# Who Stole What in Russia's December 1993 Elections

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Serious allegations of fraud have been made with respect to Russia's first competitive, party-based parliamentary election in December 1993. Although similar allegations have been made with respect to the 1995 parliamentary and 1996 presidential elections, those that concern 1993 are especially problematic. The assertion that over nine million ballots were fraudulently cast and that the turnout threshold of 50 percent required to validate the constitutional referendum was in fact not surpassed bring into question the legitimacy of Russia's present constitution. Moreover, if the same methods for detecting fraud are to be applied in subsequent elections, and if those methods are flawed, inappropriate conclusions about the legitimacy of future elections may result.

In this article, we look at the primary method used to infer massive fraud in December 1993, and we conclude that as presently developed, it is inadequate to the task at hand. That method, which looks at the relationship between turnout and the share of the electorate voting for one party or position versus another, is subject to a number of methodological pitfalls, including aggregation error and the possibility that unobserved variables correlate with both turnout and support so as to render any relationship indeterminate. We do not dispute the possibility that fraud on the alleged scale did in fact occur; our conclusion here is simply that we cannot verify either 9.2 million fraudulent ballots or a turnout rate less than 50 percent.

## Fraud or Fiction: Who Stole What in Russia's December 1993 Elections

The report that Russia's first free, party-based parliamentary election, in December 1993, was characterized by massive fraud in the form of more than nine mil-

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lion illegitimate ballots received worldwide notice.[1] If it is true that more than 15 percent of the ballots had been fraudulently added to the total and that turnout did not in fact exceed 50 percent, Russia's constitutional referendum was illegitimate. These allegations have been largely ignored by political analysts in that there has been no independent attempt to validate the allegations or the methods upon which they were based. This is unfortunate since such allegations cast a cloud on the legitimacy of Russia's infant constitutional structure. On the other hand, the general acceptance of the allegations is unsurprising. Most suspiciously, official election returns have never been published except at a level of aggregation that precludes reanalysis. Second, Yeltsin's announcement of the election gave little time for the organization of any effective neutral oversight. Third, the allegations made sense in that they implied a logical logroll that benefitted a wide cross-section of political interests: Communists and nationalists, whose representation in the Duma was increased; regional bosses, who secured positions in the Federation Council; and Yeltsin, who required the additional turnout produced by fraudulently cast ballots to legitimize his pro-presidential constitution. Finally, fraud did not require the existence of a well-organized conspiracy. Regional or subregional officials were operating largely within a bureaucratic structure designed under the previous regime to report turnout rates of 99.8 percent and virtually unanimous support for official candidates. Those officials, anxious to satisfy their bosses, would have a clear incentive to facilitate the election of those bosses to the Federation Council and to play a possibly unwitting hand in the implementation of the logroll.

***"fraud did not require the existence of a well-organized conspiracy."***

By themselves, however, such things do not validate the assertion that the logroll was implemented by the addition of nine million ballots to the total. We therefore reexamine the primary method Sobyanin and his colleagues used to arrive at their allegations. Briefly, we conclude that although we cannot preclude fraud as alleged, neither can we demonstrate that the constitutional referendum was illegitimate. Even if fraud took the form suggested, the method is ill-equipped for detecting and measuring fraud. In offering these conclusions, we turn first to a reexamination of the constitutional referendum and to the "anomalies" that purportedly pervade vote counts there. However, as opposed to the inferences made by Sobyanin, et al. we conclude that the patterns in the data taken as evidence of fraud are more likely the consequence of differences in urban versus rural voters. We look next at the party list voting and argue that, although we cannot explain the anomalies in the data here in precisely the same way as we do for the constitutional referenda, we can nevertheless detect the consequences of aggregating

data across urban and rural voting districts that yield an overestimate of the magnitude of fraud. We conclude with some additional evidence that is inconsistent with the alleged fraud, and argue that even if we can avoid the methodological problems associated with aggregate data, the proposed method for detecting fraud must be augmented by additional analysis.

**The Constitutional Referendum**

Sobyanin and his associates, long before the December 1993 balloting, anticipated that fraud would be pervasive. Their subsequent public allegations, though, might not have received much attention had the election's outcome been different. At least among journalists and the general population, the suspicion that something was amiss arose as soon as it became evident that, with 22.8 percent of the party-list vote for the Duma, Zhirinovsky's Liberal Democratic Party of Russia (LDPR) had outpolled democratic reformers, and Russia's Choice in particular. Although many commentators concluded that Zhirinovsky ran the most effective campaign and that the outcome revealed a correspondence between radical electoral choices and deteriorating socioeconomic circumstances, commentators were skeptical of an election in which Russia's Choice, with 15 percent percent of the party-list vote, barely exceeded the support garnered by the Communist Party and its fellow traveler, the Agrarians. How, reformers asked, could the primary vessel of democratic reform fail, except by fraud, when it enjoyed such obvious advantages as direct access to the Kremlin, control of the mass media, an adequate supply of campaign funds, and the truth?

Initial published allegations of fraud were not based on any discrepancy between official vote counts and polls. Instead, they were based on various "anomalies" in the election returns–the "fingerprints" left by those who ostensibly added ballots to the total or who otherwise manipulated returns. Two sets of fingerprints are offered by Sobyanin and his colleagues in various publications as evidence, but only one need concern us here, since it is the basis for the initial estimate of 9.2 million invalid ballots.[2] Specifically, having noted that support *for* the constitution was reasonably constant across Russia–approximately 31 percent to 32 percent of the eligible electorate–Sobyanin, et al. observed that the vote *against* the constitution varied greatly, as did turnout. Ignoring the arguments put forth for this particular classification, eleven regions were identified as "relatively honest," with those supporting the constitution averaging about 70 percent.[3] If we assume that the percentage of votes cast for the constitution was uniform throughout Russia and that the actual number of votes cast against was three-sevenths of the number voting for (33 million), then the true number voting against is three-sevenths of 33 million, or approximately 14 million. Adding 14 to 33, plus the 2 million invalid ballots cast on the referendum, yields an estimate of 49 million ballots. Subtracting this number from the official count of 58.2 million ballots provides the reported total of 9.2 million fraudulent ballots.

Naturally, such back-of-the-envelope calculations are hardly persuasive. However, Myagkov and Sobyanin and Sobyanin and Suchovolsky, using unofficial data from twenty-three regions, aggregated only up to the level of individual

rayons, offer a more in-depth presentation and rationalization of this calculation.[4] Letting *T* denote the turnout in a rayon and *V*f be the percentage of those voting for the constitution among those who actually cast ballots, notice that *T* times *V*f = *E*f is the percentage of *eligible* voters who support the constitution. The implicit assumption in Sobyanin's original calculation is that any increase in *T* should generate an increase in *E*f (as well as in *E*a, the percentage of the electorate voting against). In fact, this seems an eminently reasonable assumption: although additional voters might aid the opposition if a majority of them prefer the opposition (just as higher turnout is presumed to aid Democrats in American elections) so as to produce a positive correlation between *T* and *E*a, some of these voters should hold the opposite preference and engender a positive correlation as well between turnout and *E*f.

Contrary to this expectation, however, as we show in figure 1a, which graphs turnout against *E*f for each of the 786 rayons in Sobyanin's data, there is little correlation in the data; whereas, if we look at turnout versus *E*a (see figure 1b), we see the strong positive relationship that corresponds to our intuition. The inference, then, is that figure 1a reveals an anomaly that is consistent only with turnout rates that have been fraudulently inflated with ballots marked against the constitution. By adding such ballots in some but not all rayons, the corresponding data points in figure 1a are moved horizontally to the right to produce the scattered pattern that contrasts with that in figure 1b.[5] Sobyanin's original, back-of-the-

**FIGURE 1a. Turnout and Vote "For" Constitution Times Turnout for 23 Regions, 786 Rayons**

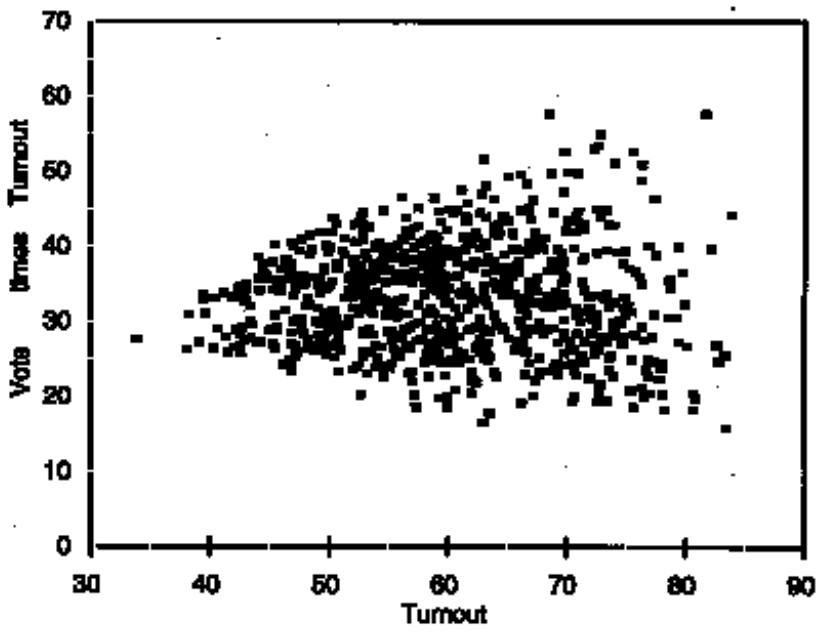
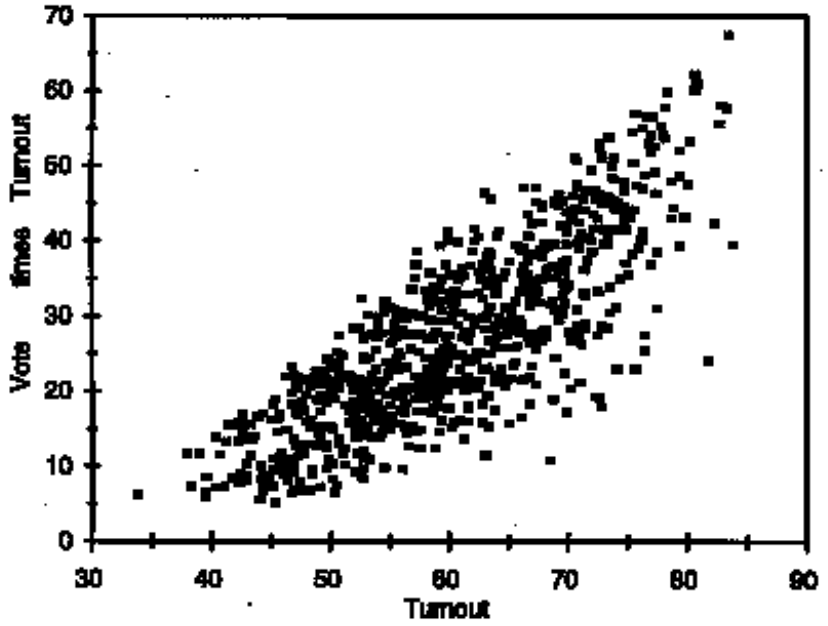


**FIGURE 1b. Turnout and Vote "Against" Constitution Times Turnout for 23 Regions, 786 Rayons.**




envelope calculation, then, is equivalent to moving data points in figure 1a to the left so that they give a picture like the one in figure 1b by calculating how much we must decrease turnout in the process.

Unfortunately, much of the reasoning used to justify such a calculation is flawed. First, notice that the intuition that leads us to suppose that turnout and *E*f should be positively related is based implicitly on a comparison of the same voting district at two different points in time. But this is not the comparison made with the 1993 data. Instead, the comparison is among different districts at the same time, in which case a weak or negative correlation between *T* and *E*f is anomalous only if our data are homogeneous–only if every observation is like any other except for the variables measured. However, if turnout and preferences correlate–if regions with higher turnout are, for whatever reason, likely to be disproportionately conservative and opposed to Yeltsin and his reforms, then a picture like figure 1a need not be anomalous.

To see what we mean here with a specific numerical example, consider figure 2a, which portrays the relationship between turnout and the percentage of the vote for and against some measure for four hypothetical voting, such that voters in the high-turnout districts are more likely to vote against, whereas support for the measure is strongest in the two low-turnout districts. Thus, the correlation between turnout and percentage against among those voting is positive, whereas the correlation between turnout and percentage for among those voting is negative. Now

**FIGURE 2a. Vote vs. Turnout in Numerical Example**

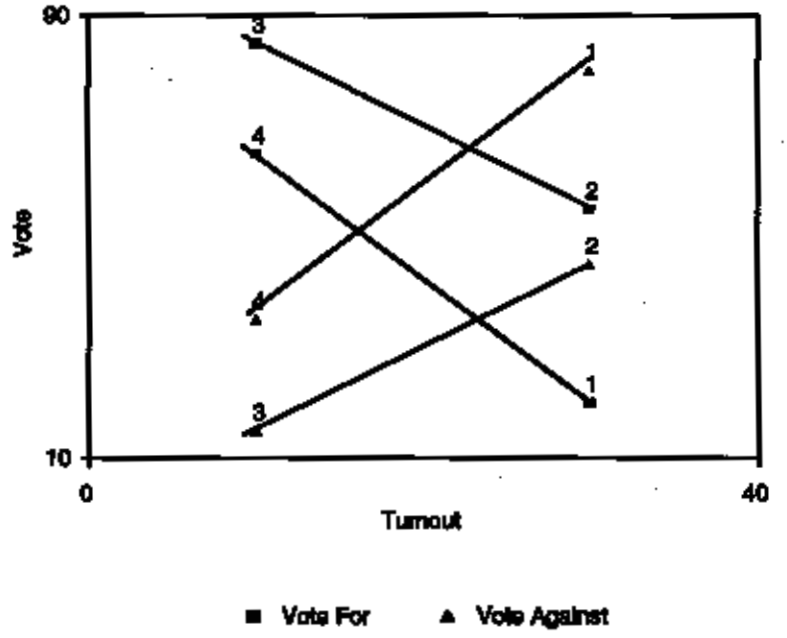
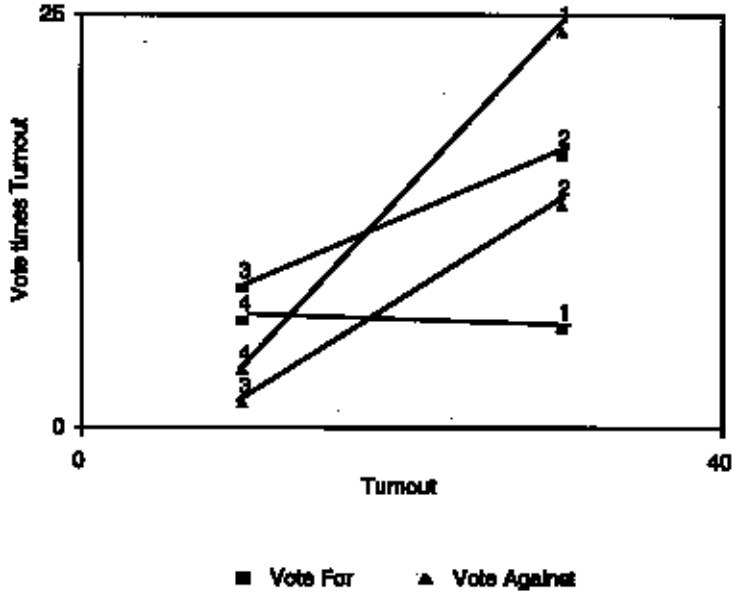



**FIGURE 2b. Vote Times Turnout in Numerical Example**



consider figure 2b, which takes figure 2a, multiplies turnout times the percentage voting for and the percentage voting against, and graphs *E*f and *E*a against turnout. Notice that the variance of the data corresponding to *E*f is greater than the variance of the data corresponding to *E*a, and that the correlation between *T* and *E*f is less than the correlation between *T* and *E*a. In fact, if district 3 is not an individual district but 100 districts, then the correlation between *T* and *E*f would be negative.

This example reveals that divergent relationships between *T* and *E*f and between *T* and *E*a are not anomalous if there is a "natural" relationship between people's likelihood of voting and support or opposition to the issue being decided. In fact, some simple algebra establishes that if the percentage voting for bears some monotonic relationship to turnout, then each of the following things must be true:

***". . . the argument for massive fraud rests on data aggregated across the country."***

- if turnout is low, as in most U.S. elections, the relationship between *T* and *E*f and between *T* and *E*a will be positive;
- if turnout is uniformly high and if it and *V*f bear a strong (negative) relationship, the correlation between *T* and *E*f will be negative;
- if turnout varies widely and if it and *V*f again bear a strong (negative) relationship, then the relationship between *T* and *E*f will not be monotonic, and estimates of it based on a simple linear regression will be unreliable if not meaningless.[6]

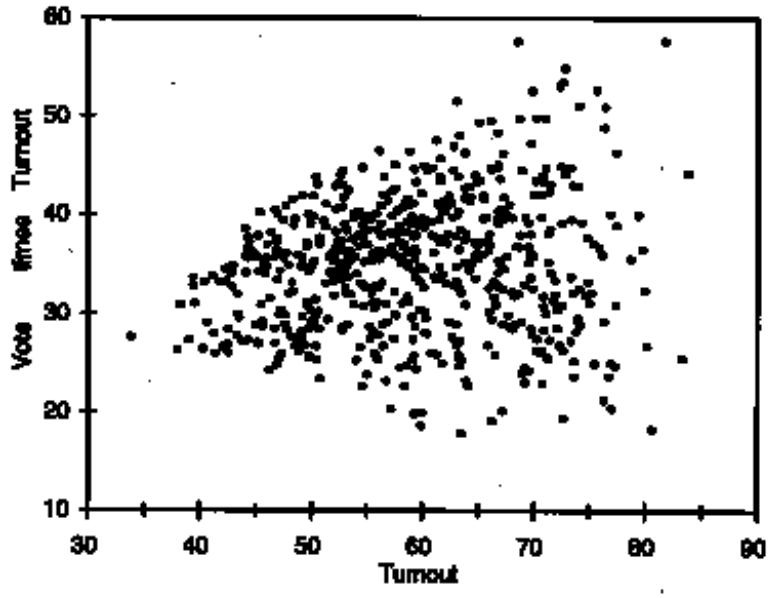
These possibilities are important for any conclusions we might offer about fraud. Specifically, before deeming the relationship between *E*f and *T* in figure 1a as anomalous, we must assess whether there are variables that intervene between the decision to vote and the choice of how to vote that might influence the relationship between turnout in a rayon and the general support for Yeltsin's constitution. Indeed, later we argue that some, if not all, of the anomalous relationships between *T* and *E*f can be explained by the simple fact that, at least for Russia, urban voters are less likely to vote than are rural ones and rural ones are more likely to be conservative than urban voters.[7] But before we explore this relationship further, we should first note that there is a second error in the analysis that undermines the allegation of fraud–aggregation error.

Regardless of whether we consider Sobyanin's original, back-of-the-envelope calculation or its subsequent refinements valid, the argument for massive fraud rests on data aggregated across the country. However, drawing valid inferences from such aggregation requires that the same or similar patterns hold within regions. However, the first column of data in table 1 shows that, unlike the zero correlation that summarizes figure 1a, turnout and *E*f correlate positively in twen-

**TABLE 1. Regional Correlation between Turnout and Vote Times Turnout**

| | Parties | | | | | |
|---|---|---|---|---|---|---|
| | Constitution | Conservatives | Russia's Choice | All Others | Constitution Invalid Ballots | Party List Invalid Ballots |
| Krasnoyarsk | 0.70 | 0.90 | –0.40 | –0.68 | 0.41 | 0.58 |
| Archangelsk | 0.60 | 0.75 | –0.15 | –0.60 | 0.62 | 0.07 |
| Briansk | 0.27 | 0.81 | –0.41 | –0.65 | 0.26 | 0.32 |
| Vladimir | 0.50 | 0.86 | –0.38 | –0.69 | 0.34 | 0.44 |
| Vologod | 0.69 | 0.83 | –0.14 | –0.60 | 0.30 | 0.21 |
| Voroneg | –0.05 | 0.94 | –0.64 | –0.79 | 0.14 | 0.16 |
| Kalinigrad | 0.73 | 0.69 | –0.20 | –0.49 | 0.60 | 0.36 |
| Kemero | 0.79 | 0.96 | –0.58 | –0.77 | –0.06 | 0.09 |
| Kirov | 0.22 | 0.84 | –0.29 | –0.68 | –0.11 | –0.24 |
| Kursk | 0.17 | 0.96 | –0.64 | –0.87 | 0.03 | –0.06 |
| Magadan | 0.71 | 0.91 | –0.40 | 0.17 | 0.74 | 0.80 |
| Murmansk | 0.80 | 0.87 | –0.12 | –0.43 | 0.67 | 0.32 |
| Nignii Novgorod | 0.08 | 0.91 | –0.53 | –0.81 | 0.31 | 0.41 |
| Novgorod | 0.85 | 0.91 | –0.49 | –0.63 | –0.18 | –0.26 |
| Orenburg | 0.45 | 0.92 | –0.60 | –0.79 | 0.26 | 0.36 |
| Penza | –0.15 | 0.95 | –0.61 | –0.82 | 0.04 | 0.03 |
| Permt | 0.89 | 0.75 | –0.16 | –0.54 | 0.50 | 0.32 |
| Saratov | 0.45 | 0.84 | –0.31 | –0.62 | 0.20 | 0.36 |
| Sachalinsk | 0.80 | 0.58 | 0.52 | –0.07 | 0.16 | 0.16 |
| Sverdlovsk | 0.85 | 0.75 | –0.17 | –0.65 | 0.50 | 0.41 |
| Smolensk | –0.30 | 0.94 | –0.63 | –0.83 | 0.04 | 0.75 |
| Tver | 0.01 | 0.96 | –0.79 | –0.88 | –0.48 | –0.40 |
| Tula | 0.37 | 0.94 | –0.74 | –0.85 | 0.05 | 0.00 |

**FIGURE 3a. Turnout and Vote "For" Constitution Times Turnout for Selected 18 Regions**

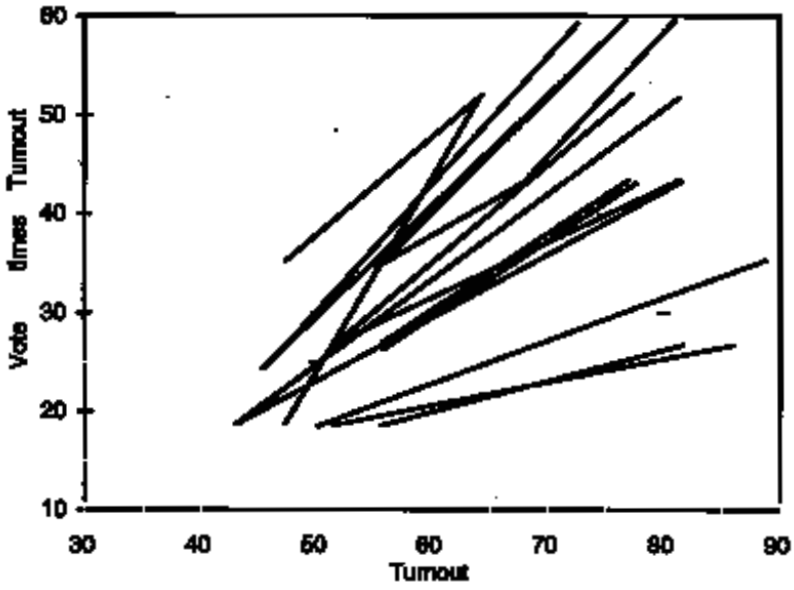



ty out of twenty-three regions. These are not uniformly strong correlations, but they do suggest an interesting explanation for the zero overall correlation portrayed in figure 1a. Looking at support for the constitution and excluding the five regions for which the correlation between turnout and *E*f is negative or essentially zero, figure 3a graphs the overall relationship between turnout and *E*f across all rayons in the remaining eighteen regions. Notice that the cloud of data here is not much different than the cloud shown in figure 1a. Figure 3b, though, graphs the best fit lines for the relationship between turnout and *E*f for each of these eighteen regions taken one at a time and reveals a set of nearly parallel, positively sloping lines. Thus, within each region, the relationship between turnout and *E*f is the one intuition tells us is "normal." It is only after we aggregate across regions that we get an anomalous relationship. Hence, the anomaly of a zero or negative overall correlation between turnout and turnout-times-support-for-the-constitution is as much a consequence of different turnout rates across regions as it is of the absence of a within-region relationship between turnout and *E*f.

### Party List Voting

The preceding discussion concerns only the constitutional referendum, and admittedly, the evidence for fraud is weaker there than it is when we look at voting for the party lists. Specifically, consider table 1 again, which in the second column shows the correlation between turnout and *E*CAL (= *T* times the

**FIGURE 3b. Regression Lines for Selected 18 Regions**




percentage vote for Communists + Agrarians + LDPR); in the third column, the correlation between turnout and *E*RC (= *T* times the vote for Russia's Choice); and in the fourth column, the correlation between turnout and *E*O (= *T* times the vote for the remaining parties). These correlations more clearly and uniformly correspond to the pattern offered as an anomaly—significant positive correlations between *T* and *E*CAL but near-zero or negative correlations between *T* and *E*RC and between *T* and *E*O. Moreover, since the data here are by region, we cannot explain the absence of positive correlations in the third and fourth columns as the consequence of aggregation error across regions.

For those who believe that the 1993 election was in fact characterized by massive fraud, the numbers in table 1, in combination with our previous discussion of the constitutional referendum, yield a more believable scenario of fraud than even the one Sobyanin offers. Rather than assume that rayon officials fulfilled their part of the bargain in some grand logroll by stuffing ballot boxes with votes against the constitution, we can assume instead that they simply scattered votes between the for and against positions so as to increase turnout and keep their overseers in the Kremlin satisfied. However, before accepting this scenario, we must still confront the methodological and theoretical issues associated with assuming that a zero or negative correlation is an anomaly.

The first thing to note is that negative correlations can arise naturally. Canada offers the most interesting example of this. Using each of its 125 election districts as the unit of observation, if we look at Quebec's most recent (1995)

separatist referendum, we see that the correlation between turnout and *E*f is negative (-0.20), whereas that between turnout and *E*a is positive (+0.32). Moreover, the range of turnout in the Canadian data is relatively high, between 84 percent and 97 percent, which, on the basis of our discussion in the previous section, is the range at which we are most likely to see a negative, fraud-free relationship between turnout and *E*f. Thus, if the relationship between turnout and *E*RC is not anomalous in Canada, we cannot assume a priori that it is anomalous in Russia.

Our previous discussion of figures 2a and 2b, however, showed that we can infer that a negative or zero correlation between *T* and *E*f is "normal" only if we can identify a variable that intervenes between turnout and the numbers voting for and against. And for Russia, urbanization appears to be such a variable. Several studies establish that support for reform is concentrated in urban areas and opposition in rural regions and that turnout in Russian elections also correlates with the urban-rural.[8] There are also good reasons for believing that this relationship would exist without fraud. Economic opportunities are greater in urban than in rural regions, thereby making urban residents more sympathetic

**TABLE 2. Regional Correlation between the Percent of Rural and Turnout, Support for Russia's Choice, and Communists**

| | Turnout | Russia's Choice | Communists |
|---|---|---|---|
| Krasnoyarsk | 0.79 | –0.33 | 0.18 |
| Archangelsk | 0.73 | –0.25 | 0.23 |
| Briansk | 0.81 | –0.12 | –0.05 |
| Vladimir | 0.85 | –0.29 | –0.05 |
| Vologod | 0.76 | –0.41 | –0.17 |
| Voroneg | 0.67 | –0.65 | 0.22 |
| Kalinigrad | 0.32 | –0.10 | –0.09 |
| Kemero | 0.85 | –0.22 | 0.00 |
| Kirov | 0.63 | –0.53 | 0.24 |
| Kursk | 0.73 | –0.40 | 0.28 |
| Magadan | 0.84 | –0.22 | 0.68 |
| Murmansk | 0.13 | –0.29 | 0.33 |
| Nignii Novgorod | 0.81 | –0.67 | 0.48 |
| Novgorod | 0.80 | –0.11 | 0.40 |
| Orenburg | 0.84 | –0.61 | 0.01 |
| Penza | 0.76 | –0.39 | 0.17 |
| Permt | 0.45 | –0.48 | 0.46 |
| Saratov | 0.85 | –0.48 | 0.18 |
| Sachalinsk | 0.83 | 0.12 | –0.32 |
| Sverdlovsk | 0.64 | –0.41 | 0.48 |
| Smolensk | 0.58 | –0.42 | 0.15 |
| Tver | 0.71 | –0.32 | –0.15 |
| Tula | 0.81 | –0.44 | 0.35 |

to reform than rural ones. And since Stalinist methods for securing nearly universal turnout rates are more likely to remain in place in rural regions–methods that may border on coercion, but which need not entail outright ballot stuffing–greater turnout in those regions is unsurprising as well.

Myagkov and Sobyanin briefly consider the urban-rural distinction, but its relevance goes beyond what they suggest.[9] In addition to opening the door to a natural negative correlation between turnout and percentage of the electorate voting for Russia's Choice, *E*RC, it again raises the issue of aggregation error. Consider figure 4, in which we graph turnout versus *E*RC for one typical region, Krasnoyarsk, and which denotes those (non-urban) rayons with 10 percent or more rural population with the label "r" and all other (urban) rayons with the label "u." This figure also graphs the best fit lines for rayons labeled u and r, as well as for the region as a whole. Notice again the consequence of aggregation: the correlation between turnout and *E*RC is positive for urban rayons and nearly zero for the rest, but it is strongly negative for the combined populations.

This consequence of aggregating across rayons accounts for much of the anomalous character of the data that table 1 displays. Consider table 2, which gives the overall correlation between turnout and *E*RC as well as the correlation among rayons classified as urban and non-urban. The extreme possibility is illustrated by Archangelsk, which produces a positive correlation in both urban and non-urban rayons, but which generates a negative overall correlation. More gen-

**FIGURE 4. Vote for Russia's Choice in Krasnoyarsk Kray**

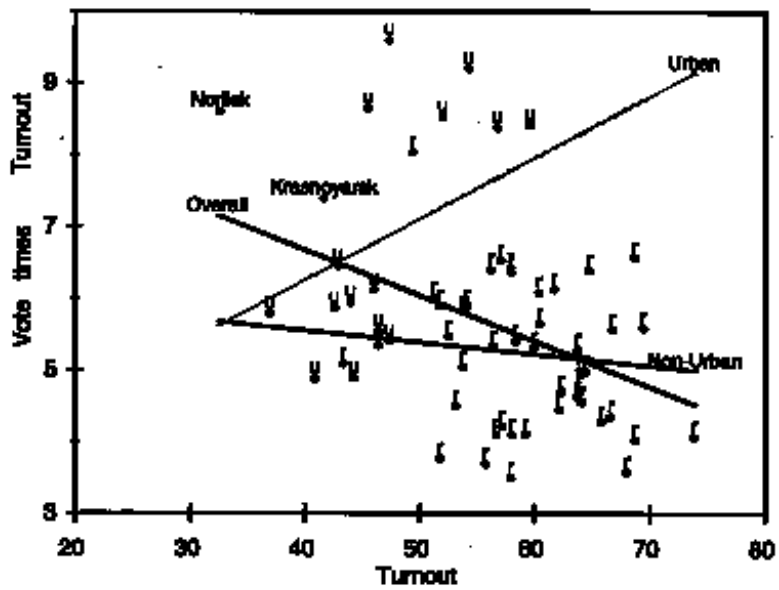


**TABLE 3. Regional Difference in Turnout and Vote for Russia's Choice**

| | Vote for Russia's Choice | | Turnout | |
|---|---|---|---|---|
| | Non-Urban | Urban | Non-Urban | Urban |
| Krasnoyarsk | 8.8 | 17.0 | 59.0 | 42.0 |
| Archangelsk | 16.0 | 25.0 | 55.0 | 46.0 |
| Briansk | 9.3 | 17.0 | 64.0 | 55.0 |
| Vladimir | 13.0 | 19.0 | 59.0 | 53.0 |
| Vologod | 13.0 | 19.0 | 60.0 | 51.0 |
| Voroneg | 7.7 | 19.0 | 61.0 | 46.0 |
| Kalinigrad | 15.0 | 22.0 | 53.0 | 51.0 |
| Kemero | 8.3 | 15.0 | 60.0 | 45.0 |
| Kirov | 9.0 | 16.0 | 57.0 | 49.0 |
| Kursk | 6.5 | 17.0 | 68.0 | 50.0 |
| Magadan | 12.0 | 15.0 | 50.0 | 42.0 |
| Murmansk | 19.0 | 25.0 | 50.0 | 46.0 |
| Nignii Novgorod | 10.0 | 17.0 | 53.0 | 42.0 |
| Novgorod | 12.0 | 15.0 | 57.0 | 52.0 |
| Orenburg | 7.9 | 18.0 | 61.0 | 43.0 |
| Penza | 5.7 | 11.0 | 67.0 | 53.0 |
| Permt | 24.0 | 32.0 | 42.0 | 38.0 |
| Saratov | 7.3 | 17.0 | 63.0 | 47.0 |
| Sachalinsk | 9.3 | 11.0 | 48.0 | 44.0 |
| Sverdlovsk | 15.0 | 27.0 | 49.0 | 44.0 |
| Smolensk | 7.7 | 15.0 | 67.0 | 57.0 |
| Tver | 10.0 | 19.0 | 64.0 | 51.0 |
| Tula | 11.0 | 18.0 | 59.0 | 52.0 |

**TABLE 4. Correlation between the Turnout and the Turnout Times the Vote**

| | Regions where local heads won the election | Regions where local heads either did not run or lost | All regions |
|---|---|---|---|
| Constitution | 0.06 | 0.3 | 0.01 |
| Russia's Choice | –0.39 | –.050 | –0.48 |
| Yabloko | –0.51 | –0.40 | –0.48 |
| Number of observations | 577 | 209 | 786 |
| Number of regions | 16 | 7 | 23 |

erally, if we exclude the four regions with too few urban observations, the overall correlation is less (more negative) than both the urban and non-urban correlations in eighteen of the nineteen remaining regions. Thus, we can attribute some part of the negative correlation between turnout and *E*RC in all but one of nineteen regions to the aggregation of urban and non-urban rayons. Admittedly, the

**TABLE 5. Regional Correlation between Turnout and Vote for Candidates in Federation Council**

| | First Winner | | Second Winner | | Third Winner |
|---|---|---|---|---|---|
| Krasnoyarsk | –0.33 | Head, Kray administration | 0.20 | Director of chemical company | 0.21 |
| Archangelsk | 0.03 | Head, Oblast administration | –0.54 | Chairman brick company | –0.56 |
| Briansk | 0.40 | Former head, Oblast | 0.32 | Military officer | –0.29 |
| Vladimir | 0.34 | Head, Oblast administration | 0.12 | Representative of the president | –0.27 |
| Vologod | –0.61 | Mayor, Cherepovets City | 0.42 | Head, Oblast administration | 0.41 |
| Voroneg | –0.64 | Head, Oblast administration | –0.52 | Executive of Oblast administration | 0.74 |
| Kalinigrad | –0.34 | Deputy prime minister | 0.34 | Head, Oblast administration | –0.31 |
| Kemero | 0.45 | Former chairman of Soviet | –0.27 | Deputy chief | 0.01 |
| Kirov | 0.06 | Head, Oblast administration | –0.14 | Executive of Oblast administration | –0.28 |
| Kursk | 0.75 | Chairman of Soviet Council | 0.71 | Head, Oblast administration | –0.43 |
| Magadan | –0.15 | Joint stock company director | –0.49 | Director of construction company | 0.56 |
| Murmansk | –0.15 | Articservice company | 0.47 | Official of Oblast administration | –0.48 |
| Nignii Novgorod | –0.44 | Governor | –0.04 | Chairman of Soviet Council | 0.45 |
| Novgorod | 0.66 | Head, Oblast administration | –0.22 | Director | –0.65 |
| Orenburg | 0.50 | Head, Oblast administration | –0.64 | Director | 0.68 |
| Penza | 0.53 | Head, Oblast administration | –0.54 | Head of City administration | 0.02 |
| Permt | –0.11 | Director | –0.36 | President of company | 0.44 |
| Saratov | 0.60 | Head, Oblast administration | –0.02 | First deputy of head of city administration | –0.49 |
| Sachalinsk | 0.02 | Head, Oblast administration | 0.03 | Director | 0.38 |
| Sverdlovsk | –0.19 | Former governor | 0.14 | No official position | 0.01 |
| Smolensk | 0.74 | Head, Oblast administration | –0.83 | Deputy minister | 0.70 |
| Tver | 0.62 | Head, Oblast administration | –0.61 | Professor | 0.57 |
| Tula | 0.67 | Chairman of collective farm | –0.26 | President of company Moscow resident | –0.63 |

consequences of aggregation are less pronounced here than with the constitutional referendum, but looking for anomalies here necessarily entails aggregation, and thus, intervening variables such as urbanization cannot be excluded as one explanation for whatever pattern we find.

**Conclusions**

The preceding discussion offers only the core of our criticism of the methods used to infer that 9.2 million ballots we fraudulently added to the total in December 1993. There are other possible criticisms. First, consider invalid ballots. Earlier we argued that it is unreasonable to suppose that those who perpetrated fraud did so by adding invalid ballots on the constitutional referendum. If that argument is correct, it is doubly so when it comes to the party lists, since here the presumed logroll requires more than a mere increase in turnout—it requires that fraudulent ballots be cast in a particular way, for Communists or the LDPR. So once again, if fraud in the form of added ballots is extensive, we should predict a negative correlation between *T* and *E*invalid when looking at party list voting. However, as the last column of table 1 shows, we find such a correlation in only five of twenty-three regions.

Second, consider table 3, which again uses our urban–non-urban classification of rayons and which gives the average turnout figures for non-urban and urban rayons in each of the twenty-three regions in our sample, as well as the support for Russia's Choice. Notice that in every region, non-urban turnout is greater than urban turnout, and in every region, support for Russia's Choice is greater in urban rayons than elsewhere. The consistency of these differences poses a problem for arguments about the ultimate motivation for fraud–ensuring the election of regional bosses to the Federation Council. Bosses did not run in every region and did not uniformly win in those regions in which they did run. However, as we display in table 4, the pattern of correlation between the turnout, and the turnout times the vote for the constitution, for Russia's Choice, and for Yabloko, is the same in all regions. Hence, a more consistent explanation for the absence of a correlation between *T* and *T* times support for reform is that it is a consequence of the correlation between the relative conservatism of rural districts and turnout in those districts.

Finally, looking specifically at the Federation Council elections, table 5, which is the basis of table 4, gives the correlation between turnout and the vote for the first, second, and third ranked Council candidates. If the motive for fraud was a logroll that ensured the election of regional bosses and their associates, we would expect the correlations between *T* and the vote for bosses to be uniformly strongly positive and that other candidates would suffer from increased turnout. However, although such expectations are met in nine of fifteen regions in which local bosses won election to the Council, it is also the case that in five of those nine regions higher turnout is positively associated with a higher vote for opponents.

Of course, we might want a more careful classification of regions that identifies the regional bosses most likely to encourage fraud. More generally, however, there are two views one can take of the effort to identify irregularities. One

takes irregularities as an indication of potential fraud that must be explored further and validated by other means. The second assumes that irregularities can be identified and quantified with sufficient precision to allow for estimates of the extent and form of fraud. Although our analysis does not necessarily undermine the first view, it seriously questions the second. It may be true that millions of fraudulent ballots were cast in December 1993, but absent additional data or evidence, an examination of the relationship between turnout and vote preference cannot confirm such allegations. It would be unfortunate if some future election that runs contrary to the wishes of incumbents is rendered invalid merely because patterns in the data similar to the ones we find in 1993 reappear.

## NOTES

1. A. Sobyanin and V. Suchovolsky, "Elections and Referendum December 12, 1993 in Russia: Political Results, Perspectives, Trustworthiness of Results," (mimeo, unpublished report to the Administration of the President of the RF by the special analytica group on parliamentary elections, Moscow-Arkhangelskoe) and A. Sobyanin, E. Gelman, and O. Kaiunov, "The Political Climate of Russia's Regions: Voters and Deputies, 1991-93," *The Soviet and Post-Soviet Review*, 21 (1994): 63-84.

2. A second method used by Sobyanin et al entails looking that the relationship between a party's rank and its vote. Based on models from population genetics, geography, and economics, which assume, in effect, that competition is purely stochastic, the assumption here is that a fraudulent free election yields a linear relationship between the log of a party's rank, $\log(R)$, and the log of its vote, $\log(V)$, and that deviations from a linearity are the consequence of fraud. Assuming that fraud was sufficiently pervasive to move Zhirinovsky's LDPR into first place, Sobyanin and Suchovolsky (see A. Sobyanin and V. Suchovolsky, *Democracy Restricted by Falsifications* (Self-published: Moscow, 1995)) note that the LDPR deviates significantly from this prediction and that the magnitude of this deviation can be used to calculate the number of ballots fraudulently added to the LDPR's total. However, as Ijiri and Simon show for firms in an economy, there are other sources of deviations from linearity, including the natural advantages of larger firms in avoiding bankruptcy (see Yuri Ijiri and Herbert A. Simon, "Interpretation of Departures from the Pareto Curve Firm Size Distributions," *Journal of Political Economy* 82 [April 1974]:315-31. Elsewhere, we argue that equivalent forces operate in election systems to produce a stepped relationship between size and rank so that, in equilibrium, the two largest parties are of approximately equal size, the next four parties are smaller but of approximately the same size, and so on (see Mikhail Filippov and Peter C. Ordeshook, "Fraud or Fiction: Who Stole What in Russia's December 1993 Parliamentary Elections," working paper, Humanities and Social Sciences, California Institute of Technology, 1996). We also show that both Germany and Israel, with election systems close to Russia's, approach this pattern over time. And, although we cannot argue that Russia's party system is anything near equilibrium, there is evidence that its electoral system is beginning to generate some non-random effects on voting (in the form of voters who vote, with a lower probability than is predicted by a purely stochastic model, for parties that are uncompetitive, i.e., that are unlikely to surpass the 5 percent threshold for representation). Thus, aside from the wholly ad hoc assumptions about the true rank order of the parties that must be made to apply this method, it is invalid to the extent that factors other than fraud (such as the strategic imperatives on candidates and voters generated by the election system) occasion choices that are systematically biases in favor of one class of parties over another.

3. Those election districts were the cities of Moscow (68 percent) and St Petersburg (70 percent) and the regions of Sverdlovsk (78 percent), Chelyabinsk region (75 percent), Perm (77 percent), Magadan (67 percent), Kamchatka (68 percent), Archangelsk (71 per-

cent), Murmansk (69 percent), Karelia (69 percent), and Tomsk (66 percent).

4. M. Myagkov and A. Sobyanin, "Irregularities in the 1993 Russian Elections: Preliminary Analysis," (Working Paper, California Institute of Technology, 1995) and A. Sobyanin and V. Suchovolsky, *Democracy Restricted by Falsifications* (Moscow, 1995).

5. The vertical position of a data point is unchanged that position equals the number voting for divided by the number of eligible voters. If figure 1b, on the other hand, such fraud moves the data up and to the right so that fraud merely accentuates the general pattern.

6. To illustrate this more formally, let the true relationship between the vote for or against a motion ($V$) and turnout be given by the expression $V = \alpha + \beta T$. Hence, $E = \alpha T + \beta T2$ and $\partial E/\partial T = \alpha + 2\beta T$. It follows that if $\alpha$ and $\beta$ are both positive (if the vote against a motion increases with turnout), then $\partial E/\partial T$ must be positive. But if $\beta$ is negative (if the vote for the motion decreases with turnout, as in the Russian case), then $\partial E/\partial T$ is positive only if $T$ is less than $\alpha/2\beta$. The predicted relationship between $T$ and $E$f, then, is not linear or even positive and monotonic. Instead, if turnout is sufficiently high for a sufficiently great number of observations, we would find a negative relationship between $T$ and $E$f; if turnout is generally low, we would find a positive relationship; and if turnout varies widely, we would tend to find no relationship overall.

7. We can, in addition, offer an indirect assessment of the likelihood that fraud and not some third variable accounts for the data in figures 1a and 1b. Regardless of what we might think causes $V$f and turnout to correlate "naturally," we have little reason to believe that turnout and the share of invalid (blank or improperly marked) ballots should correlate significantly. And unless the fraudulent ballots were otherwise invalid, by artificially increasing turnout, fraudulent ballots cast against or in favor of the constitution should produce a negative correlation between $T$ and $E$invalid. However, such a correlation appears in only four of twenty three regions (see table 2).

8. See, for example, Darrel Slider, Vladimir Gimpelson and Sergei Chugrov, "Political Tendencies in Russia's Regions: Evidence from the 1993 Parliamentary Elections," *Slavic Review* 53 (1994):711-32; Matthew Wyman et al, "The Russian Elections of December 1993," *Electoral Studies* 13 (1994); Matthew Wyman et al, "Public Opinion, Parties and Voters in the December 1993 Russian Elections," *Europe-Asian Studies* 47 (1995):591-614; Jerry F. Hough, Evelyn Davidheiser, and Susan Goodrich Lehmann, *The 1996 Russian Presidential Election* (Washington, D.C.: Brookings, 1996); and Ralph S. Clem and Peter R. Craumer, "A Rayon-Level Analysis of the Russian Election and Constitutional Plebiscite of December 1993," *Post Soviet Geography* 36 (1995):459-75.

9. Myagkov and Sobyanin, "Irregularities in the 1993 Russian Elections."