Making Votes Count: Report on the 2016 Elections

Funded through the Democracy Commission Small Grant Program,

U.S. Embassy in Georgia

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Executive Summary

In order to help monitor the fidelity of the October 2016 parliamentary election results, CRRC-Georgia carried out quantitative analysis of election-related statistics using methods from the field of election forensics under the auspices of the Detecting Election Fraud through Data Analysis (DEFDA) project. The Project is funded by the Embassy of the United States of America in Tbilisi. Walter Mebane, a Professor at the University of Michigan and a leading election forensics expert, provided external review of a draft of the report and provided programming codes that were used to generate the results presented in the first section of this report. While support for this project comes from the United States Embassy in Georgia, the views expressed in the report represent the views of CRRC-Georgia alone.

Election forensics is a field within political science that focuses on ways of statistically testing for electoral fraud. Some of the statistical tests the field uses were originally developed by accountants to test for irregularities in financial documents, and were later adopted and adapted by political scientists to test for electoral malfeasance. It is important to note that test results are a) probabilistic, and b) are sometimes set off due to chance alone in the absence of issues. Hence, substantive judgment of test results is required to understand whether electoral malfeasance took place.

We have used a number of tests on the proportional election results. They show that official electoral statistics exhibit some statistical anomalies, which may suggest irregularities with the recording of the vote. The number of anomalies however is comparable to the number found in 2012.

In addition to testing for electoral malfeasance, we carried out logical checks of official election returns. These tests check whether there appear to be data entry errors when the vote was being recorded and tabulated.

The logical checks of the official election returns suggest that the Central Election Commission (CEC) has significantly improved their recording of the vote compared with 2012.

However, some issues remain. In the immediate aftermath of the elections, a number of political actors attempted to challenge the legitimacy of the elections based on these inconsistencies. Hence, we strongly recommend that the CEC take steps to further ameliorate the situation surrounding the recording of the vote.

In the first section of this report, we provide a brief methodological overview of the election forensics methods used to test for suspicious patterns in voting records. In the following section, we report the results of the tests. In the third section, the results of the logical tests of voting data are presented. The report concludes with a number of recommendations for the Central Election Commission.

Introduction

In order to help ensure the fidelity of the October 2016 parliamentary election results to the popular will, CRRC-Georgia carried out quantitative analysis of election-related statistics using methods from the field of election forensics, in addition to checking the logical consistency of official data reported by the Central Election Commission (CEC). This report provides an overview of test results, however, the main conclusions of the report are that:

1. The tests we carried out show that official electoral statistics exhibit some statistical anomalies, which may suggest election day irregularities roughly equivalent to those in 2012.
2. The logical checks of the official election returns suggest that the Central Election Commission (CEC) have significantly improved their recording of the vote, though, some issues remain.

Election forensics

In order to test for statistical irregularities in voting statistics, we use methods from the field of election forensics. Election forensics is a subfield in political science that has emerged in recent decades. The goal of election forensics is to identify suspicious patterns in election statistics such as turnout, vote counts, and number of invalid ballots. The methods have been used to test for electoral malfeasance in a variety of contexts, from South Africa to the United States.

Election forensics practitioners often use methods from forensic accounting. Forensic accounting uses a number of statistical patterns to identify potential issues in different types of financial documents. Having adopted these methods to focus specifically on elections, a number of tests have been developed for electoral malfeasance. Among them, we test the following statistics:

- Mean of second digit in precinct vote counts;
- Skew[1] of precinct vote counts;
- Kurtosis[2] of precinct vote counts;
- Means of the final digit in precinct vote counts;
- Counts of zeros and fives in the final digit in precinct vote counts.

The above statistics are described in more detail in the subsequent section of this report, however, here we provide a brief overview. Before delving further into these statistics, it is worth noting that in clean elections, we generally expect the above statistics to have a value close to a specific number (discussed in the next section).

To see if the numbers that actually result from the election are close enough to the values we expect, a statistical technique known as bootstrapping is used. Bootstrapping results in a range of numbers. The range of numbers is an estimate of how high and low the number could have been due to chance. If the range does not contain the theoretically expected value, this suggests that malfeasance may have

[1] A measure of the symmetry of a distribution of numbers.

[2] A measure of how wide or tall a distribution of numbers is.

occurred. In the next section of the report, we provide an overview of how the statistical methods work, and the statistical theory behind them.

Although results are presented in the second section of this report, overall, we have found that official electoral statistics exhibit some statistical anomalies, which suggest some irregularities with the vote. However, these irregularities are roughly equivalent to the number which occurred in 2012.

Logical inconsistencies in the data

Georgia has made significant progress over time in the quality of its election procedures. However, one recurrent issue is related to the recording of the vote. In final electoral returns, there are regularly a large number of logical inconsistencies. In a variety of precincts, in past elections there have regularly been:

- More votes and invalid ballots than the number of voters who came to the polls;
- Less votes and invalid ballots than the number of voters who came to the polls;
- Declines in the number of voters PECs reported had come to the polls over the course of the day (e.g. electoral protocols report fewer people voted in total at/up to 5PM than had at 12 noon).

Although we generally suspect that these issues have been the result of recording error, any citizen may reasonably ask themselves: if the government can't write down the numbers right, how do I know my vote was counted? Hence we checked the above statistics as well as speed of turnout in each precinct.

The logical checks of the official election returns suggest that the CEC, DECs, and PECs have significantly improved their recording of the vote compared with past elections although some issues remain.

While the final election data are significantly better than in 2012, immediately following the elections, a number of political actors challenged the legitimacy of elections based on preliminary calculations of similar numbers. This highlights the importance of accurate recording of voting statistics, and particularly the need to improve the speed of which any inaccuracies are investigated and corrected. In order to support the process of accurate vote recording, the report concludes with a number of recommendations on how to decrease the number of logical inconsistencies in the voting records.

In the next section of this report, we provide a brief methodological overview of the election forensics methods used to test for statistical anomalies in voting records. In the following section, we report the results of the tests. In the third section, the results of the logical tests of voting data are presented. The report concludes with a number of recommendations for the Central Election Commission.

Methodological Overview

To test for statistical anomalies in voting statistics, we use methods from the field of election forensics. The goal of election forensics is to identify suspicious statistical patterns in election returns such as turnout, vote counts, and number of invalid ballots.

Scholars of electoral forensics are still developing methods that can be used to identify suspicious statistical patterns, and some research suggests that suspicious statistical patterns may also emerge as a result of strategic voting[3] or the presence of a distinctive voting population within a territory. Hence, rather than referring to suspicious test results as evidence of malfeasance, we use the term statistical anomaly to denote a test result that may indicate issues with election-related activities.

Since a number of events could set off tests for statistical anomalies, substantive knowledge and further investigation are required to determine whether malfeasance actually occurred. Hence, even though the field of election forensics has made significant progress in methods for identifying potentially problematic results, two important caveats must be kept in mind when interpreting test outcomes:

- Results are probabilistic. A test may return a statistically anomalous result, and this suggests that a given result is highly unlikely to have occurred by chance alone. The way in which we calculate the test statistics is likely to provide 1 false positive for every 100 tests performed.
- If a test does suggest a statistical anomaly, it does not necessarily mean that election-related malfeasance caused the result, but that it may have. Statistical anomalies can be caused by benign activities such as strategic voting[4] or divergent voting patterns within a region. Electoral malfeasance does often cause a positive test result, however. Hence, substantive knowledge and judgment of each positive test are required to determine whether malfeasance actually did occur.

Given these caveats, electoral forensics methods are useful for detecting statistical anomalies in election data that are worthy of further investigation. This is to say that these methods supplement traditional methods of election monitoring such as direct observation of polling places, parallel vote tabulation, and exit polling.

In the present report, we provide the results of a tests of voter turnout including a second digit test, a test of skew and kurtosis, last digit tests, and a uni-modality test.

Second digit tests are inspired by Benford's law.[5] Benford's law[6] provides an expected probability of the first digit being any digit one through nine in a number with multiple digits. Although one might expect this number to be equally likely to be any

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3 See Mebane and Hicken, 2015: http://www-personal.umich.edu/~wmebane/USAID15/guide.pdf

4 See Mebane and Hicken, 2015: http://www-personal.umich.edu/~wmebane/USAID15/guide.pdf

5 See Mebane and Hicken, 2015. Available at: http://www.personal.umich.edu/~wmebane/USAID15/guide.pdf

6 Benford, Frank. "The Law of Anomalous Numbers." Proceedings of the American Philosophical Society78, no. 4 (1938): 551-72. http://www.jstor.org/stable/984802.

number, in fact one is more likely than two, two more likely than three, etc. This pattern has been found to hold with a wide variety of phenomenon such as the populations of countries, the weights of atoms, mortality rates, the list of numbers which appear in magazines and newspapers, and in clean election results in many circumstances.

The explanation for why this pattern holds is somewhat intuitive after considering it. Consider the following example. Imagine selecting a number randomly from 1 to 199. If one randomly selected any number from 1 to 199, one would have a 56% chance of choosing a number that starts with a 1. If one took every number between 1 and 299, the chance of selecting a number that started with a 1 would decline to 37%, and in a set of numbers between 1 and 399 to 28%. The pattern continues, and if one selects a random number from a set of numbers between 1 and 999, there is an 11% chance of the first digit being one. Overall, the probability of the first digit in a number being any number 1-9 is as follows:

First Digit								
1	2	3	4	5	6	7	8	9
30.10%	17.60%	12.50%	9.70%	7.90%	6.70%	5.80%	5.10%	4.60%

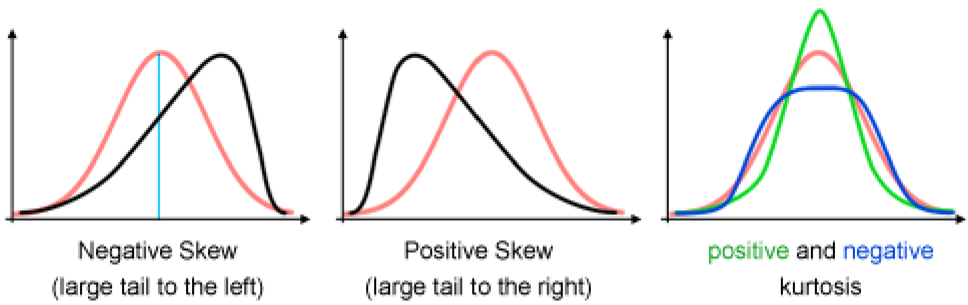
Benford's Law also has implications for the second digit in a number. The probability distribution for each number 0-9 being the second digit implied by Benford's Law is as follows:

Second Digit									
0	1	2	3	4	5	6	7	8	9
12.00%	11.40%	10.90%	10.40%	10.00%	9.70%	9.30%	9.00%	8.80%	8.50%

Based on this extension of Benford's Law, we would expect the average of all of the second digits in electoral returns with three or more digits to equal 4.1873. Vote counts do not follow Benford's Law, in general, but their second digits frequently have distributions that resemble those produced by Benford's Law in many respects in some conditions.

In addition to the average of the second digit, we test the skew and kurtosis of turnout. A distribution is all of the digits put on a graph. The skew of that distribution refers to how symmetrical the distribution is. The kurtosis of a distribution describes how sharp its peak is. These ideas are illustrated in Diagram 1 below.

Diagram 1: Illustration of Skew and Kurtosis



Source: http://www.scratchapixel.com/

The theoretically expected value of the skew of turnout is 0. The theoretically expected value for the kurtosis of the second digit is 3. If the numbers do not follow the extension of Benford's law to the second digit of a number or the expected values of skew and kurtosis, they are statistical anomalies, which may suggest electoral malfeasance.

Besides the above tests, a number of tests have been proposed for the last digit in vote counts. Here, the expected distribution of digits is much more intuitive, and one expects each digit, zero through nine, to be approximately 10% of the total distribution. Based on this distribution, we test the mean of the last digit.

We also test the mean of the count of zeros and fives in the final digits of vote counts. Since each digit should equal 10% of the total, together they should equal 20% of the last digits. The thinking behind this last indicator is that if individuals are trying to signal that they have added votes, they may choose to do so with a number like zero or five. That is to say, an agent of a party may round up to 100, 150, or 1000 votes, but it seems less likely that they would move to 126, 173, or 472 votes. While this logic may not be convincing to some, there is no particular justification for a high 0 or 5 count in any case. Hence, in the absence of a justification for why there would be a high number of 0's or 5's in the last digit, this test adds an extra form of monitoring for irregularities.

In order to test whether the above noted values in fact indicate likely issues or whether the difference between the observed and expected values was a chance variation, we use a statistical method called bootstrapping to estimate 99% confidence intervals. Bootstrapping is a method which samples[7] from a list of values to estimate a range which the indicator could have fallen within, using replacement[8].

While the test itself involves somewhat complicated statistics, its result is relatively straightforward to interpret. In the present case, the bootstrapping procedure provides a range within which the result could have fallen by chance, known as confidence intervals. If the range covered does not include the expected value for a given test

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[7] Randomly selects a number from a list of other numbers.

[8] Replacement in this context means that after each number is selected from the original list and recorded on the new list of numbers, the same number is put back on the first list.

statistic, we conclude with 99% confidence that the number is different ***not*** by chance alone.

Finally, voter turnout is expected to have a distribution with a single mode.[9] An example of such a unimodal distribution is the normal distribution which resembles a bell curve. A single mode means that when each number is placed on the chart, there is only one peak in the bell curve. Based on this expectation, we test whether voter turnout in each electoral district has a single mode or multiple modes using what statisticians refer to as a dip test.

For a more detailed guide to these statistics, and their use in election forensics, see Hicken and Mebane, 2015.[10]

In this report, we have chosen to carry out tests on the proportional list results, because we suspect a high degree of strategic voting in the majoritarian races given the large number of parties and the two round structure of the majoritarian elections. For the tests presented below, we have excluded any electoral precinct with less than 100 votes (3,477 of 3691 precincts are included).

In the next section of this report, we report the results of the above tests.

9 The most common number (or range of numbers) occurring in a series of numbers.

10 Available at: http://www-personal.umich.edu/~wmebane/USAID15/guide.pdf

Statistical anomalies in the election returns

Direct observation of polling stations is the best method available to ensure the accuracy of the vote, however, election observers cannot be everywhere all the time. As a result, a number of statistical tests have been developed to test for statistical anomalies in election returns, which may suggest suspicious election-related activity. This section first provides an overview of these methods and then reports the outcomes of these tests as carried out on the 2016 parliamentary election proportional list voter statistics.

Before reporting the test results, it is worth repeating two important caveats when interpreting these tests.

- Test results are probabilistic. This means that the resulting distribution is highly unlikely, rather than impossible to occur in the absence of issues. For the tests, we calculated 99% confidence intervals. With 99% confidence intervals, we expect one false positive for every 100 tests carried out. We have conducted six different tests, and hence we would not expect a test to go off in the absence of issues due to chance alone.
- A test being set off does not necessarily mean a problem occurred, but it does suggest the need for further examination;

Results

Overall, our analysis suggests that the proportional election statistics exhibit some statistical anomalies, which could suggest irregularities. In total 3 of 6 tests were set off:

	Skew (Expected Value = 0)	Kurtosis (Expected Value = 3)	Last Digit Mean (Expected Value = 4.5)	Zero Five Count Mean (Expected Value = 0.2)	Mean of second digit (Expected Value = 4.18730)	Uni-modality test (Expected Value = Greater than 0.05)	# of positive tests
Proportional list results	-0.1760008	-0.7245713	4.496652	0.2090883	4.471671	0.9568	3
99% Confidence Intervals	(-0.2452, -0.1072)	(-0.8282, -0.6220)	(4.346, 4.597)	(0.1914, 0.2268)	(4.346, 4.598)		

By comparison, in 2012, 2 of 6 tests were set off.

	Skew (Expected Value = 0)	Kurtosis (Expected Value = 3)	Last Digit Mean (Expected Value = 4.5)	Zero Five Count Mean (Expected Value = 0.2)	Mean of second digit (Expected Value = 4.18730)	Uni-modality test (Expected Value = Greater than 0.05)	# of positive tests

Proportional list results	0.4108	1.5038	4.4483	0.2061	4.2763	0.9928	3
99% Confidence Intervals	(0.1368, 0.6937)	(0.238, 2.820)	(4.324, 4.573)	(0.1885, 0.2237)	(4.148914, 4.403608)		

Given that the test results are very similar to in 2012, and that the 2012 elections were broadly considered free and fair, we conclude that the 2016 elections were of comparable quality.

Logical inconsistencies in voting records

For the 2016 elections, CRRC-Georgia tested election records for logical inconsistencies in the way election precincts report the vote in their election protocols. Specifically, we take the number of voters who turned out to the polls and compare it to the number of votes recorded and invalid ballots combined. We then look at whether turnout decreased over the course of election day. These analyses are presented in comparison to the 2012 proportional list results in order to provide a baseline of comparison. Finally, we look at how many voters signed for a ballot per minute.

Overall, we have found that the vote was recorded accurately without any major issues. Compared to 2012, the CEC has made significant progress in its efforts at recording the vote, although issues still remain.

This analysis is presented with the goal of encouraging the Central Election Commission to test for and report on the causes of these logical inconsistencies in future elections. This is particularly important given that a number of political actors attempted to challenge the legitimacy of the elections based on these statistics.

Extra signatures and too few signatures on election protocols

In the data, there are a fair number of precincts in which the number of voters who came to the polls do not match up with the number of votes recorded for a party and the number of invalid ballots added together. If all signatures reflect a ballot cast, subtracting the number of recorded votes and invalid ballots from the total number of signatures should equal zero. A non-zero figure may indicate issues with the recording of election statistics and potentially malfeasance.

In 2016, from the 3691 precincts:

- 966 precincts had more or less signatures than votes and invalid ballots (26% of all precincts);
- Of these, 918 had more signatures registered than votes recorded for a party or ballots registered as invalid combined;
- 48 precincts had fewer signatures than votes registered for a party and invalid ballots combined;

In 2012, by comparison, from the 3,680 precincts which had ten votes or more:

- 936 precincts had more or less signatures than votes and invalid ballots (25% of all precincts);
- Of these, 918 had more signatures registered than votes recorded for a party or ballots registered as invalid combined;
- 18 precincts had fewer signatures than votes registered for a party and invalid ballots combined;

While the absolute numbers of precincts with issues are slightly higher in 2016 than in 2012, the scale of the problem is much smaller. While in 2012 there were 696 votes without voter signatures, in 2016 there were only 76. While in 2012, there were 34812 more voters than votes, in 2016 there were 2820 more voters than votes. That is to say the scope on the problem in 2016 was:

- 11% the size of the 2012 results when it comes to extra votes and;
- 8% the size of the 2012 when it comes to there being more voter signatures than votes.

These phenomena likely have numerous causes. While some are problematic, others are benign.

More signatures than recorded votes and invalid ballots

To start with the 918 cases of fewer votes registered for a party or invalid ballots than signatures recorded, the severity of the issue has declined significantly. In order to provide some sense of the severity, we have grouped precincts by the number of extra signatures into three categories: unlikely to be problematic (1-9 extra signatures), potentially problematic (10-49 extra signatures), and suspicious (50 or more extra signatures). Table 1 presents the number of precincts that fall into each category:

Table 2.

	Unlikely to be problematic	Potentially Problematic	Suspicious
# of Precincts	845	71	2

As the table shows, the vast majority of instances of extra signatures are unlikely to be problematic, and only 8% of the 918 districts seem to have a potentially problematic or suspicious number of surplus signatures. By comparison, 11% of the districts had comparable problems in 2012.

There are 2 suspicious precincts with more than 50 extra signatures. In precinct 33.23.62 there were 50 extra voters, while in precinct 59.60.50 there were 52 extra voters. Although this is less than ideal, by comparison in 2012, foreign precincts had thousands of extra voters who signed for ballots without there being corresponding votes registered according to the official returns provided by the CEC. Clearly, the scale of the issue has declined significantly.

There are a number of likely explanations for this issue. Specifically, voters may have come to the polls and:

- Signed the voter list and left without voting;
- Voted only in the majoritarian race rather than in both the proportional and majoritarian races;
- Precinct electoral commissions may have inaccurately recorded votes, invalid ballots, and/or signature counts.

A number of other, more problematic explanations are also possible. However, we believe that in most of the "unlikely to be problematic" precincts and "potentially problematic" precincts, it is likely that voters only voted in the majoritarian race rather than in both the proportional and majoritarian races or signed the voter list and left without voting. In the suspicious cases however, inaccurate recording of the vote is a possible cause. While these issues do not appear to have had a significant effect on the 2016 election results, they should be taken into account in order to ensure public confidence in the elections.

Less signatures than recorded votes and invalid ballots

Precincts where there are more votes than signatures are more problematic than precincts where there are more signatures than votes. They are more problematic, because the potential explanations for the discrepancy are less benign. Potential explanations include:

- Precinct electoral commissions may have incorrectly counted or reported vote statistics;
- Voters were allowed to vote without signing the voter list;
- Ballot box stuffing occurred.

In 48 precincts, there were more votes recorded in the proportional races than signatures for ballots. Given that this issue is more problematic, we classify precincts as either potentially problematic (0-9 extra votes) or suspicious (10+ extra votes).

In total, zero (0) precinct(s) qualify as suspicious. Hence, we suspect that the missing signature(s) were the result of a recording or counting error and/or inattention to voters signing for ballots.

Overall, compared to 2012, there was a 89% decline in the number of excess ballots recorded for a candidate and declared invalid than signed for.

Although we are not aware of the cause in any specific case regarding a higher number of votes and invalid ballots than signatures, the Central Election Commission and Election Monitors should be aware of this issue. We recommend that the election administration:

- Legislation require that any instance of more votes than voters be investigated;
- Amend reporting protocols to include an area where precinct election commission officials can explain any logical discrepancies in the electoral statistics;
- Electronic protocol entry be adopted to reduce data entry related errors.

Declining Turnout

Another logical inconsistency in the official statistics in the 2012 elections was that the number of votes in several precincts declined between 12PM and 5PM, as well as between 5PM and 8PM. That is to say, according to the official record, fewer people had voted at 5PM, in total, compared to five hours earlier at 12PM in these precincts. In total, in 2012, 8 domestic precincts exhibited this type of inconsistency.

In 2016, this occurred in only 2 precincts: 00.87.02 and 62.65.23. Notably, in precinct 00.87.02, the apparent decline in voter turnout was due to the precinct not recording turnout at 5PM. In precinct 62.65.23, at 12 noon, 91 voters had come to the polls. According to the official record, at 5PM 40 had – 51 fewer voters. By 8PM however, 319 voters had participated in the elections.

Although this case is problematic, the number of precincts reporting declining turnout declined from eight (8) domestic precincts in 2012 to one (1) in 2016. This should be considered a positive development.

The most likely explanation for this issue is PEC reporting error, with PECs reporting the number of signatures between 12PM and 5PM rather than the total number of signatures for the day at 5PM. Although the issue is much smaller than in the past, we recommend that:

- DECs and the CEC should ensure that PEC officials have a clear understanding of how to report voter turnout figures in future elections.

Votes per minute

One classic way of detecting electoral malfeasance is looking to the number of votes per minute. If the number of voters that sign for a ballot in under a minute is high, it brings up questions about how it was possible for so many people to vote at one time. For the purposes of this report, we checked whether any precinct had five or more people vote per minute, the equivalent of a voter signing for a ballot every 12 seconds.

In the 2016 election, zero (0) precincts exhibited high rates of voting. This is clearly a positive development when compared with 2012, which had over five voters per minute in 15 precincts.

Conclusions and Recommendations

Based on our analysis of the official election statistics, we conclude that the tests show comparable levels of issues as in 2012. Based on the logical tests of voting records that we carried out, we conclude that the vote was recorded accurately without any major issues, though a number of logical inconsistencies remain in the data.

Based on our findings, we have developed a number of recommendations for the election administration in Georgia:

1. Digitize the voting process

Digital voting could speed up the announcement of results, and decrease the number of logical inconsistencies in the data. The voting process can be digitized in a number of ways. First, Georgia could use electronic voting booths. If this was decided, we recommend the adoption of a dual system with electronic voting and a paper trail. The paper trail will enable the government to carry out recounts if needed, while also speeding up and reducing the cost of the elections through removing the need for data entry. Notably, 51% of Georgians already support such a reform, according to a June 2016 NDI-CRRC survey.[11]

While electronic voting booths are one option, a more cost effective approach may be the use of electronic protocol entry. If every Precinct Election Commission is equipped with one tablet computer, protocols can be entered by each PEC member to ensure that the protocol data is accurately entered. A paper protocol can then be delivered by hand. The tablet computer will automatically be able to check whether there are an excess of votes in the ballot boxes compared to the number of signatures and immediately flag the issue with the CEC. The CEC can then investigate the issue. This requires a relatively large initial start up cost, but other agencies such as the National Statistics Bureau could also benefit from tablet computers for data collection. Hence, multiple government agencies could use the tablets, spreading the cost across multiple agencies.

2. In the absence of digital voting, standardize the protocol fill in process

In the 2016 elections as in elections past, numerous systems for filling in the protocol were used by Precinct Election Commissions. While some individuals chose to place an X in every box not used, others left them blank. Hand writings naturally vary, and many numerals were less than clear. As simple as it may sound, providing standards and enforcing them for filling in the protocols will reduce the chance of a data entry error.

3. Immediately flag and investigate illogical protocols

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[11] http://caucasusbarometer.org/en/nj2016ge/EVOTEC/

Regardless of whether electronic voting or protocol entry is adopted, the government should include logical checks of protocols in the data entry process. If the protocols have more votes than voters recorded on them, the CEC should investigate the source of the issue with the PEC that submitted the protocol.

4. Increase transparency of the vote counting process

In past elections, protocol entry was made available to international organizations, where they could watch online. This year, this privilege was revoked, with the explanation provided that having the live access to the spreadsheet was a security issue. This explanation strains credulity.

The government could easily create a mirror, or thousands for that matter, at which the data entry is visible, but is not the actual sheet which data entry is taking place. In addition to this, explaining how protocols are entered to the public should increase public confidence in the vote counting process.

Transparency only increases legitimacy.

5. Improve the CEC's elections portal.

Currently, the portal only indicates the results for each party in table format rather than the complete information available on the protocol. All information available on the protocol should be available for the public's inspection in an aggregated format, without the need to view thousands of pages or file a freedom of information request.

6. Make sure that when amendments are attached to protocols that a thorough explanation for the amendment is attached.

In many cases, amendments suggested changes to the numbers that lead to either more votes counted than signatures recorded or the other way around. As noted above, such inconsistencies are problematic.

7. In trainings for District and Precinct Election Commissions, particular emphasis be placed on how to fill out the election protocols, on different inconsistencies that could occur, and what to check to see if it is an actual inconsistency or a clerical error.

While in the current elections, issues related to protocols do not appear to have affected the final result, they could have given that one party came extremely close to not passing the electoral threshold. On top of this, the credibility of elections were directly challenged based on the logical inconsistencies reported following the elections. As such, taking any steps which will increase the legitimacy of the elections will be positive.

Clearly, this is an issue, and the above recommendations will help address it.