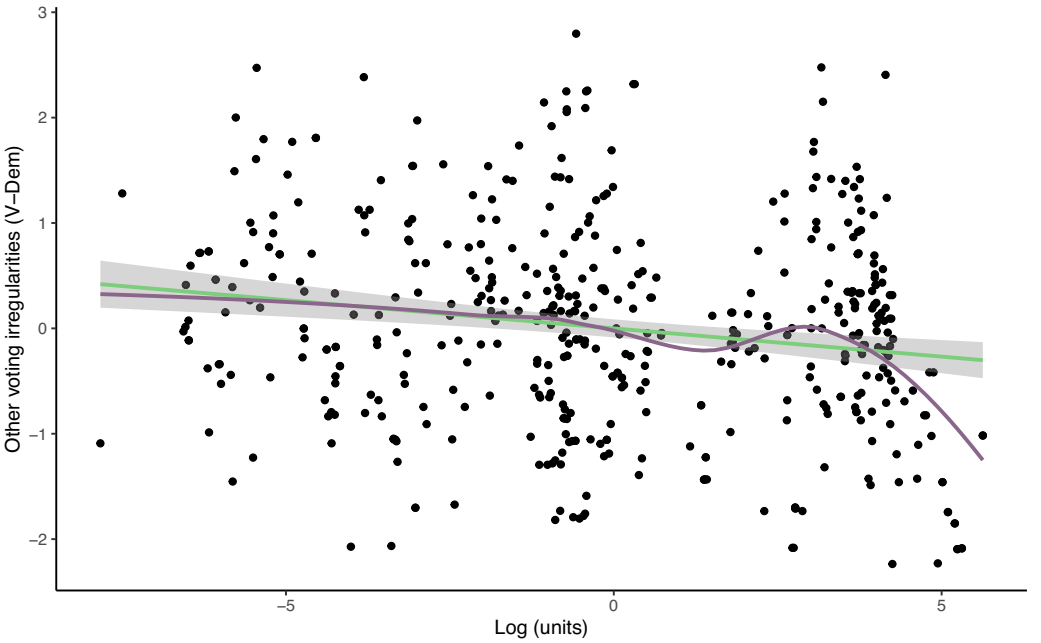

Figure 2. Granularity in reported electoral outcomes and voting irregularities.

$$y_{i,t} = \alpha + \phi\ granularity_{i,t} + X'_{i,t}\beta + \lambda_i + \epsilon_{i,t},$$

where $y_{i,t}$ is the outcome of interest for country-election type i in period t, $granularity_{i,t}$ is one of the three alternative measures of electoral returns reporting granularity, and $X'_{i,t}$ is a vector of predetermined covariates measured at the end of period $t-1$. The model also includes country-election-type fixed effects, λ_i. We account for time-varying determinants of electoral malfeasance that can alter how electoral results are published. For example, for a regime to change the granularity of the published electoral results, it needs control over the EMB, and such an EMB must have the capacity to implement such changes.[4] The independence and capacity of the EMB also affect the integrity of the election in alternative ways and are, therefore, included in $X'_{i,t}$. Other controls are (logged) GDP, (logged) population, urbanization, the size of the legislature (lower chamber), presence of international monitors, and polity score (see justification for their inclusion in Appendix F). Standard errors, $\epsilon_{i,t}$, are clustered at the country level, allowing for arbitrary correlation of error terms across time and types of elections in the same country.

The model holds fixed the invariant characteristics of a country, comparing its electoral manipulation between periods when granularity changes. This is important, as unobserved country-specific political or cultural factors could bias our results. Our model also accounts for fixed differences across the type of election, which could determine manipulation and how the results are reported (for example, unobserved rules for presidential and legislative elections). Nonetheless, time-varying factors correlated with the changes in granularity that are not linked to our set of controls could confound the relationship of interest. Given recent observations on the difficulty of interpreting two-way fixed effects (TWFE) models (Kubinec and Kropko, 2020), we did not include period intercepts in our main specification, but report them in Appendix J.2.

We would like to emphasize that our estimates capture partial correlations. Even if we had controlled for key confounders, the fact that regimes do not randomly adopt varying levels of

[4]In Appendix I, we show the relationships between potential determinants of granularity and our continuous granularity measure.

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Table 1. Descriptive statistics

Granularity measures	Mean	Median	s.d.	Min	Max	N
Log (units)	5.5	5.4	3.4	0	14	413
Granularity (level)	0.3	0	0.46	0	1	413
Granularity (s.d.)	0.35	0	0.48	0	1	413
Core outcomes						
Other voting irregularities (V-Dem)	0.39	0.35	0.98	−1.8	3.1	413
Unfair count (PEI)	−3.3	−3.5	0.92	−5	−1	171

This table presents descriptive statistics for the key independent and dependent variables. Statistics are computed on the sample used in Table 2.

electoral aggregation when publishing their results precludes clear causal interpretations. How might self-selection affect the interpretation of the results?

Given the growing demand for transparency in electoral counting, regimes of all stripes may view the push for publishing disaggregated electoral results as a norm they must adhere to in order to project a pro-democratic image, which brings benefits from both domestic and international audiences. This logic is not dissimilar to explanations of why non-democratic regimes allow observers to monitor their elections (Hyde, 2011). If disaggregating electoral results effectively reveals fraud when it occurs, corrupt regimes may find the cost of increased granularity to be too high. In this scenario, non-corrupt regimes would likely adopt disaggregated reporting, while corrupt leaders who want to reduce the risk of electoral defeat by hiding cheating would publish aggregated vote totals. Importantly, some regimes not fully committed to democratic values may still opt to publish disaggregated results without resorting to cheating. This is likely when such regimes are insecure and hope to use a clean victory as a public signal of their strength to deter potential threats (Rozenas, 2016). Finally, if disaggregation does not prevent aggregation fraud but nonetheless offers reputational benefits, pseudo-democratic regimes may publish disaggregated results while continuing fraudulent practices. This would make it harder for us to find a negative correlation between the granularity of reporting and measures of fraud or incumbent vote shares.

In essence, a negative relationship between granularity and measures of aggregation fraud is consistent with two scenarios: first, corrupt regimes that cannot modify reporting granularity because of institutional rigidities avoid aggregation fraud due to the constraints imposed by disaggregation; or second, knowing the challenges of cheating under disaggregation, secure pseudo-democrats may opt to not publish disaggregated results while still manipulating the totals.[5] Without an exogenous source of variation in aggregation levels (that is, an instrument), we cannot say which of these interpretations has more weight.[6] Nevertheless, a negative correlation between the granularity of electoral results and aggregation fraud would provide the first systematic evidence of how this aspect of electoral administration shifts the incentives of incumbents considering engaging in fraud.

Granularity and Counting Irregularities

Table 2 shows the relationship between voting reporting granularity and (experts' coding of) counting irregularities. The dependent variable in Columns 1–3 is V-Dem's *Other voting irregularities* measure. We found that the estimates were negative across reporting granularity measures. Using Model 3, an increase in reporting granularity that was larger than one standard deviation (above the level observed in the first election period) was associated with a reduction in

[5]Insecure pseudo-democrats can act like true democrats running clean elections with more granular results publishing.

[6]Also, the no-anticipation of treatment assumption required in a difference in differences design is likely to be violated if leaders change the level of reporting aggregation based on current or expected manipulation levels.

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Table 2. Granularity and vote counting irregularities

	Other voting irregularities (V-Dem)			Unfair count (PEI)		
	Log (units)	Granularity (level)	Granularity (s.d.)	Log (units)	Granularity (level)	Granularity (s.d.)
Outcome	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.031**	−0.117	−0.214***	−0.111***	−0.278*	−0.396***
	(0.012)	(0.091)	(0.077)	(0.029)	(0.157)	(0.114)
Country-election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Granularity est./mean	0.08	0.3	0.56	0.03	0.08	0.12
No. countries	98	98	98	94	94	94
No. country elections	158	158	158	129	129	129
Observations	413	413	413	172	172	172
Adj. R^2	0.83	0.82	0.83	0.72	0.68	0.70

This table reports the coefficient estimates on our measures of reporting granularity, capturing their association with election counting irregularities. Controls were measured at the previous period's end and listed in the text. Among 123 countries in our dataset, fourteen were dropped in Models 1–3 since V-Dem did not report other irregularities for those country elections, and eleven countries were dropped due to missingness in covariates. PEI covers 169 countries, but the dataset only began in 2012, and our sample covers only 111. Hence, we only used two periods in Models 4–6. Granularity est./mean is the estimated coefficient over the mean outcome. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

counting irregularities that represented 56 per cent of the mean of V-Dem's vote irregularity index.

These results did not depend on how experts' responses were aggregated or collected. Using PEI's measure of counting irregularities (*Unfair count*, Columns 4–6), granularity was again negatively linked to experts' coding of unfair counting. PEI, however, covered only the last two periods in our dataset, significantly reducing the number of observations.

Incumbent Vote Shares, Delays, and Robustness

One might be concerned that experts' coding of the outcome is affected by prior knowledge of a country's election reporting practices. We report two further tests that are inconsistent with this possibility but that link reporting granularity to actual aggregation fraud. First, if voting aggregation fraud occurs, election results are more likely to be announced with delays. Indeed, increasing voting reporting granularity is associated with a significant reduction in percieved delays (about 20 per cent of the mean of the delays measure). The findings are reported in Table I5.

We also found that the electoral performance of incumbents was adversely affected by increased reporting granularity. We reviewed all presidential elections in our data, identifying the incumbent party and excluding cases where such a party did not have a candidate in the next election. We describe our coding criteria in Appendix G. An increase of one standard deviation in the number of units at which the most disaggregated results were published was associated with a 7.9 percentage point reduction in the incumbent party's vote share (see Table 3, Column 3). We further found that the probability of the incumbent losing increases with reporting granularity (Columns 4–6). However, while substantively large, the coefficients fell below significance levels and the models have poor fit.

Another concern is spuriousness: If the quality of elections is improving for reasons other than the way the results are published, there could be a spurious correlation between reporting granularity and malfeasance given the global trend toward disaggregation (Figure 1). In Appendix I, we show that there is no consistent pattern across measures of election quality over time and specifications that include period intercepts give similar results to those reported here (Appendix J.2).

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Table 3. Granularity and electoral outcomes

	Incumbent vote share			Losing probability (NELDA)		
	Log (units)	Granularity (level)	Granularity (s.d.)	Log (units)	Granularity (level)	Granularity (s.d.)
Outcome	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.016***	−0.088**	−0.079**	0.025	0.157	0.092
	(0.006)	(0.036)	(0.032)	(0.016)	(0.098)	(0.092)
Country-election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Granularity est./mean	0.03	0.17	0.15	0.13	0.8	0.47
No. countries	67	67	67	67	67	67
Observations	163	163	163	156	156	156
Adj. R^2	0.57	0.56	0.56	0.00	−0.01	−0.02

This table reports coefficient estimates on the association of our measures of reporting granularity with incumbent vote share as well as losing probability (NELDA). Controls are measured at the previous period's end and listed in the text. Granularity est./mean is the estimated effect over the mean outcome. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

An additional concern stems from the fact that vote totals available to the public immediately after past elections may differ from the ones we observed in 2021–22. For example, some countries publish disaggregated results following elections, but after some time, they switch to reporting, in official channels, only more aggregated totals (for example, Colombia). Note that this measurement error would make finding a negative and significant relationship between our variables of interest harder if disaggregated results imposed constraints on manipulation. Finally, as seen in Appendix J.1, our substantive conclusions did not depend on how we defined 'big' jumps in reporting granularity to capture reforms affecting the number of reporting units that did not entail changing the level of reporting.

Substitution to Other Forms of Misconduct?

It is possible that corrupt leaders could switch to alternative manipulation strategies when aggregation fraud is restricted by vote reporting granularity. Furthermore, increased voting granularity could directly facilitate other forms of misconduct such as electoral violence and vote buying, as granularity forces voters to vote for manipulators in small groups (Rueda, 2015). Publishing more granular electoral totals may also help monitor party operatives' mobilization efforts (Gottlieb and Larreguy, 2020).

We tested for electoral misconduct substitution by using the following outcomes: *Registry irregularities*, *Intimidation to opposition*, *Clientelism*, all taken from V-Dem; and *Severe violence against civilians*, from the NELDA dataset (Hyde and Marinov, 2012). In addition, because high-capacity regimes might switch to other tactics like altering participation rules and election, or restricting media access to the opposition, or election monitoring, we also examined as outcomes the *Electoral laws and procedures PEI* indexes, presence of *International and domestic monitors*, and election *Free media* from V-Dem. Table F6 reports descriptive statistics for these outcomes.

Table 4 shows the estimated relationships using the continuous and level measures of reporting granularity. Panel A shows a negative association between increased granularity and V-Dem's measure of *Intimidation to opposition*, which captures attacks on opposition candidates and party officials. The estimates, however, are not significant when using NELDA's alternative measures (Table I7). Similarly, *Severe electoral violence against civilians* has a positive and significant coefficient on the continuous reporting granularity measure. However, these results are not robust to alternative outcome measures from the Electoral Contention and

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Table 4. Granularity and substitution to other forms of malfeasance

Panel A	Vote choice manipulation				Barriers to opposition					
	Severe violence, civilians		Clientelism		Intimidation to opposition		Opposition not allowed		Free media	
	(NELDA)		(V-Dem)		(V-Dem)		(NELDA)		(V-Dem)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	0.029**	0.118	−0.002	−0.011	−0.031**	−0.208**	0.005	0.045	−0.033**	−0.074
	(0.013)	(0.074)	(0.002)	(0.012)	(0.014)	(0.086)	(0.011)	(0.055)	(0.014)	(0.090)
Country-election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity est./mean	0.1	0.42	0	0.02	4.05	26.91	0.03	0.27	0.03	0.07
No. countries	97	97	98	98	98	98	97	97	98	98
No. country-elections	158	158	159	159	158	158	157	157	158	158
Observations	407	407	414	414	413	413	407	407	413	413
Adj. R^2	0.34	0.33	0.91	0.91	0.85	0.85	0.32	0.33	0.78	0.78
Panel B	Monitoring restrictions				Laws and procedures manipulation					
	Domestic monitors		International monitors		Registry irregularities		Electoral laws		Electoral procedures	
	(V-Dem)		(V-Dem)		(V-Dem)		(PEI)		(PEI)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
Outcome	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	−0.004	0.001	−0.003	−0.019	−0.025*	−0.143*	0.753	6.610	−1.308***	3.957
	(0.008)	(0.036)	(0.006)	(0.038)	(0.014)	(0.084)	(0.708)	(4.142)	(0.478)	(4.602)
Country-election fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity est./mean	0	0	0	0.02	0.06	0.32	0.01	0.12	0.02	0.06
No. countries	97	97	98	98	98	98	94	94	94	94
No. country elections	157	157	158	158	158	158	129	129	129	129
Observations	408	408	413	413	413	413	172	172	172	172
Adj. R^2	0.71	0.71	0.58	0.58	0.81	0.81	0.73	0.74	0.76	0.75

Estimates of the coefficient on granularity in models of other forms of electoral malpractices. Controls are measured at the previous period's end and listed in the text. Granularity est./mean is the estimated effect over the mean outcome. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Violence dataset (Daxecker et al., 2019), which uses information from news articles and captures other forms of violence like threats (Table I8).

We also found no evidence of substitution from voting aggregation fraud to clientelism (Panel A). This is somewhat inconsistent with growing evidence that publishing highly disaggregated electoral returns improves incumbents' ability to monitor voters' and brokers' behavior (Caselli and Falco 2022). One explanation is that corrupt politicians can access more disaggregated electoral results than the public. If true, changing voting aggregation reporting practices would not entail changing politicians' monitoring capacity. As for other forms of manipulation involving election laws, procedures, and monitoring restrictions, we did not see positive and significant coefficients for reporting granularity, either.

These findings are consistent with the negative relationship we observed between reporting granularity and the incumbent's vote share. If political actors were substituting aggregation fraud with other equally effective forms of manipulation, we should not observe a decline in support for the ruling party, nor improvements in overall quality of elections. Contrary to this expectation, we found that greater reporting granularity was associated with more favorable assessments of electoral quality by experts and international monitors – though these coefficients were less precisely estimated. Public perceptions of election quality appeared to be unaffected by reporting granularity. Appendix I.5 presents these results. The results in this section with TWFE specifications, other granularity definitions, and yearly data can be found in Appendixes J.1, J.2, and J.3.

Conclusion

This paper makes two key contributions. First, it provides the first systematic evidence that the level of electoral result publication shapes political actors' incentives and opportunities for aggregation fraud. In doing so, it empirically tests a core assumption underlying the recommendations of election monitoring organizations. Second, the longitudinal dataset we constructed opens new avenues for research on the effects and determinants of transparency in electoral processes.

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Data availability statement. Replication materials for this article can be found in Harvard Dataverse at https://doi.org/10.7910/DVN/LPSUBC.

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