Online Appendix "Do More Disaggregated Electoral Results Deter Aggregation Fraud?" (not intended for publication)

A   Motivation: review of existing election datasets

To date, no systematic catalog exists of the level at which election results are made public across countries and over time. This presents a significant data limitation to the study of voting fraud, and other forms of election manipulation. While there exist several datasets on elections around the world, none provide information on voting aggregation reporting practices for most countries (see Table A1).

For example, the National Elections Across Democracy and Autocracy (NELDA) dataset provides coverage of all national election events around the world but contains no information on disaggregated election results, or aggregation practices (Hyde and Marinov 2012). The Political Parties, Elections, and Governments (PPEG) database, similarly reports election results around the world, but only at the national level. More closely related is the Constituency-Level Elections Archive (CLEA), a repository of detailed election results at the constituency level for lower chamber and upper chamber legislative elections from around the world (Kollman et al. 2019). The Multi-Level Elections Archive (MLEA) provides detailed data on constituency-level election results, including national, regional, and local elections. However, constituency-level data, while enormously valuable, cannot inform us about political or institutional choices at which level to publish election results.

Table A1: Comparison of relevant election datasets

Dataset	Relevant data	Geographical scope
NELDA	National-level election results	Global
CLEA	Constituency-level election results	Global
MLEA	Constituency-level election results	Global
MIT Lab	Precinct-level election results	United States
HEDA	Precinct-level election results	United States
ACE	Electoral management bodies	Global
Our dataset	Lowest level published election results	LMICs

To our knowledge, only for some elections in some countries do there exist available datasets with election results below the constituency level. For example, both MIT Election Lab and the Harvard Election Data Archive (HEDA) make public precinct-level results in the United States. However, for most countries, especially low- and middle-income countries, curated datasets for elections below the constituency level do not exist. Further, while there exists (some) data on the lowest level at which votes are **counted**, there is no dataset that provides data on the lowest level at which election results are **reported**. The Ace Electoral Knowledge Network provides a static cross-sectional snapshot of vote counting levels across countries. In contrast, our newly constructed dataset assembles data on vote publication, and importantly, records information on prior elections available at a given time in official national-level government websites.

Table A2: Countries included in data collection by region

Sub-Saharan Africa
Included: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde,
Comoros, Congo Rep., Cote d'Ivoire, Djibouti, Ethiopia, Equatorial Guinea, Gabon,
The Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Lesotho,
Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger,
Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Sudan,
South Sudan, Swaziland (Eswatini), Tanzania, Togo, Uganda, Zambia, Zimbabwe.
Excluded: Democratic Republic of the Congo, Eritrea, Libya, Seychelles, Somalia, Somaliland.

Middle East and North Africa
Included: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Lebanon, Morocco, Tunisia, UAE.
Excluded: Israel, Kuwait, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria.

Europe and Central Asia
Included: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia,
Kazakhstan, Kosovo, Kyrgyzstan, Malta, Moldova, Montenegro, North Macedonia, Romania,
Russia, Serbia, Tajikistan, Ukraine, Uzbekistan.
Excluded: Andorra, Austria, Belgium, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland,
France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania,
Luxembourg, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia,
Spain, Sweden, Switzerland, Turkey, Turkmenistan, United Kingdom.

Latin America and the Caribbean
Included: Antigua & Barbuda, Argentina, Bahamas, Belize, Bolivia, Brazil, Cayman Islands, Colombia,
Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti,
Honduras, Jamaica, Nicaragua, Paraguay, Peru, Saint Lucia, Saint Vincent and the Grenadines,
Suriname, Venezuela.
Excluded: Barbados, Chile, Cuba, Mexico, Panama, Saint Kitts and Nevis,
Trinidad and Tobago, Uruguay.

South Asia
Included: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka.

East Asia and Pacific
Included: Cambodia, Fiji, Indonesia, Kiribati, Malaysia, Micronesia, Mongolia, Burma/Myanmar,
Nauru, Philippines, Samoa, Solomon Islands, Thailand, Timor-Leste, Tonga, Vanuatu.

B Information acquisition

In this section, we describe the procedures used to find the information included in our aggregation dataset. We follow these steps (every stage in this process assumes that the data has not been found in the previous step):

1. For each country included in the data we searched online for the national Electoral Management Body (EMB) website and once found, we looked for the electoral results.

2. If the EMB has been located but the data have not, Google was used to conduct a domain-specific search for data. This search would utilize translation tools and a variety of keyword combinations.

3. An extensive manual search of the EMB website would be performed in order to look for data. In some cases, documents held on these websites (such as gazettes, or annual reports on specific elections or groups of elections) would need to be reviewed. EMB websites are often available in multiple languages; however, there are often major differences between different language versions of the same website. Some EMBs only linked to data on a specific version of their site, so it was necessary to review the site in all available languages when searching for data. Even if one version of the site held data, that did not mean that another version would not hold different data.

4. Wikipedia entries for each election were searched for links to data. Every country has a list of prior elections. Because an article for a single election was inevitably written in multiple languages, each of which could have different links, it was often necessary to review multiple versions of the Wikipedia page. If these pages provided a link to an official source that had the data on its own website, we would use it.

5. If the data have still not been found at this point, we searched through all government websites for the target country. In some cases, election data was held on the website of the President, Constitutional Court, Ministry of the Interior, etc. Again, a general multi-lingual, non-domain specific Google search would be used.

6. Finally, archive.org would be used to provide a version-history search of the EMB website, or any other website that could reasonably be suspected of holding significant data. It was not unusual to find that some data was only available on dead websites.

   Table B3 reports the elections for which we were successful in finding some information. As expected, the bulk of the elections for which election results are not available online from official sources are concentrated in the first ten years of the period of study. We also note that our data has better coverage of presidential elections.

Table B3: Election coverage

All Periods (2000 - 2020)	Election Type	Nelda	Our Sample	Fraction
	Legislative	559	404	0.723
	Presidential	331	253	0.764
Period 1 (2000 - 2004)				
	Legislative	127	62	0.488
	Presidential	72	39	0.542
Period 2 (2005 - 2009)				
	Legislative	134	83	0.619
	Presidential	79	54	0.684
Period 3 (2010 - 2014)				
	Legislative	137	113	0.825
	Presidential	81	67	0.827
Period 4 (2015 - 2020)				
	Legislative	161	146	0.907
	Presidential	99	93	0.939

C   Dataset description

In this section, we provide additional information on the two components of our dataset.

C.1   Dataset with lowest aggregated level of election results

The first component of our dataset contains information for each election from 2000 to 2020 in the sample countries (reported above in Table A2) on the lowest aggregated level of published electoral results. The variables in the dataset are: 1) the unit at which the most disaggregated results are published (e.g, polling station, precinct, district, constituency, province, or national), and 2) the total number of such units.

C.2   Provenance data

We also captured the extent to which a country makes its lowest-level electoral data available, rather than just whether data is available for retrieval. How the data is stored and presented provides useful information about election administration and transparency: Polling station data found in a neatly formatted CSV on a functioning website is qualitatively different from data found scattered through thousands of JPEG files on a website littered with 404 errors.

   To allow these differences to be analyzed, we created a provenance dataset, which describes key variables relating to the format and location of the publicly available election data. It is important to note that while this component of our dataset serves a critical transparency function, it does not serve as a perfect bibliography for others to retrieve election data from original sources. Throughout our data collection work, several websites from which data was retrieved have gone fully or partially offline or moved their data to a new location.

Provenance dataset variables

The Provenance dataset includes the following variables:

- **Country**: name of country.

- **Year**: the year election was held.

- **Date**: Date election was held.

- **Election type**: Presidential or Legislative.

- **Link**: Link (URL) to results page.

- **Language**: The language the document is published in

- **Domain**: The domain where the results are held.

- **DocumentSource**: the authority we have identified to have released the document

- EC: Elections Commission
- EC—M: Elections Commission Microsite (i.e., a website that is attached to the elections commission website but has a unique subdomain)
- CC: Constitutional Court
- IM: Interior Ministry
- IS—G: Information Service or Gazette
- SA—DP: Statistics Agency or general Data Portal
- OD: Other Department

- **Site Divisions**: this variable captures the number of times the results are divided until the highest level documentation is available. For example, if navigating to a results document requires selecting a province, then a municipality, then a district, that is three divisions.

- **Data Labels**:

  - Full: The results columns/rows are clearly and explicitly labeled (e.g., "Valid Votes").
  - Partial: The results columns are not clearly labeled but are still decipherable.
  - Encoded: The results columns are labeled only via numerical codes which are meaningless without a key (e.g., putting valid votes and invalid votes in the same column, and using a different column with a numerical key to separate them)
  - None: The columns are completely unlabeled, and their meaning needs to be deduced by analyzing the data.

- **Data Legibility**:

  - MachineReadable: The data is explicitly encoded and can be read by a machine.
  - NotMR: Not machine readable.
  - Corr: Data that is not machine-readable and which is difficult to read. This includes low-quality photocopies and poorly handwritten results.

D   Voting granularity measures

In this section, we provide additional information on the construction of the five alternative voting granularity reporting measures used in the analysis as well as provide their summary statistics.

- **Log(units)**: a continuous measure that captures the (logged) number of the smallest administrative units at which electoral results are published.

- **Granularity (level)**: dichotomous variable that takes the value of one for all periods in which the level of the most disaggregated published results jumps to a more granular level than that of the first period. For example, Colombia published electoral results (for both presidential and legislative elections) at the municipality level (level 2 in Colombia) in 2010, but in 2014, polling station-level electoral results were made publicly available, which is a lower and more granular level. Reversely, Fiji published legislative election results at level 3 (polling station) in 2014 but changed to level 2 (polling center) in 2018. If the most disaggregated level was used in the first period, all other periods will take the value of one unless the granularity level falls. Levels could be polling stations, towns/cities/municipalities, parishes/counties, constituencies/ districts, states/provinces, regions, and countries.

- **Granularity (std)**: A dichotomous variable that takes the value of one in periods where the number units at which electoral results are published is one standard deviation above the number of units in the first period. If the most disaggregated level was used in the first period, all other periods will take the value of one unless the number of the most disaggregated units falls by more than a standard deviation. The standard deviation is computed using the units of that country-election type.

- **Granularity (median)**: A dichotomous variable that takes the value of one in periods where the number of units at which electoral results are published has grown by more than the median growth in the sample. If the most disaggregated level was used in the first period, all other periods will take the value of one unless the number of the most disaggregated units falls by more than the median decrease in the sample. Growth is defined with respect to the first-period number of units for that country-election type.

- **Granularity (moving average)**: A dichotomous variable that takes the value of one in periods where the number of units at which electoral results are published has grown by more than the median growth in the sample. If the most disaggregated level was used in the first period, all other periods will take the value of one unless the number of the most disaggregated units falls by more than the median decrease in the sample. Growth is defined with respect to the previous moving average of the number of units for that country-election type.

Figure D1 gives a visual representation of the periods for which our two main dichotomous variables indicate a high level of granularity relative to the observed initial level. The

Figures show clearly a pattern of increasing granularity over time, which are also shown in Table D5. Not surprisingly, we can also see how more countries are presenting information in more recent years, seeing a jump from 59 country-elections in observations in the period 2000-2004 to 143 in 2015-2020. Finally, Table D4 shows that the correlations across indicators of granularity are in the range 0.522 to 0.904. Importantly, Figures D2 and D3 show that even when we fix the level of aggregation, there is significant variation in the number of units, underscoring the importance of examining how changes within a level of aggregation affect manipulation variables.

Figure D1: PanelView for main dichotomous treatment variables
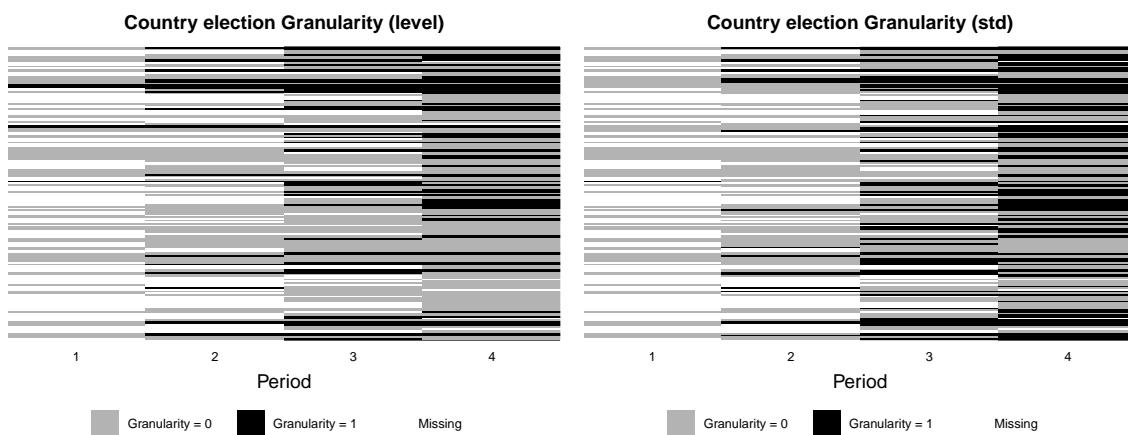
Table D4: Correlation matrix of granularity variables
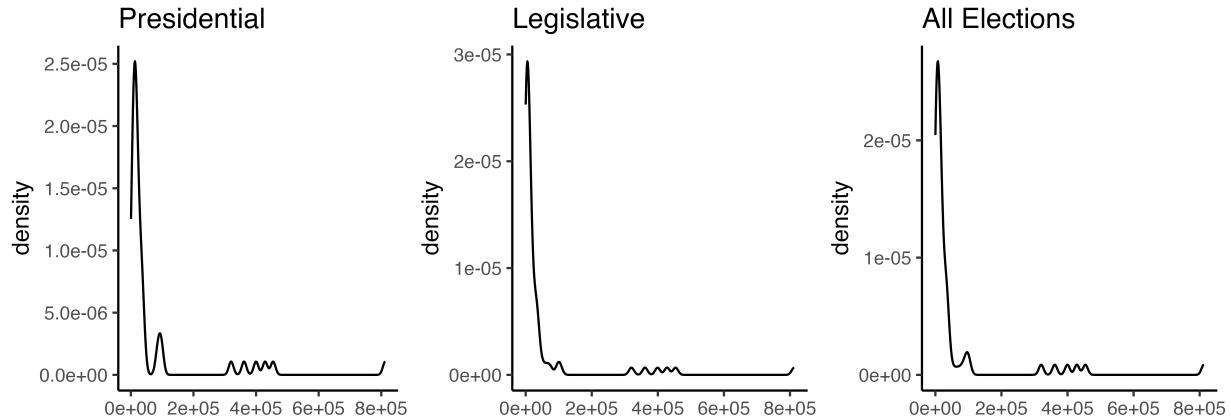
	Log(units)	Level	Std	Median	Moving average
Log(units)	1.000	0.566	0.522	0.571	0.583
Level	0.566	1.000	0.610	0.904	0.882
Std	0.522	0.610	1.000	0.586	0.671
Median	0.571	0.904	0.586	1.000	0.886
Moving average	0.583	0.882	0.671	0.886	1.000

Table D5: Descriptive statistics, granularity by period

Period 1 (2000 - 2004)	Mean	Median	St. Dev.	Min	Max	N
Log(units)	4.5	5.2	3.3	0	13	59
Granularity (level)	0.068	0	0.25	0	1	59
Granularity (std)	0.017	0	0.13	0	1	59
Granularity (median)	0.068	0	0.25	0	1	59
Granularity (moving average)	0.068	0	0.25	0	1	59
Period 2 (2005 - 2009)						
Log(units)	4.9	4.8	3.3	0	13	89
Granularity (level)	0.21	0	0.41	0	1	89
Granularity (std)	0.17	0	0.38	0	1	89
Granularity (median)	0.2	0	0.4	0	1	89
Granularity (moving average)	0.25	0	0.43	0	1	89
Period 3 (2010 - 2014)						
Log(units)	5.7	5.5	3.2	0	13	122
Granularity (level)	0.34	0	0.48	0	1	122
Granularity (std)	0.4	0	0.49	0	1	122
Granularity (median)	0.34	0	0.47	0	1	122
Granularity (moving average)	0.34	0	0.47	0	1	122
Period 4 (2015 - 2020)						
Log(units)	6.1	5.9	3.7	0	14	143
Granularity (level)	0.41	0	0.49	0	1	143
Granularity (std)	0.56	1	0.5	0	1	143
Granularity (median)	0.41	0	0.49	0	1	143
Granularity (moving average)	0.43	0	0.5	0	1	143
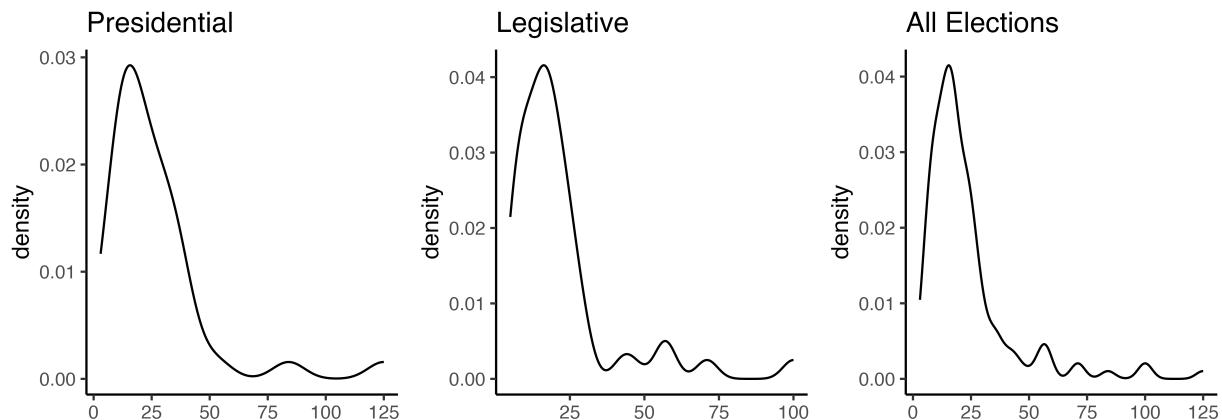
This table presents descriptive statistics for treatment variables used in our main analysis by period. Statistics are computed over the sample used in models 1 through 3 in Table 2.

Figure D2: Density units (reports at the polling station level)

Note: This figure is the density plot of the number of units (top panel) across all elections that report election results at the "polling station" level.

Figure D3: Density units (reports at the administrative level 1)

Note: This figure is the density plot of the number of units (top panel) across all elections that report election results at the first-level administrative unit. The name of this level varies across countries. Some examples are province, electoral district, or department.

E   Outcome variables

In this section, we describe in detail the core and auxiliary outcome variables used in the empirical analysis. The summary statistics are presented in Table F6 together with control variables (details can be found in Appendix F).

Core outcomes:

1. **Other voting irregularities**: Taken from V-Dem variable *v2elirreg*, the original question asks if there was "evidence of other intentional irregularities by incumbent, opposition parties, and/or vote fraud" (V-Dem Codebook v11.1 p66). The original variable takes on values from 0 (Yes, there were systematic and almost nationwide other irregularities) to 4 (None, there was no evidence of intentional other irregularities). We multiplied the original variable by -1 so that the higher the values, the worse the voting irregularities are.

2. **Unfair count**: Taken from PEI variable *faircount*, the question asks if votes were counted fairly with answers ranging from 1 (strongly disagree) to 5 (strongly agree). We multiply the original *faircount* by -1 so that the higher the value, the more unfair the vote counting is.

Auxiliary outcomes:

1. **Intimidation to opposition**: Taken from V-Dem variable *v2elintim*. The original question asks, "In this national election, were opposition candidates/parties/campaign workers subjected to repression, intimidation, violence, or harassment by the government, the ruling party, or their agents?" (V-Dem Codebook v11.1 p67). The answers range from 0 ("Yes. The repression and intimidation by the government or its agents was so strong that the entire period was quiet.") to 4 ("None. There was no harassment or intimidation of opposition by the government or its agents, during the election campaign period and polling day."). We also multiplied the original values by -1 so that the higher the value, the more intimidation.

2. **Severe violence, civilians**: Taken from NELDA variable #33. This variable is coded 1 if there was significant violence resulting in civilian deaths at any point of the election (before, during, or after). 0 otherwise.

3. **Clientelism**: Taken from V-Dem variable *v2xnp_client*. Answers to this question measure to what extent politics rely on clientelism, ranging from 0 (low) to 1 (high).

4. **Registry irregularities**: Taken from V-Dem *v2elrgstry*. The question asks, "In this national election, was there a reasonably accurate voter registry in place and was it used" (V-Dem Codebook v11.1 p65)? The answers range from 0 to 4 where the higher the value, the more accurate the registry is. We again reversed the original values by multiplying -1.

5. **Election fraud**: Taken from V-Dem variable *v2elfrfair*. The question is, "Taking all aspects of the pre-election period, election day, and the post-election process into account, would you consider this national election to be free and fair?" (V-Dem Codebook v11.1 p70)? Similarly, the original answers range from 0 (the election were fundamentally flawed) to 4 (Yes, the election could be considered free and fair). We again reversed the original values by multiplying -1.

6. **Monitors-reported fraud**: Taken directly from V-Dem variable *v2elwestmon*, but the source of this variable is NELDA variable 47. This variable is coded 1 if Western monitors reported allegations of significant vote fraud. 0 otherwise.

7. **Public Opinion**: Taken from Barometers survey datasets. We use Afrobarometer round 3 - 8, Asian Barometer wave 2 - 5, South Asian Barometer wave 2, Arab Barometer wave 1 - 5 and 7, Latin Barometer 2005 and 2006. In each barometer, we recode questions asking about public assessment of the freeness and fairness of the most recent national election. We first harmonized the answer values because different barometers across years adopt slight different code scheme. For example, answers to the corresponding question in Afrobamoreter range from 1 (not free and fair) to 4 (completely free and fair) while for Arab Barometer, only three options were provided for selection: "free and fair", "free and fair with major problems", or "not free or fair". In this case, we recoded the values for these three options to be 4, 2.5, and 1. Answers to the same question have 5 categories in Asian barometers. We coded the additional "Free but unfair" option in the same category as answer "Free and fair, but with major problems". We then adjust the direction of the variable to be the higher the value, the worse vote counting irregularity.

8. **Riots and protests**: Taken from NELDA variable 29. This question asks if there were riots and protests after the election.

9. **Incumbent vote share**: Manually coded using Wikipedia as the main data source, Psephos: Adam Carr's Electoral Archive[1] as well as CLEA as supporting data sources. Appendix G contains coding criteria.

10. **Losing dummy**: Taken from NELDA variable 24. This variable is coded 1 "if the party associated with the incumbent lost", 0 otherwise.

11. **Opposition not allowed**: Taken from NELDA variable 13. This question asks whether opposition leaders were prevented from running. We recoded the variable such that 0 represents no and 1 yes.

12. **Free media**: Taken from V-Dem variable *v2elfrcamp*. The question asks if "parties or candidates receive either free or publicly financed access to national broadcast media" in the national election. The answers include 0 ("either no parties or only the governing

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[1]Psephos: Adam Carr's Electoral Archive

party receives free access"), 1 (some parties other than the governing party), 2 (all parties have access to free media). As with other V-Dem variables, the ordinal was converted to an interval and we multiplied this original variable by -1 so that the higher the value, the less free media access.

13. **Electoral laws**: Taken from PEI index *laws*. This index summarizes three compositing variables: *lawsunfair2* (if "election laws were unfair to smaller parties"), *favoredincumbent2* (if "election laws favored the governing party or parties"), and *citizens2* (if "election laws restricted citizens' rights"). The scale of this index is standardized to 100 point scale and the higher the values, the higher integrity. We multiply the original variable by -1 so that the higher the value, the less integrity.

14. **Electoral procedures**: Taken from PEI index *procedures*. This index summarizes four compositing variables: *managed* (if "elections were well managed"), *votinginfo* (if "information about voting procedures was widely available"), *fairofficials* (if "election officials were fair"), and *legalelections* (if "elections were conducted in accordance with the law"). This variable has a 100-point scale. We multiplied this variable with -1 to make the higher value more negative.

15. **Domestic monitors**: Taken from V-Dem variable *v2eldommon*. The original question asks, "In this national election, were election monitors from all parties and independent domestic election monitors allowed to monitor the vote at polling stations across the country?" (V-Dem Codebook v11.1 p69). We multiplied the original answers by -1 so that 0 indicates no and -1 indicates yes.

16. **International monitors**: Taken from V-Dem variable *v2elintmon* asking if international election monitors were present in the national election. We multiplied the original answers by -1. 0 indicates no/unclear and -1 represents yes.

Other outcomes:

1. **Delay in announcement**: Taken from PEI variable *delay*. The question asks whether the results were announced without undue delay. The answer ranges from 1 (strongly disagree) to 5 (strongly agree). We multiplied the original values with -1 so that the higher the values, the more undue delay the announcement of results had.

2. **Intimidation to opposition**: Taken from NELDA variable 15. This is an alternative measure of government intimidation and harassment to the opposition. A yes is coded 1, and No is 0.

3. **Election violence**: Taken from ECAV variable *eventViolence*. This is an identifier that takes 1 if the event is violent and 0 otherwise. The outcome variable election violence is calculated as the number of violent events for each country - election.

4. **Pre-election violence and Post-election violence**: Coded based on *eventViolence* ECAV's violence variable and on *Date*, which is the event date. By comparing the event date with the election date, we separately counted the number of violent versus non-violent events before or after the election. Again, we constructed the pre-/post-election violence outcome variables as the count of pre-/post-election violence events. Violence events happened on the election date were counted as pre-election violence events.

F Control variables

The baseline specification includes a set of controls that captures the main determinants of electoral malpractice and that could determine the way electoral results are reported. In what follows, we explain why we believe these variables, if absent, could be important confounders. At the end of this appendix, we also present their summary statistics.

1. **Logged total population**. Taken from United Nations World Population Prospects variable *Estimates*.[2] A large population could present logistical challenges to engaging in certain forms of manipulation at national-level elections, like clientelism. It also affects the costs of electoral administration and makes it difficult the dissemination of disaggregated electoral results, especially if the large population is more evenly distributed in a large geography.

2. **EMB autonomy**: Taken from V-Dem variable *v2elembaut*. A more autonomous EMB should be linked to greater granularity on how electoral results are published. Autonomy could also be linked to other internal procedures that improve overall electoral quality.

3. **EMB capacity**: Taken from V-Dem variable *v2elembcap*. An autonomous EMB might be still incapable of ensuring transparency or protecting the overall integrity of the elections if it does not have the human and or physical capital resources required to do so.

4. **Polity score**: Taken from V-Dem variable *e_polity2*. The level of democracy and in particular the presence of effective institutional checks and balances impacts the ability of the party in power to engage in electoral malpractice by providing oversight and the potential of punishment for electoral rules violations. Greater democracy and more powerful checks and balances could also push for greater transparency in the conduct of elections affecting voting reporting practices.

5. **Size of the legislature**: Taken from The Database of Political Institutions (DPI) variable *totalseats*.[3] A large legislature (after controlling for population) might increase the number of electoral races and information that needs to be provided about them. Mechanically, the number of campaigns and races could be linked to a higher chance of experiencing more cases of electoral malpractice.

6. **International monitors**. Taken from NELDA variable *nelda45*. The presence of international monitors could deter electoral malpractice. Since international monitoring agencies advocate for more granularity in published electoral results, it can also affect vote reporting practices.

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[2]Link: https://population.un.org/wpp/

[3]Link: https://publications.iadb.org/en/database-political-institutions-2020-dpi2020

7. **Urbanization**. Taken from the World Bank variable *Urban population (% of total population)*. More urban areas make more difficult the implementation of certain forms of electoral manipulation. It might also facilitate the administration of elections and the processes involved in disseminating more granular electoral results. For example, in rural areas, it is difficult to install a large number of polling stations covering all the territory, which could negatively affect granularity.

8. **Logged GDP**. Taken from the World Bank variable *GDP (constant 2015 US$)*. Rich countries could have more resources destined to electoral administration. They might also have less corruption.

Table F6: Descriptive Statistics, Other variables

Auxiliary outcomes	Mean	Median	St. Dev.	Min	Max	N
Election fraud (V-Dem)	-0.088	-0.15	1.2	-2.7	2.9	413
Monitors-reported fraud (NELDA)	0.27	0	0.44	0	1	297
Free and Fair (Barometers)	-0.64	-0.71	0.22	-0.93	-0.12	170
Riots and protests (NELDA)	0.3	0	0.44	0	1	403
Delay in announcement (PEI)	-3.4	-3.6	0.9	-5	-1	171
Intimidation to opposition (NELDA)	0.31	0	0.45	0	1	406
Incumbent Vote Share	0.52	0.51	0.22	0.012	0.99	163
Losing dummy (NELDA)	0.2	0	0.38	0	1	156
Intimidation to opposition (V-Dem)	-0.0077	0.006	1.1	-2.5	3.3	413
Opposition not allowed (NELDA)	0.16	0	0.36	0	1	406
Free media (V-Dem)	-0.99	-1.1	0.95	-2.7	2	413
Severe violence, civilians (NELDA)	0.28	0	0.43	0	1	406
Clientelism (V-Dem)	0.55	0.56	0.18	0.09	0.89	413
Domestic monitors (V-Dem)	-0.89	-1	0.31	-1	0	408
International monitors (V-Dem)	-0.9	-1	0.29	-1	0	413
Registry irregularities (V-Dem)	-0.45	-0.52	0.94	-2.4	1.6	413
Electoral laws (PEI)	-54	-56	20	-87	0	171
Electoral procedures (PEI)	-61	-65	18	-100	0	171
Election violence (ECAV)	9.7	3	20	0	173	174
Pre-election violence (ECAV)	6.9	2	14	0	111	174
Post-election violence (ECAV)	2.9	1	8.4	0	88	174
Control variables						
Total population (in thousands)	40943	10652	128718	428	1352617	413
EMB autonomy	0.71	0.92	1.2	-2.4	3.4	413
EMB capacity	0.68	0.88	0.97	-1.5	2.7	413
Polity score	4.3	6	5.1	-10	10	413
GDP (Million)	135150	21061	320374	706	2590000	413
Urbanization	51	53	19	12	91	413
Size of legislatures	186	128	139	0	601	413
International monitors	0.87	1	0.33	0	1	413

This table presents descriptive statistics for variables used in our main analysis. Statistics are computed over the sample used in models 1 through 3 in Table 2. The covariate GDP is measured in millions of U.S. dollars in the year 2015.

G   Presidential incumbency party

In this section, we elaborate on how we coded the vote share of the party of the incumbent for presidential elections used in Table 3.

We used information from Wikipedia and Adam Carr's Elections Archive to identify the incumbent president at the time of the election and her party for all presidential elections, for which we have electoral vote granularity information. Consistent with our coding of granularity, we focus on the first round of the election.

The general incumbent's vote share coding criteria are as follows:

- If the incumbent runs in the election, we code her vote share.

- If the same person did not run, we use the vote share of the candidate of the same party. When the incumbent's party was part of a coalition, we use the coalition candidate's vote share.

- When the incumbent did not run, and her party did not have a candidate (accounting for coalitions), we checked whether the party changed names, and if it did, we use the vote share of the candidate running under this party. If the name did not change, we verified that the incumbent had not switched parties before the election.

- In cases of interim presidents, we treat them as incumbents if they have been in office for longer than a year.

- If the previous steps did not generate a vote share, we leave the vote share as missing, indicating that the incumbent's vote share is not defined.

H   Patterns in granularity of published results

We selected a small sample of countries as representative examples that could demonstrate different patterns of granularity evolution over time and include them in Figure H1. The x-axis represents the period (period 1 represents 2000 to 2004, period 2 represents 2005 to 2009, period 3 represents 2010 to 2014, period 4 represents 2015 to 2020). The y-axis is the continuous measure of granularity (normalized by population so we do not over-estimate granularity that is mechanically increased by population growth). We denote election types with different colors. In the paper, we showed that there has been a global trend of increasing granularity over time across countries. The first row in Figure H1 depicts individual countries for which that trend is apparent. This pattern does not apply to all countries, however, as we see it in Paraguay, Sri Lanka, and Ecuador. The third row in the figure highlights how presidential and legislative elections could have very different trends even when they are held close in time.

Tables H1 and H2 list the years of election in which we identified a difference in the names of the units for which the electoral results are published (relative to the previous

election) for presidential and legislative elections. We see large increases usually associated with possible changes to publishing polling station-level results.

Finally, Tables H3 and H4 give ranks of countries per period for presidential and legislative elections based on the number of units at which the most disaggregated electoral results were published in official national-level sources online in 2021-2022.

Figure H1: Evolution of granularity over time for a selected sample of countries
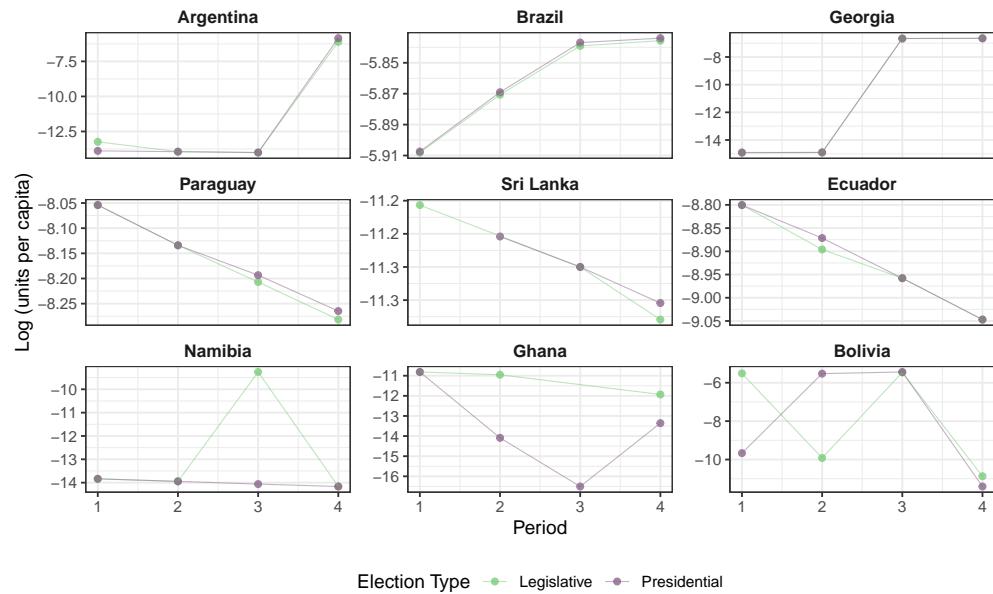
Table H1: Change in electoral granularity levels (Presidential Election)

| Country Name	Year	Unit Name Before	Unit Name After	Units Before	Units After	Change In Units (%)
Afghanistan	2009	Province	Polling Station	36	20855	578.31
Argentina	2015	Province	Polling Station	24	84681	3527.38
Armenia	2008	Country	Polling Center	1	1923	1922
Azerbaijan	2013	Country	Electoral District	1	125	124
Azerbaijan	2018	Electoral District	Polling Center	125	5641	44.13
Belarus	2006	Country	Electoral District	1	153	152
Bolivia	2020	Department	Polling Station	41	35600	867.29
Bosnia & Herzegovina	2006	Entity	Polling Station	3	4232	1409.67
Bulgaria	2011	Polling Center	Polling Station	10552	11784	0.12
Burkina Faso	2015	Province	Polling Station	45	10185	225.33
Colombia	2006	Country	Municipality	1	1191	1190
Colombia	2014	Municipality	Polling Station	1168	89287	75.44
Cote D'Ivoire	2020	Department	Sub-Prefecture	80	126	0.58
Egypt	2014	Electoral District	Polling Station	351	14040	39
El Salvador	2014	Municipality	Polling Station	262	10445	38.87
Georgia	2013	Country	Polling Center	1	3741	3740
Guatemala	2019	Municipality	Polling Station	338	21099	61.42
Indonesia	2019	Province, Special Region	Polling Station	34	812770	23904
Kenya	2017	Electoral District	Polling Station	290	40881	139.97
Kyrgyz	2011	Country	District, Town	1	55	54
Liberia	2017	County	Electoral District	15	1820	120.33
Madagascar	2013	Country	Polling Center	1	20001	20000
Malawi	2019	District	Polling Center	28	5002	177.64
Mali	2018	Country	Polling Station	1	20038	20037
Mauritania	2019	Country	Polling Station	1	3861	3860
Mozambique	2019	Country	Province	1	13	12
Nigeria	2011	Country	States	1	37	36
North Macedonia	2009	Country	Municipality	1	84	83
Peru	2006	Country	Region	1	25	24
Peru	2011	Region	Polling Center	25	107455	4297.2
Romania	2014	Country	Polling Station	1	18847	18846
Timor Leste	2017	Country	Municipality	1	15	14
Uganda	2006	District	Polling Center	53	19786	372.32
Ukraine	2010	District	Polling Station	302	33672	110.5
Venezuela	2006	State	Polling Station	25	32604	1303.16

Table H2: Change in electoral granularity levels (Legislative Election)

Country Name	Year	Unit Name Before	Unit Name After	Units Before	Units After	Change In Units (%)
Albania	2013	County	Polling Station	100	5510	54.1
Angola	2012	Province	Municipality	18	161	7.94
Argentina	2015	Province	Polling Station	24	51265	2135.04
Armenia	2007	Country	Polling Center	1	1923	1922
Belarus	2004	Country	Electoral District	1	110	109
Bolivia	2020	Electoral District	Polling Station	70	34707	494.81
Bosnia And Herzegovina	2006	District	Polling Station	8	4232	528
Burkina Faso	2007	Region	Province	13	45	2.46
Burkina Faso	2015	Province	Polling Station	45	10102	223.49
Cape Verde	2016	Electoral District	Polling Station	13	1259	95.85
Colombia	2014	Municipality	Polling Station	976	63138	63.69
Dominica	2014	Electoral District	Polling Station	21	250	10.9
El Salvador	2015	Municipality	Polling Station	262	10621	39.54
Fiji	2014	Electoral District	Polling Station	71	2028	27.56
Georgia	2012	Country	Polling Center	1	3766	3765
Grenada	2013	Electoral District	Polling Station	15	238	14.87
Guatemala	2019	Municipality	Polling Station	338	20990	61.1
Guyana	2015	Region	Polling Center	10	2300	229
Indonesia	2009	Country	Electoral District	1	77	76
Indonesia	2019	Electoral District	Polling Station	77	812770	10554.45
Kazakhstan	2012	Country	Region	1	16	15
Liberia	2017	Electoral District	Polling Station	73	1820	23.93
Madagascar	2019	Polling Center	Polling Station	19465	25388	0.3
Malawi	2019	Electoral District	Polling Center	192	5002	25.05
Mauritania	2018	Region	Department	47	49	0.04
Mozambique	2019	Country	Province	1	11	10
Namibia	2014	Country	Constituency	1	122	121
North Macedonia	2014	Electoral District	Polling Station	6	3514	584.67
North Macedonia	2020	Polling Station	Polling Center	3514	3566	0.01
Peru	2011	Region	Polling Center	25	107455	4297.2
Romania	2012	Country	County	1	43	42
Romania	2020	County	Polling Station	43	19696	457.05
Russia	2007	Electoral District	Polling Center	2757	96246	33.91
Saint Lucia	2011	Electoral District	Polling Station	17	102	5
Saint Vincent & The Grenadines	2015	Electoral District	Polling Station	15	231	14.4
Samoa	2016	Electoral Districts	Polling Station	42	393	8.36
Ukraine	2006	Electoral District	Polling Station	315	34039	107.06
Venezuela	2005	Electoral District	Polling Station	47	4879	102.81
Zimbabwe	2013	Electoral District	Polling Station	120	260	1.17

Table H3: Rank by units per 100,000 people (Presidential)

Rank	Period 1 Country	Unit/Capita	Period 2 Country	Unit/Capita	Period 3 Country	Unit/Capita	Period 4 Country	Unit/Capita
1	Colombia	0.004	Nigeria	0.001	Algeria	0.004	Nigeria	0.002
2	Peru	0.006	Romania	0.006	Ghana	0.007	Algeria	0.004
3	Belarus	0.013	Mozambique	0.009	Mozambique	0.008	Uzbekistan	0.005
4	Serbia	0.016	Madagascar	0.011	Mali	0.013	Sudan	0.005
5	Niger	0.016	Azerbaijan	0.016	Niger	0.013	Tanzania	0.007
6	Mali	0.018	Haiti	0.02	Indonesia	0.02	Niger	0.01
7	Indonesia	0.023	Indonesia	0.021	Nigeria	0.045	Senegal	0.012
8	Georgia	0.033	Kyrgyz	0.03	Mauritania	0.052	Haiti	0.016
9	Armenia	0.047	Georgia	0.034	North Macedonia	0.06	Guinea	0.016
10	North Macedonia	0.065	Honduras	0.044	Namibia	0.078	Serbia	0.016
11	Bosnia And Herzegovina	0.093	Mauritania	0.06	Argentina	0.083	Burundi	0.017
12	Argentina	0.093	Ghana	0.076	Kazakhstan	0.135	Benin	0.018
13	Namibia	0.098	Namibia	0.088	Sudan	0.151	Tajikistan	0.018
14	Venezuela	0.171	Argentina	0.088	South Sudan	0.203	Nicaragua	0.025
15	Timor Leste	0.218	Peru	0.141	Maldives	0.351	Congo, Republic Of	0.037
16	Afghanistan	0.351	Kazakhstan	0.148	Malawi	0.361	North Macedonia	0.059
17	Uganda	0.502	Timor Leste	0.193	Sierra Leone	0.408	Namibia	0.071
18	Ukraine	0.796	Malawi	0.416	Nicaragua	0.483	Mozambique	0.087
19	Ghana	2.011	Maldives	0.462	Liberia	0.704	Equatorial Guinea	0.127
20	Zambia	3.304	Burkina Faso	0.68	Cote D'ivoire	1.014	Kazakhstan	0.132
21	Guatemala	4.254	Sri Lanka	1.362	Togo	1.028	Ghana	0.158
22	Russia	4.733	Djibouti	1.519	Egypt	1.228	Comoros	0.229
23	Bolivia	6.337	Belarus	1.923	Kenya	1.269	Maldives	0.275
24	Gambia, The	6.811	Guinea Bissau	1.962	Sri Lanka	1.301	Sierra Leone	0.387
25	El Salvador	7.448	Zambia	2.635	Kyrgyz	1.577	Rwanda	0.541
26	Honduras	8.792	Colombia	4.318	Azerbaijan	1.823	Iran	0.707
27	Ecuador	15.067	Guatemala	4.665	Belarus	1.861	Cameroon	0.718
28	Paraguay	31.781	North Macedonia	5.242	Zambia	2.249	Cote D'ivoire	0.785
29	Mongolia	32.525	Gambia, The	5.891	Guinea Bissau	3.296	Gabon	0.83
30	Costa Rica	70.023	Cape Verde	7.083	Cameroon	3.944	Guinea Bissau	0.978
31	Dominican Republic	225.816	El Salvador	7.106	Cape Verde	3.999	Bolivia	1.115
32	Brazil	271.921	Ecuador	14.035	Guatemala	4.124	Togo	1.117
33			Paraguay	29.339	Venezuela	4.595	Sri Lanka	1.232
34			Mongolia	29.558	Gambia, The	5.037	Kyrgyz	1.455
35			Costa Rica	66.226	Honduras	5.913	Belarus	1.862
36			Russia	83.08	Colombia	7.66	Zambia	1.934
37			Armenia	87.141	Ecuador	12.872	Timor Leste	2.2
38			Nicaragua	113.434	Costa Rica	24.005	Cape Verde	3.562
39			Bosnia And Herzegovina	131.448	Paraguay	27.648	Gambia, The	4.745
40			Uganda	162.546	Mongolia	36.971	Honduras	5.24
41			Bulgaria	164.442	Zimbabwe	57.94	Guatemala	7.294
42			Afghanistan	174.532	Russia	81.654	Ecuador	11.774
43			Venezuela	192.275	Ukraine	83.723	Egypt	21.829
44			Sierra Leone	208.177	Armenia	89.411	Paraguay	25.744
45			Dominican Republic	220.574	Romania	116.342	Mongolia	36.371
46			Montenegro	238.011	Afghanistan	123.96	Malawi	53.639
47			Brazil	282.557	Tunisia	127.422	Costa Rica	57.135
48			Bolivia	398.652	Georgia	127.54	Liberia	74.326
49					Bosnia And Herzegovina	159.758	Azerbaijan	77.541
50					Madagascar	166.125	Ukraine	82.804
51					Uganda	168.009	Russia	84.354
52					Bulgaria	187.441	Moldova	86.158
53					Dominican Republic	227.86	Romania	124.661
54					Montenegro	238.978	Georgia	128.453
55					El Salvador	262.791	Madagascar	131.314
56					Brazil	291.785	Afghanistan	137.14
57					Bolivia	434.145	Zimbabwe	142.853
58					Peru	561.272	Burkina Faso	145.2
59							Philippines	145.627
60							Kenya	158.706
61							Uganda	162.09
62							Venezuela	171.673
63							Mauritania	173.896
64							Bosnia And Herzegovina	198.157
65							Bulgaria	204.704
66							Mali	221.655
67							El Salvador	224.856
68							Dominican Republic	234.781
69							Montenegro	246.834
70							Colombia	274.753
71							Argentina	290.235
72							Brazil	292.62
73							Peru	372.517
74							Indonesia	436.103

This table presents countries' rankings by units per capita (multiplied by 100,000) by period for presidential elections.

Table H4: Rank by units per 100,000 people (Legislative)

Rank	Period 1 Country	Period 1 Unit/Capita	Period 2 Country	Period 2 Unit/Capita	Period 3 Country	Period 3 Unit/Capita	Period 4 Country	Period 4 Unit/Capita
1	Indonesia	0.001	Romania	0.006	Algeria	0.004	Algeria	0.004
2	Kazakhstan	0.009	Kazakhstan	0.009	Uzbekistan	0.005	Sudan	0.005
3	Belarus	0.025	Mozambique	0.009	Mozambique	0.008	Guinea	0.015
4	Georgia	0.034	Georgia	0.034	Serbia	0.016	Serbia	0.016
5	Armenia	0.047	Indonesia	0.048	Indonesia	0.044	Burundi	0.019
6	Namibia	0.098	North Macedonia	0.063	Argentina	0.082	Ethiopia	0.021
7	Iraq	0.134	Namibia	0.088	United Arab Emirates	0.1	Togo	0.024
8	Argentina	0.178	Argentina	0.088	Iraq	0.106	United Arab Emirates	0.024
9	Burkina Faso	0.219	Rwanda	0.101	Kazakhstan	0.133	Nicaragua	0.025
10	Bosnia And Herzegovina	0.251	Iraq	0.123	Niger	0.182	Namibia	0.071
11	Niger	0.262	Peru	0.141	Pakistan	0.241	Mozambique	0.074
12	Venezuela	0.321	Angola	0.174	Romania	0.264	Iraq	0.082
13	Pakistan	0.324	Pakistan	0.272	Nigeria	0.441	Rwanda	0.09
14	North Macedonia	0.398	India	0.61	India	0.549	Equatorial Guinea	0.122
15	India	0.684	Burkina Faso	0.637	Burkina Faso	0.551	Kazakhstan	0.129
16	Ukraine	0.831	Thailand	0.726	Guinea	0.571	Niger	0.164
17	Djibouti	1.121	El Salvador	0.744	Thailand	0.711	Pakistan	0.221
18	Malaysia	1.396	Honduras	0.753	North Macedonia	0.737	Peru	0.229
19	Sri Lanka	1.428	Niger	0.766	Togo	0.812	Cambodia	0.242
20	Ghana	2.011	Mali	0.836	Sao Tome And Principe	0.984	Nigeria	0.349
21	Russia	2.415	Malaysia	1.243	Burma/Myanmar	1.012	Morocco	0.391
22	Kosovo	3.092	Belarus	1.38	Djibouti	1.047	India	0.497
23	Malawi	3.157	Nepal	1.607	Malaysia	1.073	Romania	0.535
24	Malta	4.11	Ghana	1.752	Kenya	1.269	Mali	0.569
25	Guatemala	4.254	Zimbabwe	1.936	Ethiopia	1.28	Thailand	0.626
26	Guinea Bissau	4.377	Guyana	2.241	Sri Lanka	1.301	Ghana	0.658
27	Albania	4.866	Uganda	2.333	Angola	1.333	Burkina Faso	0.853
28	Botswana	5.485	Timor Leste	2.514	Belarus	1.39	Burma/Myanmar	0.884
29	El Salvador	7.646	Kosovo	2.652	Nepal	1.501	Tanzania	0.886
30	Bahrain	7.966	Malawi	2.867	Kyrgyz	1.598	Djibouti	0.925
31	Cape Verde	8.38	Malta	3.902	Cote D'ivoire	1.919	Nepal	0.96
32	Honduras	8.618	Guinea Bissau	3.916	Guyana	2.175	Malaysia	0.966
33	Fiji	14.246	Guatemala	4.651	Timor Leste	2.176	Kenya	1.118
34	Ecuador	15.067	Botswana	4.773	Mauritius	2.195	Angola	1.129
35	Saint Lucia	16.926	Albania	4.82	Uganda	2.39	Sri Lanka	1.202
36	Belize	20.138	Bolivia	4.921	Malawi	2.476	Belarus	1.412
37	Moldova	21.047	Nicaragua	4.938	Mauritania	2.534	Cote D'ivoire	1.701
38	Saint Vincent And The Grenadines	21.088	Bahrain	5.723	Suriname	2.824	Bolivia	1.902
39	Grenada	21.963	Cape Verde	7.083	Sierra Leone	3.173	Uganda	1.921
40	Mongolia	26.909	Fiji	13.013	Guinea Bissau	3.296	Mauritius	2.076
41	Antigua & Barbuda	31.473	Ecuador	13.693	Liberia	3.426	Mauritania	2.276
42	Paraguay	31.781	Saint Lucia	15.203	Malta	3.597	Russia	2.428
43	Dominica	47.988	Belize	17.877	Zimbabwe	3.845	Timor Leste	2.461
44	South Africa	57.196	Grenada	19.57	Cape Verde	3.999	Suriname	2.529
45	Costa Rica	70.023	Saint Vincent And The Grenadines	20.489	Guatemala	4.124	Mongolia	2.669
46	Cayman Islands	166.762	Bhutan	22.021	Bahrain	4.159	Zimbabwe	2.705
47	Dominican Republic	220.065	Antigua & Barbuda	28.425	Botswana	4.217	Guinea Bissau	2.835
48	Brazil	271.721	Paraguay	29.339	Colombia	6.385	Kyrgyz	2.917
49	Bolivia	403.508	Cayman Islands	29.398	Lesotho	6.762	Sierra Leone	3.191
50	Jamaica	445.141	Venezuela	29.455	El Salvador	6.802	Malta	3.234
51			Mongolia	31.657	Swaziland (Eswatini)	8.906	Bahrain	3.498
52			Moldova	37.359	Namibia	9.534	Botswana	3.744
53			Dominica	44.38	Bhutan	9.793	Guyana	3.809
54			South Africa	59.818	Ecuador	12.872	Micronesia	4.103
55			Costa Rica	66.226	Belize	15.435	Gambia, The	4.596
56			Russia	83.123	Solomon Islands	15.801	Honduras	5.137
57			Armenia	87.61	Bangladesh	17.563	Lesotho	6.235
58			Ukraine	89.72	Dominican Republic	18.359	Guatemala	7.293
59			Bosnia And Herzegovina	131.448	Saint Vincent And The Grenadines	20.046	Swaziland (Eswatini)	8.872
60			Bulgaria	186.555	Paraguay	27.274	Bhutan	8.914
61			Dominican Republic	217.558	Samoa	39.295	Comoros	10.416
62			Montenegro	238.605	Mongolia	40.45	Vanuatu	10.617
63			Brazil	282.11	Moldova	46.129	Ecuador	11.774
64			Jamaica	364.94	South Africa	61.341	Belize	12.911
65					Costa Rica	66.933	Antigua & Barbuda	24.484
66					Azerbaijan	70.136	Paraguay	25.312
67					Russia	81.439	Kiribati	31.049
68					Saint Lucia	83.5	Bangladesh	37.387
69					Ukraine	84.876	Jordan	41.041
70					Armenia	88.914	Egypt	43.598
71					Jordan	90.755	Malawi	54.592
72					Afghanistan	116.439	Costa Rica	56.008
73					Tunisia	121.03	South Africa	59.598
74					Nicaragua	121.39	Azerbaijan	74.299
75					Georgia	127.877	Liberia	74.326
76					Nauru	134.166	Saint Lucia	76.457
77					Cayman Islands	141.779	Ukraine	82.517
78					Bosnia And Herzegovina	155.157	Moldova	89.047
79					Madagascar	161.673	Armenia	92.458
80					Bulgaria	195.037	Nauru	122.058
81					Kosovo	198.248	Afghanistan	122.717
82					Venezuela	198.744	Georgia	131.015
83					Cambodia	201.156	Philippines	135.345
84					Montenegro	239.268	Tunisia	157.337
85					Albania	252.2	Bahamas	171.771
86					Grenada	287.37	Madagascar	172.721
87					Brazil	291.157	Venezuela	176.885
88					Fiji	344.176	Bosnia And Herzegovina	198.157
89					Jamaica	356.186	Bulgaria	208.23
90					Tonga	409.498	North Macedonia	210.205
91					Bolivia	422.731	Cayman Islands	216.798
92					Dominica	494.428	Argentina	223.426
93					Peru	561.272	Dominican Republic	226.366
94							Kosovo	230.591
95							Lebanon	237.394
96							Albania	238.406
97							Fiji	240.027
98							El Salvador	241.887
99							Montenegro	246.328
100							Brazil	292.145
101							Colombia	292.721
102							Saint Vincent And The Grenadines	304.825
103							Jamaica	341.106
104							Samoa	344.044
105							Cape Verde	344.966
106							Tonga	409.737
107							Indonesia	436.103
108							Dominica	476.751

This table presents countries' rankings by units per capita (multiplied by 100,000) by period for legislative elections.

I Auxiliary analyses

In this section, we provide results in tabular form of several findings discussed in the text.

I.1 Delays in reporting results

We argued that if voting aggregation fraud occurs, election results will more likely be announced with delays. We find evidence consistent with that, we report in Table I5. All dychotomous measures show large reduction in perceived delays in announcements of results.

Table I5: Granularity and delay in announcement (PEI)

Outcome	Delay in announcement (PEI)				
	Log (units)	Granularity (level)	Granularity (std)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)	(5)
Granularity	−0.058	−0.676**	−0.376*	−1.041**	−0.830**
	(0.050)	(0.300)	(0.212)	(0.413)	(0.348)
Country-Election FE	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.02	0.2	0.11	0.31	0.24
No. Countries	94	94	94	94	94
No. Country-Elections	129	129	129	129	129
Observations	172	172	172	172	172
Adj. R^2	0.39	0.43	0.40	0.45	0.43

This table reports estimates of the coefficient on five different measures of granularity in models of delay in announcing electoral results (PEI). Covariates and model specifications are exactly the same as Table 2, Table 4, and Table I9. Only two data periods are used. Granularity Est./Mean is the estimated coefficient over the mean outcome.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

I.2 Correlates of reporting granularity

In the next table, we examine how our baseline controls relate to the continuous reporting granularity measure. The regression has all explanatory variables measured in the previous period and includes country-election-type fixed effects. We see that EMB autonomy and GDP are, as expected (see discussion in Appendix F), positively related to reporting granularity. Other variables are not significantly related to the main explanatory variable in our analysis.

Table I6: Granularity and its explanatory factors

	(1)
EMB autonomy	1.276**
	(0.542)
EMB capacity	−0.788
	(0.541)
Logged population	−3.923*
	(2.206)
Logged GDP	5.113***
	(1.383)
Urbanization	0.008
	(0.070)
Polity	0.004
	(0.126)
Size of legislatures	−0.006
	(0.004)
Intl. Monitor	0.740
	(0.489)
Observations	414
Adj. R2	0.59

This table reports coefficients of potential determinants of reporting granularity. All covariates are lagged. The model includes country - election type fixed effects. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

I.3 Other forms of electoral manipulation (alternative measures)

In Table 4, we reported that greater voting granularity did seem to reduce violence at least as measured by V-Dem's *Intimidation to opposition.* In the manuscript, we discussed that this finding, however, is not robust to using any of the five voting granularity measures once the variable is taken from NELDA. These results are reported below in Table I7.

We also show that, as was the case with the results reported in the paper, there is no clear relationship between granularity and electoral violence, once we use the ECAV alternative measures (see Table I8).

Table I7: Granularity and intimidation to opposition (NELDA)

Outcome	Intimidation to opposition (NELDA)				
	Log (units)	Granularity (level)	Granularity (std)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)	(5)
Granularity	-0.013	-0.090	-0.098^*	-0.088	-0.075
	(0.010)	(0.071)	(0.058)	(0.075)	(0.072)
Country-Election FE	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.04	0.29	0.32	0.29	0.24
No. Countries	98	98	98	98	98
No. Country-Elections	158	158	158	158	158
Observations	407	407	407	407	407
Adj. R^2	0.46	0.46	0.47	0.46	0.46

This table reports estimates of the coefficient on five different measures of granularity in models with alternative measures of intimidation to opposition from NELDA. Covariates and model specifications are exactly the same as Table 2, Table 4, and Table I9. Granularity Est./Mean is the estimated coefficient over the mean outcome.
Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^*p < 0.1$.

Table I8: Granularity and electoral violence (ECAV)

Outcome	Election violence (ECAV)			Pre-election violence (ECAV)			Post-election violence (ECAV)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Granularity	0.118	−0.681	−3.032	−0.088	−2.767	−4.078	0.207	2.086	1.046
	(0.419)	(4.391)	(3.252)	(0.409)	(4.331)	(3.318)	(0.184)	(1.476)	(1.478)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Treatment/Mean	0.01	0.07	0.31	0.01	0.4	0.59	0.07	0.73	0.37
No. Countries	67	67	67	67	67	67	67	67	67
No. Country-Elections	100	100	100	100	100	100	100	100	100
Observations	174	174	174	174	174	174	174	174	174
Adj. R^2	0.63	0.63	0.63	0.45	0.46	0.46	0.68	0.69	0.68
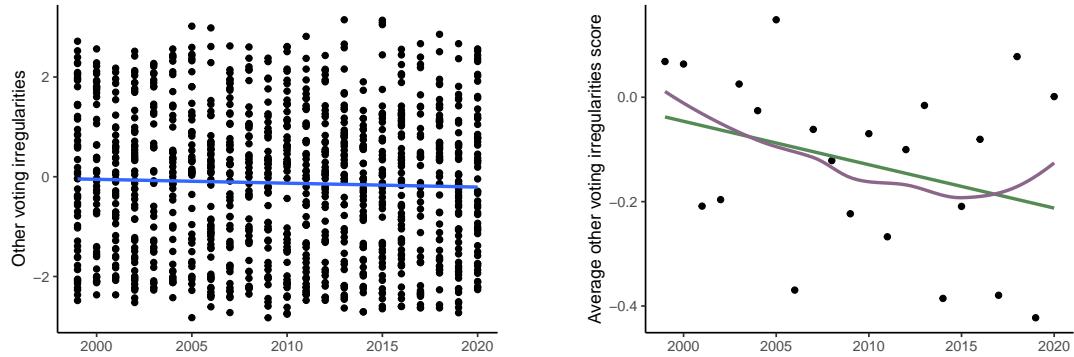
This table reports estimates of the coefficient on granularity in models with electoral violence (ECAV) outcomes. Covariates and model specifications are exactly the same as Table 2, Table 4, and Table I9. Granularity Est./Mean is the estimated coefficient over the mean outcome.

Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

I.4   Trends in electoral manipulation
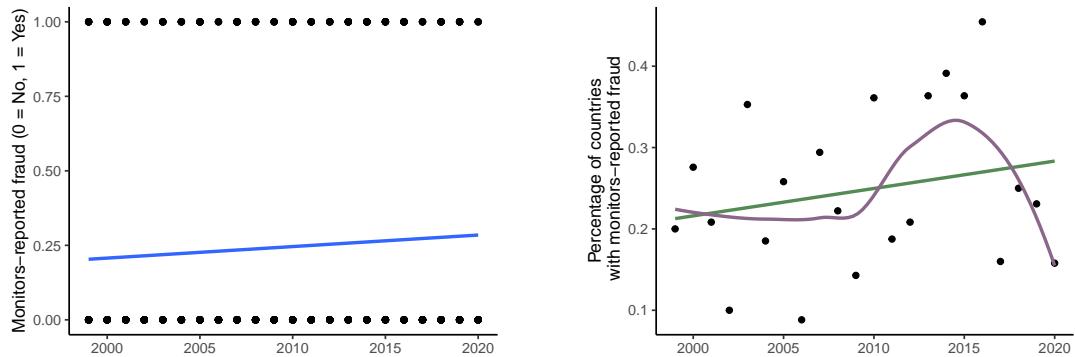
This section illustrates that there do not seem to be a uniform patterns across different electoral malpractice measures over time. While Other voting irregularities from V-Dem appears to decline, the reports of fraud by monitors and overall election quality indicate an increase.

Figure I2: Other voting irregularities (V-Dem)
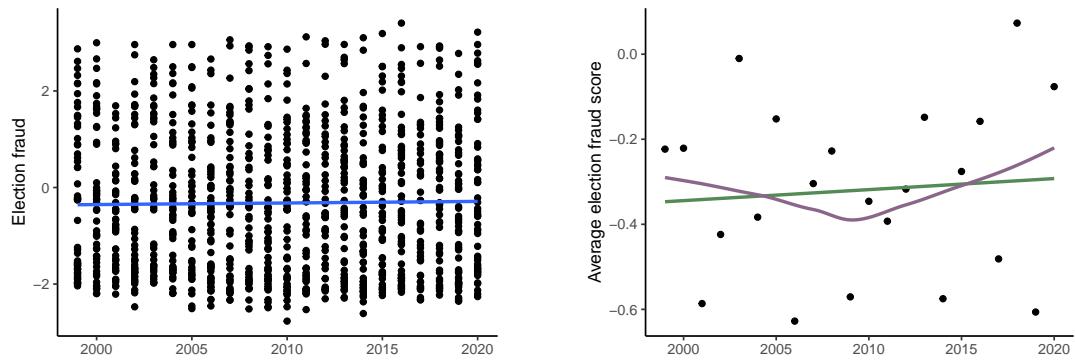
This figure presents the time trend of other voting irregularities collected in V-Dem. The left panel is the scatter plot where each dot represents the value of variable v2elirreg (V-Dem) for each country - year. The right panel shows the time trend of the average score of other voting irregularities across countries.

Figure I3: Monitors-reported fraud over time (V-Dem)

This figure shows the time trend of monitors-reported fraud taken from NELDA. The left panel is the scatter plot where the y-axis is the answer of NELDA question 47. The right panel shows the time trend of the average which is the percentage of countries having monitors-reported fraud each year.

Figure I4: Election quality (V-Dem)

This figure shows the overall election quality time trend using variable v2elfrfair from V-Dem. The left panel is the scatter plot where the y-axis is the election fraud score for each country - year. The right panel shows the time trend of the average election fraud score over the year.

I.5 Overall quality of elections and reporting granularity

Our findings raise the question of whether country experts, monitors, and the public, perceive changes in the overall quality of elections when the granularity of published results changes. Table I9 shows that the increase in reporting granularity is associated with improved experts' coding of the overall quality of the elections (columns 1–3), and with improved monitors' assessment of election integrity (columns 4–6). The overall quality of elections, as perceived by experts, comes from the V-Dem question of whether the national election was free and fair, considering *all aspects* of the pre-election and post-electoral processes. The negative regression coefficients for monitors are substantively large, though they fall short of statistical significance. Panel B, on the same table, focuses on reactions to changes in granularity by the public. Columns 1-3 present the results of models with outcome reflecting evaluations of unfairness of elections by the public aggregated at the country level from the Barometers surveys. Once again, we estimate small (and noisy) coefficients on our different granularity measures. The same is true when using a behavioral measure (protests after an election) as an outcome. Overall, unlike the case of experts, we do not find evidence suggesting that the public experiences changes in their evaluations of the quality of elections linked to changes in voting reporting practices.

Table I9: Granularity and election quality

Panel A: experts' perceptions

Outcome	Election fraud (V-Dem)			Monitors-reported fraud (NELDA)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.021	−0.162*	−0.165**	−0.020	−0.081	−0.066
	(0.014)	(0.088)	(0.073)	(0.013)	(0.087)	(0.079)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.24	1.84	1.86	0.07	0.3	0.24
No. Countries	98	98	98	80	80	80
No. Country-Elections	158	158	158	130	130	130
Observations	413	413	413	297	297	297
Adj. R^2	0.87	0.87	0.87	0.50	0.50	0.50

Panel B: public perceptions

Outcome	Public Opinion (Barometer)			Riots and protests (NELDA)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	0.001	0.001	-0.025	0.005	0.009	0.013
	(0.008)	(0.047)	(0.034)	(0.014)	(0.090)	(0.074)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0	0	0.04	0.02	0.03	0.04
No. Countries	62	62	62	98	98	98
No. Country-Elections	96	96	96	158	158	158
Observations	170	170	170	404	404	404
Adj. R2	0.66	0.66	0.67	0.12	0.12	0.12

This table presents estimates of the coefficient on granularity in models of overall election quality. When necessary, outcomes have been recoded such that higher values indicate that elections are less free and fair. Controls are measured at the end of the previous period and are listed in the main text. Granularity/Mean is the estimated effect over the mean outcome. Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

J   Robustness tests

J.1   Alternative treatment definitions

This section explores the robustness of our results to two alternative dichotomous measures of granularity. Recall that the measures used in the main analysis captured "large" increases in granularity relative to the observed granularity in the first period. A large increase was defined as either a change in the nominal level of aggregation (e.g., going from publishing at the district to the polling station level), Granularity (level), or experiencing a jump in the number of units for which the most disaggregated electoral results are published that is above one standard deviation of this variable for that country-election type, Granularity (std). An alternative would be to define a large jump in these units not based on the within-country-election type variation but on whether the observed growth is above the median growth for a given period for all countries in the sample, Granularity (median). Also, since all the previous measures are based on comparisons with the granularity of the first period, it is important to see what happens when the comparison of granularity in a given period is made to the trend in that variable as of the previous period. Our last measure Granularity (moving average) does exactly that. The table where we examine potential substitution to other forms of malpractice in this section reports the standard deviation measure and the moving average one. Results that use the median measure are not reported but give similar substantive results.

One difference in the results relative to those reported in the paper is the significant relationship with registry irregularities. The sign of the coefficient on granularity is negative, still supporting the conclusion of the paper that there is no evidence of substitution to other forms of manipulation. We also see a positive estimated coefficient significant at the 10% level in the severe violence against civilians. However, the fact that this result does not hold across alternative measures of violence or treatment definitions does not allow us to derive strong conclusions regarding the impact of granularity on electoral violence.

We still find negative and large but less precisely estimated coefficients on granularity in models of counting irregularities and overall election quality.

Table J1: Granularity and voting counting irregularities

Outcome	Other voting irregularities (V-Dem)		Unfair count (PEI)	
	Granularity (median)	Granularity (moving average)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)
Granularity	−0.167*	−0.137	−0.331	−0.567***
	(0.098)	(0.087)	(0.220)	(0.214)
Country-Election FE	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.43	0.35	0.1	0.17
No. Countries	98	98	94	94
No. Country-Elections	158	158	129	129
Observations	413	413	172	172
Adj. R^2	0.83	0.83	0.68	0.70

This table reports coefficient estimates of two alternative dichotomized measures of granularity over vote count irregularity using counting irregularity outcomes from V-Dem and PEI. Covariates included in the models and all other details in the model specification are exactly the same as the analysis in Table 2.

Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J2: Granularity and substitution to other forms of malfeasance

Panel A

	Vote choice manipulation						Barriers to opposition			
Outcome	Severe violence, civilians (NELDA)		Clientelism (V-Dem)		Intimidation to opposition (V-Dem)		Opposition not allowed (NELDA)		Free media (V-Dem)	
	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	0.055 (0.054)	0.148* (0.076)	−0.017** (0.008)	−0.013 (0.012)	−0.189** (0.077)	−0.167* (0.085)	0.002 (0.049)	0.044 (0.056)	−0.130* (0.073)	−0.091 (0.090)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.2	0.52	0.03	0.02	24.5	21.57	0.01	0.27	0.13	0.09
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. R2	0.32	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			
Outcome	Domestic monitors (V-Dem)		International monitors (V-Dem)		Registry irregularities (V-Dem)		Electoral laws (PEI)		Electoral procedures (PEI)	
	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)	Granularity (std)	Granularity (moving average)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	−0.045* (0.026)	−0.009 (0.038)	−0.014 (0.044)	0.033 (0.046)	−0.074 (0.068)	−0.176** (0.085)	7.079** (3.330)	−0.267 (5.670)	1.130 (2.663)	−4.183 (5.221)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.05	0.01	0.02	0.04	0.17	0.39	0.13	0	0.02	0.07
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. R2	0.71	0.71	0.58	0.58	0.81	0.81	0.75	0.73	0.75	0.75

This table reports coefficient estimates of two alternative dichotomized measures of granularity over non-violent and violent government malpractices including intimidation to opposition (V-Dem), severe violence against civilians (NELDA), clientelism (V-Dem), and registry irregularities (V-Dem). Covariates included in the models and all other details in the model specification are exactly the same as the analysis in Table 4. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table J3: Granularity and election quality

Panel A: experts' perceptions

Outcome	Election fraud (V-Dem)		Monitors-reported fraud (NELDA)	
	Granularity (median)	Granularity (moving average)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)
Granularity	−0.160*	−0.143	−0.163**	−0.111
	(0.092)	(0.088)	(0.064)	(0.077)
Country-Election FE	Yes	Yes	Yes	Yes
Granularity Est./Mean	1.81	1.61	0.6	0.41
No. Countries	98	98	80	80
No. Country-Elections	158	158	130	130
Observations	413	413	297	297
Adj. R^2	0.87	0.87	0.51	0.50

Panel B: public perceptions

Outcome	Public Opinion (Barometer)		Riots and protests (NELDA)	
	Granularity (median)	Granularity (moving average)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)
Granularity	0.012	0.006	−0.004	0.002
	(0.050)	(0.049)	(0.095)	(0.086)
Country-Election FE	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.02	0.01	0.01	0.01
No. Countries	62	62	98	98
No. Country-Elections	96	96	158	158
Observations	170	170	404	404
Adj. R^2	0.66	0.66	0.11	0.11

This table reports coefficient estimates of two alternative dichotomized measures of granularity on overall election quality. Covariates included in the models and all other details in model specification are exactly the same as the analysis in Table I9.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J4: Granularity and election outcomes

Outcome	Incumbent vote share		Losing probability (NELDA)	
	Granularity (median)	Granularity (moving average)	Granularity (median)	Granularity (moving average)
	(1)	(2)	(3)	(4)
Granularity	−0.074*	−0.081**	0.114	0.142
	(0.041)	(0.035)	(0.112)	(0.102)
Country-Election FE	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.14	0.16	0.58	0.73
No. Countries	67	67	67	67
No. Country-Elections	67	67	67	67
Observations	163	163	156	156
Adj. R^2	0.55	0.55	−0.02	−0.01

This table reports coefficient estimates of two alternative dichotomized measures of granularity on incumbent vote share and losing probabilty (NELDA). Covariates included in the models and all other details in model specification are exactly the same as the analysis in Table 3.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

J.2 Two-way-fixed effects

The main results exploit within-country (over time) variation to assess how granularity impacts different indicators. This section reports models where period intercepts are added to the main specification. We still find robust negative and significant granularity coefficient estimates in most models of counting irregularities, but the patterns are not as clear with other types of malpractice indicators. Similarly, experts' coding of the overall quality of elections appear to be improved after increases in voting reporting granularity, with significant estimates of that relationship when using the std granularity measure.

Table J5: Granularity and vote counting irregularities

Outcome	Other voting irregularities (V-Dem)			Unfair count (PEI)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.021*	−0.048	−0.168**	−0.120***	−0.267*	−0.436***
	(0.011)	(0.077)	(0.070)	(0.033)	(0.157)	(0.134)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.05	0.13	0.43	0.04	0.08	0.13
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	0.84	0.83	0.84	0.72	0.68	0.71

This table reports coefficients of two-way-fixed effects models with granularity as an independent variable and outcomes being other voting irregularity (V-Dem), and counting irregularities (PEI). All other details in the model specification are the same as the analysis in Table 2. Granularity Est./Mean is the estimated coefficient over the mean outcome. Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table J6: Granularity and substitution to other forms of malfeasance

Panel A

	Vote choice manipulation				Barriers to opposition					
Outcome	Severe violence, civilians (NELDA)		Clientelism (V-Dem)		Intimidation to opposition (V-Dem)		Opposition not allowed (NELDA)		Free media (V-Dem)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	0.029** (0.013)	0.115 (0.081)	−0.001 (0.002)	−0.003 (0.010)	−0.024* (0.014)	−0.164** (0.078)	0.006 (0.012)	0.048 (0.056)	−0.032** (0.014)	−0.064 (0.087)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.1	0.41	0	0.01	3.16	21.21	0.03	0.29	0.03	0.06
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. R2	0.33	0.32	0.92	0.92	0.85	0.85	0.32	0.32	0.78	0.78

Panel B

	Monitoring restrictions				Laws and procedures manipulation					
Outcome	Domestic monitors (V-Dem)		International monitors (V-Dem)		Registry irregularities (V-Dem)		Electoral laws (PEI)		Electoral procedures (PEI)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	−0.004 (0.009)	0.006 (0.038)	−0.001 (0.005)	−0.002 (0.036)	−0.020 (0.014)	−0.105 (0.080)	0.486 (0.791)	7.121 (4.347)	−1.518*** (0.509)	4.284 (4.782)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0	0.01	0	0	0.04	0.24	0.01	0.13	0.02	0.07
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. R2	0.71	0.71	0.59	0.59	0.81	0.81	0.75	0.76	0.78	0.76

This table reports coefficients of two-way-fixed effects models using granularity as independent variables and non-violent and violent government malpractices as dependent variables, including intimidation to opposition (V-Dem), severe violence against civilians (NELDA), clientelism (V-Dem), and registry irregularities (V-Dem). All other details in model specification are exactly the same as the analysis in Table 4. Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J7: Granularity and election quality

Panel A: experts' perceptions

Outcome	Election fraud (V-Dem)			Monitors-reported fraud (NELDA)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.015	−0.130	−0.138**	−0.019	−0.074	−0.069
	(0.013)	(0.079)	(0.066)	(0.014)	(0.088)	(0.080)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.17	1.47	1.56	0.07	0.27	0.25
No. Countries	98	98	98	80	80	80
No. Country-Elections	158	158	158	130	130	130
Observations	413	413	413	297	297	297
Adj. R^2	0.87	0.87	0.87	0.50	0.50	0.50

Panel B: public perceptions

Outcome	Public Opinion (Barometer)			Riots and protests (NELDA)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.002	−0.006	−0.046	0.002	−0.013	−0.012
	(0.008)	(0.044)	(0.032)	(0.014)	(0.091)	(0.077)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0	0.01	0.07	0.01	0.04	0.04
No. Countries	62	62	62	98	98	98
No. Country-Elections	96	96	96	158	158	158
Observations	170	170	170	404	404	404
Adj. R^2	0.66	0.66	0.67	0.11	0.11	0.11

This table reports coefficients of two-way-fixed effects models of granularity over overall election quality. Covariates included in the models and all other details in the model specification are exactly the same as the analysis in Table I9. Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J8: Granularity and election outcomes

Outcome	Incumbent vote share			Losing probability (NELDA)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.016**	−0.079*	−0.071*	0.022	0.132	0.061
	(0.007)	(0.042)	(0.037)	(0.017)	(0.101)	(0.094)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.03	0.15	0.14	0.11	0.68	0.31
No. Countries	67	67	67	67	67	67
No. Country-Elections	67	67	67	67	67	67
Observations	163	163	163	156	156	156
Adj. R^2	0.57	0.56	0.56	−0.03	−0.04	−0.05

This table reports coefficients of two-way-fixed effects models of granularity and incumbent vote share as well as losing probability. Covariates included in the models and all other details in the model specification are exactly the same as the analysis in Table 3.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

J.3   Yearly data analysis

As mentioned in the paper, our unit of analysis in the main results is the country-election type-period. We compute averages across years to account for the spareness of the data as there are years when few countries hold elections, and to reduce the noise created by short-term idiosyncratic shocks that could affect the coding of country experts without significantly affecting underlying electoral manipulation. For example, in a year where large corruption scandals in government are uncovered, the coding of country experts about any issue related to public officials might be negatively affected (including how elections are carried out) even when the scandals are not directly linked to elections. Averaging outcomes across years in a period could reduce the noise this and similar shocks introduce. Finally, temporal aggregation would also reduce the volatility created by the fact that the set of countries for which our measures are available each year is very different when examining over-time aggregates.

Nevertheless, in this section, we report the results using more disaggregated yearly data. As expected, when there is more measurement error in the outcome, some of the relationships of interest maintain the signs of previous results but are not as precisely estimated. Still, we see that there is a negative association between granularity and counting irregularity and overall election quality.

Table J9: Granularity and vote counting irregularities

Outcome	Other voting irregularities (V-Dem)			Unfair count (PEI)		
	Log (units)	Granularity (level)	Granularity (std)	Log (units)	Granularity (level)	Granularity (std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.021*	−0.122	−0.121*	−0.067*	0.082	−0.194
	(0.011)	(0.086)	(0.068)	(0.036)	(0.299)	(0.127)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.06	0.36	0.36	0.02	0.03	0.06
No. Countries	98	98	98	94	94	94
No. Country-Elections	158	158	158	129	129	129
Observations	473	473	473	185	185	185
Adj. R^2	0.83	0.82	0.83	0.67	0.66	0.66

This table reports coefficient estimates on measures of granularity and their relationship to election counting irregularities. The unit of analysis is country-election type-year instead of country-election type-period. All controls (listed in the text) are lagged one year. All details in the model specification are exactly the same as analysis in Table 2. Granularity Est./Mean is the estimated coefficient over the mean outcome.
Clustered standard errors at the country level are in parenthesis: $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$.

Table J10: Granularity and substitution to other forms of malfeasance

Panel A

Outcome	Severe violence, civilians (NELDA)		Clientelism (V-Dem)		Intimidation to opposition (V-Dem)		Opposition not allowed (NELDA)		Free media (V-Dem)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	0.026**	0.115*	−0.001	−0.002	−0.031**	−0.164	0.012	0.086	−0.036**	−0.098
	(0.012)	(0.064)	(0.002)	(0.012)	(0.015)	(0.113)	(0.010)	(0.057)	(0.016)	(0.122)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.09	0.41	0	0	0.51	2.68	0.08	0.56	0.04	0.1
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	467	467	474	474	473	473	463	463	473	473
Adj. R2	0.34	0.33	0.91	0.91	0.84	0.83	0.35	0.35	0.78	0.78

Panel B

Outcome	Domestic monitors (V-Dem)		International monitors (V-Dem)		Registry irregularities (V-Dem)		Electoral laws (PEI)		Electoral procedures (PEI)	
	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)	Log (units)	Granularity (level)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Granularity	−0.003	−0.021	−0.003	0.001	−0.017	−0.143*	0.751	10.056**	−0.799	9.402
	(0.007)	(0.025)	(0.004)	(0.030)	(0.013)	(0.083)	(0.530)	(4.474)	(0.687)	(5.770)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0	0.02	0	0	0.04	0.3	0.01	0.19	0.01	0.15
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	466	466	473	473	473	473	184	184	185	185
Adj. R2	0.74	0.74	0.60	0.60	0.82	0.82	0.71	0.71	0.64	0.65

This table presents estimates of the coefficient on granularity in models of non-violent and violent government malpractices. All covariates are lagged one year. Granularity Est./Mean is the estimated effect over the mean.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J11: Granularity and election quality

Panel A: experts' perceptions

Outcome	Election fraud (V-Dem)			Monitors-reported fraud (NELDA)		
	Log	Granularity	Granularity	Log	Granularity	Granularity
	(units)	(level)	(std)	(units)	(level)	(std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	−0.023	−0.146	−0.171**	−0.010	−0.071	0.005
	(0.014)	(0.103)	(0.077)	(0.011)	(0.070)	(0.066)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.16	0.98	1.15	0.04	0.26	0.02
No. Countries	98	98	98	80	80	80
No. Country-Elections	158	158	158	131	131	131
Observations	473	473	473	330	330	330
Adj. R^2	0.86	0.86	0.86	0.44	0.44	0.44

Panel B: public perceptions

Outcome	Public Opinion (Barometer)			Riots and protests (NELDA)		
	Log	Granularity	Granularity	Log	Granularity	Granularity
	(units)	(level)	(std)	(units)	(level)	(std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	0.003	0.038	−0.008	0.001	−0.019	0.035
	(0.008)	(0.045)	(0.027)	(0.012)	(0.077)	(0.069)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0	0.06	0.01	0.01	0.07	0.12
No. Countries	62	62	62	98	98	98
No. Country-Elections	96	96	96	158	158	158
Observations	175	175	175	464	464	464
Adj. R^2	0.68	0.69	0.68	0.13	0.13	0.13

These are estimates of the coefficient on granularity in models of overall election quality. All covariates are lagged one year. Granularity/Mean is the estimated effect over the mean outcome.
Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table J12: Granularity and election outcomes

Outcome	Incumbent vote share			Losing probability (NELDA)		
	Log	Granularity	Granularity	Log	Granularity	Granularity
	(units)	(level)	(std)	(units)	(level)	(std)
	(1)	(2)	(3)	(4)	(5)	(6)
Granularity	-0.012**	-0.111***	-0.063*	0.016	0.123	0.015
	(0.005)	(0.033)	(0.036)	(0.014)	(0.111)	(0.084)
Country-Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Granularity Est./Mean	0.02	0.22	0.12	0.08	0.59	0.07
No. Countries	66	66	66	66	66	66
No. Country-Elections	66	66	66	66	66	66
Observations	177	177	177	169	169	169
Adj. R^2	0.59	0.60	0.59	0.06	0.06	0.05

These are estimates of the coefficient on granularity in models of electoral outcomes (incumbent vote share and losing probability reported by NELDA). All covariates are lagged one year. Granularity/Mean is the estimated effect over the mean outcome.

Clustered standard errors at the country level are in parenthesis: ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

References

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