# THE FORENSICS OF ELECTION FRAUD

## Russia and Ukraine

Mikhail Myagkov · Peter C. Ordeshook · Dimitri Shakin

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**The Forensics of Election Fraud**

*Russia and Ukraine*

This volume offers a number of forensic indicators of election fraud applied to official election returns and tests and illustrates their application in Russia and Ukraine. Included are the methodology's econometric details and theoretical assumptions. The applications to Russia include the analysis of all federal elections between 1996 and 2007 and, for Ukraine, between 2004 and 2007. Generally, we find that fraud has metastasized within the Russian polity during Putin's administration with upwards of 10 million or more suspect votes in both the 2004 and 2007 balloting, whereas in Ukraine, fraud has diminished considerably since the second round of its 2004 presidential election in which between 1.5 million and 3 million votes were falsified. The volume concludes with a consideration of data from the United States to illustrate the dangers of the application of our methods without due consideration of an election's substantive context and the characteristics of the data at hand.

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*This volume is dedicated to the late* ***Dr. Alexander Sobyanin****, scientist, colleague, and friend, who wanted only one thing for Russia – Democracy.*

# The Forensics of Election Fraud

## *Russia and Ukraine*

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# Introduction

> Two election day bomb explosions targeting a police convoy near Chechnya served as a reminder of the tensions around the once-breakaway republic . . . now more or less under control by a Kremlin-backed administration, President Ramzan Kadyrov predicted 95 percent to 100 percent turnout.
>
> Associated Press, March 2, 2008

## INTRODUCTION

This volume's genesis is the late Alexander Sobyanin's (1993, 1994) attempt to develop methods for detecting fraud in Russian elections.[1] Motivated by the desire to see a transition to a legitimate democracy, Sobyanin's immediate concern was Russia's 1993 constitutional referendum and his belief that the vote had been fraudulently augmented to ensure a turnout exceeding the 50 percent threshold required for ratification of a document tailored to President Boris Yeltsin's taste.

[1] The research reported in this volume was funded almost exclusively by a sequence of grants from the National Council for East European and Eurasian Affairs. In addition, there are of course a great many individuals – spouses, colleagues, and friends – whom we might thank for their encouragement and contributions to this volume. However, we would especially like to acknowledge George Breslauer who, as editor of *Post-Soviet Affairs*, encouraged our enterprise from its very inception. Unsurprisingly, then, parts of Chapters 3, 4, and 5 appeared earlier in his journal (Myagkov et al. 2005, 2007) as did some of the precursors of this work (Myagkov and Ordeshook 2004, Myagkov, Ordeshook, and Sobyanin 1997).

Despite Sobyanin's impressive credentials as a scientist, two of this volume's coauthors disagreed among themselves and with him as to the validity of his methods. Nevertheless, it was evident that developing ways to detect election fraud in the former Soviet Union using official data was essential, if only because comprehensive and objective on-the-ground monitoring of elections would be a problem for the foreseeable future.

That fraud existed in some form in Russia and other parts of the former Soviet Union seemed self-evident. As one of us commented with tongue in cheek, "if you had an election, you had fraud. The only question is: How much?" Of course, Russia was a somewhat special case in that not only were the institutional and judicial components of a democratic transition ill-formed, but many of the same people who oversaw "elections" during the Soviet era maintained their positions and old habits. Thus, while Sobyanin's methods and statistics might have been less than compelling scientifically, his a priori assessment was eminently reasonable. This volume, then, represents our efforts at refining some of his methods, discarding others, and developing new ones. At the outset, however, we warn the reader that the things we propose as forensic indicators or fingerprints of fraud are applicable only to political systems in which fraud in the form of ballot stuffing, vote stealing, and the artificial manufacture of official summaries occurs on a scale that has long passed into history in the West. A few hundred fudged votes here and there or the inconsistent sorting of valid from invalid ballots in a handful of cases will go undetected by our methods. Moreover, our concerns differ from those who study alleged manipulations of the vote in, say, the United States, where the issue is, more often than not, the biases occasioned by alternative ballot forms and voting technologies or, in a more sinister vein, with attempts at minimizing the vote of the opposition by discouraging participation in subtle ways such as allocating too few polling booths to specific locations.

The challenges of detecting fraud in Russia, Ukraine, and other such states are of a different type and different order of magnitude. The issue is not whether three or four hundred votes were uncounted in some region or district, but rather whether fraud entails the falsification of hundreds of thousands versus millions of votes. Nor are we concerned with whether the electronic voting machines in some precinct lost their electricity before the polls closed, but rather with

whether official ballot counts bear any relationship whatsoever to actual ballots cast. Not only are the issues different in the United States versus Russia, but the data is as well. For historical reasons, the United States poses the challenge occasioned by a highly decentralized system wherein the quality and form of data can vary significantly not only across states, but across counties with a state. The United States is also a mobile society with a rapidly growing population, relative to Europe and the former USSR. Thus, even if we successfully secure a state's precinct level returns in an analyzable format, matching precincts from one election to the next so as to form a time series is a virtual impossibility – precinct boundaries seem at times to change with the seasons. We could, of course, aggregate up to the level of counties – the usual definition of an "election district" – since their geographic boundaries rarely change. But analyzing data across counties is often an apples and oranges comparison. Although the average population of a county in the United States (slightly less than 100,000) is comparable to a Russian or Ukrainian rayon (approximately 50,000), the population variance across counties is something unknown in the former USSR. For example, of the 254 counties in Texas, the largest is Harris (Houston) with 3.9 million and the smallest is Loving with a population under 60. In fact, eighteen counties in Texas have populations less than 2,000, and King county with 287 is smaller than all but 168 of the 2,480 *precincts* in the Ukrainian oblast of Donetsk. Treating election returns from Loving or King as a data point on a par with numbers from Harris or Dallas County (2.3 million) is simply nonsense.

In Russia and Ukraine, in contrast, precinct, election district, and rayon (county) definitions are far less dynamic. Moreover, elections in each country of the former USSR are administered by a central commission, thereby guaranteeing that the data from each part of each country is in an identical form. Thus, creating a meaningful time series is, although time consuming, both feasible and meaningful. Of course, places such as Russia pose an alternative challenge. If a central election commission decides that access to its data does not serve the interests of the incumbent regime, it can preclude access throughout the country (or, as has been the case, it can make securing the data very much a covert activity fraught

with obstacles and dangers unfamiliar to those who study elections in the West).[2]

There is, though, a compensating advantage insofar as the applicability of our methods is concerned owing to inherited Soviet demographics. Those methods, because they treat only aggregate data, are necessarily sensitive to the problems of aggregation error – to the fact that when data are aggregated, information is lost in potentially problematical ways. For example, if we combine data from say urban and rural precincts, we lose information about differences between urban and rural voting patterns. If we then attempt to analyze data that contains observations with different mixes of urban and rural voters, we can arrive at wholly inappropriate inferences. Whenever possible in places such as Russia and Ukraine, then, we ought to separate urban from rural data when we expect, a priori, that there are differences in voting patterns across subsamples that impact the performance of our indicators. The advantage here, though, is that when treating, say, precincts classified as urban, we have some confidence that we are dealing with an otherwise relatively homogeneous subsample that minimizes aggregation error and the problems of ecological inference (especially if, in Russia, we further distinguish between republic and nonrepublic regions or in Ukraine, between East and West). A simple urban-rural classification of the data in the United States, in contrast, is likely to be far less satisfactory. In the United States people sort themselves into neighborhoods within

[2] Our data throughout is official as gathered by either Ukraine or Russia's Central Elections Commissions, with the core source being their respective Web sites. The official Web site of Ukraine's CEC is a model that other countries (including the United States) ought to follow. In contrast, official data in Russia are not generally presented in analyzable or readily accessible form. Data there appear on their official Web site in the form of electronic maps with pop-up numbers at the rayon level, but this information is available only for a short period of time beginning with 2003. Comprehensive data and data from earlier elections can be obtained only through "leaks" from the CEC. Thus, our analysis is based on the compilation of data from sources with access to these leaks, with appropriate checks for consistency with aggregated official reports. We are indebted to a number of people and organizations that helped in the collection and organization of the data including (but not limited to) Nikolai Petrov and Alexi Titkov of the Carnegie Foundation Moscow, Andrei Berezkin of Espar-Analitik Consulting Moscow, Vyacheslav Nikonov of Polity Foundation Moscow, Alexander Kireev of the University of Washington Seattle, Andrei Kunov of the Russian Institute for Open Economy Moscow (since closed by Putin), Dimitriy Oreshkin of Merkator Moscow, and Alexander Sobyanin, deceased.

the same urban area on the basis of a variety of demographic dimensions, most notably income, ethnicity, and race. Thus, precinct level data drawn from a single urban area are not likely to be homogeneous across a variety of dimensions relevant to how people vote. In places such as Russia and Ukraine, in contrast, no such sorting was possible (until only recently) since one inheritance of a Soviet past was the assignment of residence on a basis that often defied systematic explanation.

The issue of heterogeneity is especially salient in this study. In effect, the indicators of fraud we offer here either assume homogeneity or assume that appropriate controls are in place for those things that simultaneously correlate with, say, turnout and a candidate or party's relative support. Those indicators then look for various violations of homogeneity occasioned by various forms of fraud, which can give false signals in either direction to the extent that there are unknown or uncontrolled sources of heterogeneity. Since we believe we have a good understanding of the demographic variables relevant to voting in Russia and Ukraine, these two countries are a natural laboratory for the development of forensic indicators of fraud.

Russia in particular presents another distinct advantage in terms of developing and testing our indicators. Specifically, we have good a priori reasons for supposing that fraud throughout the post-Soviet era has been especially prevalent in specific parts of the country; namely, the ethnic republics of Tatarstan, Dagestan, and Bashkortostan (and to this list we can at a minimum add, during Putin's regime, the republics of Chechnya, Ingushetia and Cherkassy). Not only are these republics governed by "presidents" who have been reelected throughout the post-Soviet era without political opposition, but a majority of precincts within any number of their oblasts uniformly report 100 percent turnout with 100 percent of the vote going, at least since 2003, to Putin or Putin's party.[3] Such instances of blatant falsifications or voter intimidation provide a ready means for making

[3] Tatarstan is governed by M. Shamaimiev, elected president of the republic in uncontested elections in 1991, 1996, 2001, and 2005; Bashkortostan, by M. Raximev, who has been the republic's president since 1993; and Dagestan, until 2006, by chairman of the State Council M. Magomedov beginning in 1987.

certain that our forensic indicators signal electoral irregularities where and when we know they exist.

This introduction warrants a specific comment about Russia. The period of time during which this volume is being written includes Russia's March 2, 2008, presidential "election" and the coronation of Dmitry Medvedev as Putin's successor. We do not, though, include data from that vote for the simple reason that calling it an election denigrates the meaning of the word. We cannot say what definition of democracy Mr. Putin had in mind when he asserted in 2007 that "I am a pure and absolute democrat. But you know what the problem is – not a problem, a real tragedy – that I am alone. There are no such pure democrats in the world. Since Mahatma Gandhi, there has been no one."[4] Apparently unfamiliar with the Greek root of the word (*demos*: "people"; and *kratos*: "rule"), Putin's definition does not include someone who encourages or allows free and fair elections. During his tenure as president, all meaningful opposition was effectively banned, and the only competition allowed in 2008 was the shopworn Communist Party candidate Gennady Zyuganov, the often comical ultra-nationalist Vladimir Zhirinovsky, and a wholly inconsequential Andrei Bogdanov who "threatened" to win no more than 1 or 2 percent of the vote. And even with Medvedev assured of victory, the powers that be acted as if anything less than a complete landslide was a defeat. In a judicial ruling that makes sense only in *Alice in Wonderland* following is a suit, filed by the Communist Party. It cited that, as a violation of the law guaranteeing equal and fair coverage by the media of competing candidates, Medvedev received 70 percent of the election coverage in December and 88 percent in the first three weeks of January, while Communist Party candidate Gennady Zyuganov received only 11 percent in December and 2 percent in January . . . Russia's Ostankino District Court ruled that Channel One has not violated Zyuganov's rights because election law does not define the term 'equality of the candidates in campaign time in the mass media.'" As a result, the court ruled that the lack of a definition means that statistical analysis of the coverage is not admissible, and the only thing that matters is that all the candidates received some coverage" (*RFE/RL Newsline*, February 27, 2008). In justifying its

[4] http://www.timesonline.co.uk/tol/news/world/europe/article1878792.ece.

biased coverage, Channel One commented: "[I]f the other candidates appeared in such an interesting format, meeting with voters from all around the country and making nonbanal statements, the company would be happy to cover them as well."

As reported in the *Moscow Times,* the logic behind the excesses to which the Kremlin was willing to go in terms of assuring Medvedev a landslide is revealed by the comment of one election official ostensibly employed to ensure the fairness of the vote: "What's the best way to show the next president that you love him? In this election, the answer is to guarantee him a good turnout so that Medvedev becomes Russia's legitimate president in everyone's eyes." As *RFE/RL Newsline* (February 22, 2008) summarized the *Times* article, "Governors are reportedly eager to establish their loyalty to the new president. According to the report, officials have pressured hospitals, universities, and state factories to ensure a high turnout and solid support for Medvedev. Many large factories have been ordered to set up on-site polling stations and to insist that employees vote there using absentee ballots. The official said that in Moscow, officials have a fairly good idea of what the actual turnout will be by around 3 P.M., by which time most people will have voted. He said that if the figures are low, then officials will engineer a late surge." Then, to convince us that the *Alice in Wonderland*'s Queen of Hearts is indeed in charge, "Central Election Commission member Igor Borisov told *Ekho Moskvy* on February 1 that any calls for voters to boycott the elections could result in criminal charges. 'Mass appeals cannot be made without using money,' he said. 'The Russian Criminal Code envisages criminal liability for spending money on campaigning other than that allocated from electoral funds.'" Of course, not wanting to leave anything to chance, the Central Election Commission's subcommittee to oversee vote counting consisted only of members of Putin's party, United Russia.

One need not rely on journalistic accounts of the 2008 vote to discredit it as a meaningful election. We also have, for instance, an officially reported turnout in excess of 90 percent in a part of Russia, Chechnya, that yields news reports such as the one introducing this chapter as well as the following: "Some 70 resistance fighters entered the village of Alkhazurovo in Urus-Martan Raion southwest of Grozny late on March 19 without encountering any resistance and launched an attack using grenade throwers and other arms, on the

local government building, which was burned to the ground . . . they also engaged in a battle with pro-Moscow Chechen police in which no fewer than 13 police were killed and between seven and 10 wounded" (*RFE/RL Newsline*, March 20, 2008). More generally, Sergei Shpilkin, at a postelection workshop at the Carnegie Center Moscow, using a variant of one of the forensic tools offered in this volume, argued that "14.8 million of the 52.5 million votes cast for Mr. Medvedev could not be explained in any way" other than by "manipulations" either in the form of outright fraud or the application of "administrative resources."[5] Of course, such an analysis might seem like overkill when, for example, we consider polling station number 682 in the Dagestani town of Kizilyurt. There, in an apparent mix of fraud and clerical error, of 766 officially recorded ballots, not a single vote was awarded to Medvedev but 95 percent recorded for Bogdanov despite the fact that overall in Dagestan, Medvedev "won" 91.92 percent of the vote and Bogdanov a mere 0.15 percent.[6] Thus, as Britain's *Guardian* summarized the report, "Apparently, gormless local election workers stuffed the wrong ballot papers into the box."[7]

Even the *New York Times*, which has not always been unsympathetic to Soviet or Soviet-style regimes,[8] saw fit to denounce Russia's electoral process as a sham:

> Over the past eight years, in the name of reviving Russia after the tumult of the 1990s, Mr. Putin has waged an unforgiving campaign to clamp down on democracy and extend control over the government and large swaths of the economy. He has suppressed the independent news media, nationalized important industries, smothered the political opposition and readily deployed the security services to carry out the Kremlin's wishes.

And then, with reference to one specific region,

> On the eve of a presidential election in Russia that was all but fixed in December, when Mr. Putin selected his close aide, Dmitri A. Medvedev, as his

[5] http://www.timesonline.co.uk/tol/news/world/europe/article3768223.ece (see also http://www.kommersant.com/p-12381/r_527/fraud_election_rigged/).

[6] http://freakonomics.blogs.nytimes.com/2008/04/16/russian-election-fraud/.

[7] http://www.guardian.co.uk/commentisfree/2008/apr/20/rigginginrussia.

[8] Witness, for instance, the *Times*'s denial, at the time, of the Ukrainian genocidal famine of the 1930s ordered by Stalin and implemented by Kaganovich and Molotov, and its refusal ever since to fully repudiate its reporter on the scene and Stalin apologist, Walter Duranty, who won a Pulitzer Prize for his accounting of events there.

successor, Nizhny Novgorod stands as a stark example of how Mr. Putin and his followers have established what is essentially a one-party state." (*New York Times*, February 24, 2008)

Perhaps, though, the boldest denunciation of Putin's Potemkin democracy comes from the human rights activist and former political prisoner Sergei Kovalev. In an open and widely reported letter to the Kremlin written shortly before the 2008 presidential vote (February 25, 2008), Kovalev argued:[9]

> Gentlemen, I have no doubt that you are well aware that the free expression of the will of free citizens via free democratic elections can never result in 99.4% of the votes being cast for one party with a turnout of 99.5% of the voters. . . . No need to prove to you that these very 99.4% votes "for" provide incontrovertible evidence of vote-rigging. You know that as well as I do, and as well as any remotely literate citizen with at least commonsense, not to mention a basic awareness of the nature and possibilities of the popular vote. You of course also know that such results far above 90% (i.e., the same fraud) did not happen in isolated polling stations, no, in several subjects of the Russian, if one may use the term, "Federation." This unfortunate circumstance is more than sufficient to correctly assess the tasteless farce being played out by untalented directors on the entire boundless Russian stage on 2 December, and for good measure in the coming event on 2 March. It is entirely redundant to tediously collect up the electoral commission protocols rewritten in retrospect, or evidence of shenanigans with ballot papers etc – it's all clear enough anyway. The authorities (who by the way you represent, Gentlemen), mangled electoral legislation and then wantonly, with no finesse, came up with some kind of imitation of elections.

Mr. Kovalev goes on to say: "We have a paradoxical change – you lie, your listeners know this and you know that they don't believe you, only pretend to believe, and yet they also know that you know they don't believe you. Everybody knows everything. The very lie no longer aspires to deceive anyone, from being a means of fooling people it has for some reason turned into an everyday way of life, a customary and obligatory rule for living."

The analysis we offer here supports Mr. Kovalev's views by way of our argument that the pervasiveness of fraud increased significantly

[9] See for example http://hro1.org/node/1295 and http://www.khpg.org/en/index.php?id=1203910234.

during Putin's administration. If, with earlier elections, we suspected fraud in much the same way as a police officer might suspect drunk driving when he sees a car weaving and swerving inexplicably down the highway, in Russia's most recent elections it is as if the driver is now tossing his empty beer cans out the window. The Kremlin may choose to argue that voting in Russia constitutes a free, fair, and democratic process, and they are free to do so. But we are not required to accept their assertions. Nor are we required to participate in the Kremlin's farce by analyzing data from its 2008 presidential vote as if were a true election. However, a question this volume addresses is when the wholesale denigration of Russia's electoral processes took root. Was 2008 merely the end point of a trend that began in the 1990s, or had "elections" degenerated to pure farce only during Putin's reign as president? In fact, we argue in Chapter 3 that although the overall magnitude of fraud may have peaked in Putin's recoronation in 2004, the parliamentary vote of 2007 was a landmark event wherein many of the excesses that appeared in 2004 were applied to establish his party, United Russia, as a clone of the old Communist Party of the Soviet Union in authority, structure and purpose (albeit, absent the CPSU's ideological cover). In this way Putin, as prime minister and head of United Russia, could maintain control without subverting the Russian constitution's prohibition of three successive terms as president and without giving the appearance of being but another African or Latin American dictator.

Now for a final introductory comment: The forensic tools we offer here do not constitute a black box into which one plugs the numbers and out of which comes a necessarily unambiguous evaluation of an election along some scale such as "free and fair . . . probably free and fair . . . unlikely to have been free and fair." Indeed, throughout this volume we argue, in effect, that no such black box is possible. Nor is there any magic formula, mathematical equation, index, or probabilistic computation that tells us whether an election is or is not contaminated by fraud or that allows us to measure fraud's magnitude when we know it exists. Our indicators, like any statistical method, cannot be used without full attention to the substantive context of their application and the nature of the data to which they are applied. They are not, in short, a substitute for substantive expertise but merely a facilitating tool. More often than not our indicators will do little

more than raise suspicions and alert analysts to the parts of a country most likely to have experienced fraud, leaving it up to them to explore matters in other ways and perhaps with greater precision before arriving at definitive conclusions. Again, employing the parallel to the weaving car on the highway, our indicators often provide only "probable cause" to pull a driver over for further investigation. Of course, there are instances of fraud taking especially extreme forms wherein those indicators allow us to determine the precise nature and severity of the crime. Nevertheless, they cannot and should not be relied upon generally as substitutes for what is already known about a polity, nor should their application ignore the insights and personal experiences of on-the-ground monitors and election observers. Indeed, our indicators work at times only if those observers have been effective at forestalling fraud in at least a subset of election districts so as to yield data that is somehow different from that produced in unmonitored districts. All of this is to say simply that just as statistical inference itself is as much an art as it is a science, so is the evaluation of elections and the data they yield.

# 1

# A Forensics Approach to Detecting Election Fraud

> [D]emocratic systems have evolved a characteristic solution to the problem of succession to posts of authority . . . elections.
>
> V. O. Key (1942: 5)

> The democratic method proposes to instil in public officers a perpetual sense of responsibility to all voters, to all groups, to the whole people. Elections are the necessary condition of this.
>
> W. H. Riker (1965: 84)

> The accumulation of all powers, legislative, executive and judiciary in the same hands, whether of one, a few or many, and whether hereditary, self appointed, or elective, may justly be pronounced the very definition of tyranny.
>
> James Madison, *The Federalist*, No. 47

## 1.1 FRAUD AND FORENSICS

Neither Key nor Riker, of course, are referring to elections in which an incumbent regime kept opponents off the ballot by the ad hoc manipulation of registration laws, controlled all arms of the media so as to preclude an effective public voice for the opposition, or jailed opponents and harassed voters who support the wrong candidates or parties. Free, fair, and competitive elections are described differently and are universally taken as essential components of a viable democracy. Of course, we appreciate the error of assuming that democracy consists of little more than some idealized notion of an election – of people walking

about holding purple fingers in the air to show that they have successfully cast a ballot without being shot, imprisoned, or blown up. As Madison's *Federalist*, No. 47 warns us, even autocracies can hold elections.[1] A viable democracy requires much more in the way of functioning institutions and processes. It is difficult to imagine how elections can long serve their legitimate purpose absent, for example, a coherent system of property rights, courts that stand ready to enforce those rights, mechanisms for the smooth transfer of authority between levels of government, a free press, and the expectation that defeated incumbents will peacefully vacate their offices. Nevertheless, holding elections that are competitive and largely devoid of fraud can reasonably be taken as evidence that a state is a democracy or that it is at least proceeding in the direction of becoming one. Evidence to the contrary, as we find today in such places as Russia, Belarus, or any of the Asian republics of the former Soviet Union, means that the gloss of democratic process put in place by an incumbent regime is little more than an insidious deception.

For those of us, then, who fail to appreciate the value of authoritarian regimes that reelect heads of state without opposition while promoting such terms as "managed democracy" as an excuse to maintain control, it is important to detect and measure fraud when it occurs, to discourage its occurrence beforehand, and to confirm that it has not occurred when it is truly absent. The issue of electoral fraud, though, poses three challenges: definition, detection, and measurement. Insofar as definitions are concerned, although we might agree that using legal subterfuges to void the candidacy of a regime's viable opponents, printing extra ballots to be cast by officials rather than voters or the filling out of official summaries of ballot counts without regard to ballots actually cast constitute fraud, what of regimes that allow one candidate greater access to the mass media or who somehow favor the demonstrations of one party over another at public venues?[2] Where precisely is the line between

[1] See, for example, Magaloni (2007) for an explicit attempt at modeling elections and the incentives for fraud in them.

[2] If one examines the OSCE/ODIHR's 1990 Copenhagen Document standards for democratic elections, one finds all manner of words and terms subject to interpretation such as "respect for," "nondiscriminatory basis," "equitable access," "honestly," "equal treatment," and so on. For a discussion of the potential scope of things that might be labeled "fraud" see Hall and Wang (2008). See also Lehoucq (2003).

controlling disruptive public assembly and intimidating opponents? Can we draw a meaningful distinction between urging an electorate to support a candidate versus coercing those who might cast ballots for the opposition? Should we denote as fraud the efforts of an incumbent government to do what it can to funnel private contributions to specific parties as opposed to others or are such acts merely a manifestation of democratic hardball? Is the definition of fraud immutable over place and time or does it depend on context? Can we readily distinguish, even abstractly, between fraud, administrative incompetence, and misinterpretations of the law? And how many votes need to be certified as fraudulent before we deem an election illegitimate?

Insofar as detection is concerned, while on-the-ground observation can raise red flags, the assertions of observers are often less than compelling unless our own eyes view events. First, election observers need not be devoid of political agendas. It may be difficult to imagine officials from, say, Germany who are evaluating a Russian election and who are not mindful of the primary source of their energy supply and the financial interests of German entrepreneurs. And with election observers from the Organization for Security and Co-operation in Europe (OSCE) a part of the European Union's bureaucratic web, its reports can sometimes read more like diplomatic double-speak than a hard assessment of an election's legitimacy. Of course, neither Germany nor the European Union (EU) is the first to let financial or other interests dictate the official view of a regime's democratic credentials. American officials were quick to denounce the second round in Ukraine's 2004 presidential contest as fraudulent, but mindful of the possibility that Russia might be of assistance in the war against terrorism. Hopeful that it could rein in the ambitions of client states such as Syria and Iran, and perhaps not wanting to confront the domestic issue of "who lost Russia," Washington offered little commentary about the self-evident violations of democratic practice that pervaded Putin's reelection that same year or four years later with the succession of Putin's protégé, Dimitry Medvedev.[3] Second, although it

[3] Instead, following Medvedev's "victory" U.S. State Department spokesman Tom Casey said that the administration hopes that Russia and the United States can "continue to cooperate closely on issues like counterterrorism and weapons

may be easy to detect fraud in the form of blatant instances of coercion and intimidation as when the dean of a university requires that students show their marked ballots before putting them into a ballot box, the opportunities for intimidating voters often exist at points in the electoral process inaccessible to observers. Although we should condemn practices such as physically harassing and intimidating observers in order to keep them from an unobstructed view of events, such things nevertheless leave us with no eyewitness evidence of fraud and only unverified and unverifiable suspicions. At the same time, it is naive to suppose that those who are intent on committing fraud will not find creative ways to circumvent efforts at discovering their crime when they know beforehand that an election will be subject to scrutiny. Third, detecting fraud might require that an observer be at several places at the same time, or, equally difficult, that all observers employ the same standards in their judgments. Evaluating the actions of election officials who deem poorly marked ballots as invalid may require seeing if the same standards are applied elsewhere (lest we forget Florida in 2000). And the inherent ambiguity in the definition of electoral malfeasance can readily lead one set of observers to conclude that an election has been conducted in a reasonably free and fair way while another set concludes the opposite. Put simply, can we be certain that on-the-ground observers will always be equipped to choose objectively between alternative definitions or that we even know how "objectively" ought to be defined?

A final difficulty with official observers derives from the fact that those who plan to subvert democratic process through fraud will marshal their own observers to attest to an election's legitimacy. What criticisms do we see of post-Soviet elections coming from the Kremlin-sanctioned CIS (Commonwealth of Independent States) or the Shanghai Cooperation Association (Russia, China, Kazakhstan, Kyrgyzstan,

proliferation," and as for the election itself, Casey added that "the administration has expressed [its] concerns about Russian democracy, and that Sunday's vote did nothing to allay these concerns." Then, reverting to the usual fog of diplomatic discourse, added: "The election itself proceeded in a peaceful manner. In terms of what our concerns were in it, though, you've heard a lot of discussion in the run-up to that election about the openness of the process and the ability of people outside of the government candidates to make their voices heard." See for example http://truthnews.com/world/2008010096.htm and http://archive.rferl.org/reports/FullReport.aspx?report=577&id=2008/03/577–09–05.

Tajikistan, and Uzbekistan)? Although it may be silly to suppose that China or any of the post-Soviet Asian states has the capacity to judge a democratic election, the credibility of observers is critical, but also subject to disputes that are not likely to be resolved until arguments about a regime's legitimacy are overtaken by other issues. Compounding matters further is when a state, seeking the gloss of legitimacy, allows outside observers, but requires that they operate under constraints that leave them incapable of performing in an effective way. Although Russia may have invited the OSCE to send in its team to monitor its 2008 presidential vote, the OSCE, seeing itself being transformed into a mere propaganda tool, refused to do so after Russian authorities established ground rules under which it would be impossible to offer a true documented assessment of an election the Kremlin was certain to "direct" in favor of Putin's heir apparent.

Even if we set aside the difficulties associated with direct observation in the detection of fraud, definitional ambiguities complicate matters in other ways. Among other things, we should ask whether motives also need to be identified before labeling acts as fraudulent. For example, can we a priori label as fraud the assignment of too few voting booths to polling stations, creating long lines, discouraging participation, and thus giving one candidate an advantage? Or must we also have hard evidence against the possibility that we are seeing nothing more than bureaucratic ineptitude? Elections, after all, are often administered by volunteers or poorly paid (and too often, poorly trained) public employees – and a badly administered election can hardly be labeled the first instance of inefficiency in the public sector. If, in a close contest, additional votes are suddenly discovered after official tallies are reported, should we suspect fraud? How much room do we leave for simple human error? One might respond to such questions, of course, with the argument that motives need not be self-evident if, at the same time, such actions form a sinister pattern. But this merely pushes the question to another level: How clear does that pattern have to be? What statistics can we use to discriminate between patterns that correspond to outright falsification of the vote versus overly exuberant administrative actions versus unintended bureaucratic error? Since ambiguities in the definition of fraud often preclude the possibility of establishing clear-cut boundaries and standards, statistical evidence that convinces one

person that fraud exists might be less than compelling for someone else. The issues may not be equivalent in terms of societal implications, but assessing the statistical evidence for election fraud can easily mirror debates over global warming or the impact of Twinkies on mental capacity.

A subsidiary problem with direct observation is that even if we document specific instances of electoral malfeasance with evidence sufficient to convince a skeptical judge, we are not guaranteed being able to make an accurate measure of fraud's magnitude or ascertaining whether it impacted outcomes. Documented examples of blatant malfeasance do not necessarily allow us, absent other evidence, to determine whether what we have seen is symptomatic of an election's overall character or merely correspond to aberrant cases of a candidate's overzealous supporters. For example, regardless of whether we are dealing with official observers or journalistic accounts, polling stations, as a practical matter, need to be sampled, and there is always the question as to whether the sample is itself representative. If, say, 10 percent or so of observers find serious and measurable irregularities, is this 10 percent representative of the election as a whole or, by some process of self-selection, an over- or underestimate of things? Were outside observers denied access to places where the most grievous irregularities occurred (for example, as in Ukraine's November 2004 presidential balloting) or did observers, by focusing their attention on such regions, allow fraud to materialize elsewhere (as might have occurred in Ukraine's December 2004 balloting)? On-the-ground observers are human, so can we assume that the density of their presence in urban areas with four-star accommodations matches that in remote rural regions with less agreeable accommodations? Are journalistic accounts of blatant irregularities mere deviant cases that have been brought to our attention only because of their exceptionalism and "newsworthiness"? And even if irregularities are carefully documented, how does that guarantee an approximate overall count of falsified or otherwise stolen votes?

We hasten to add that our argument here is not that on-the-ground election monitoring is inconsequential or redundant of other methods. Rather, it is simply that as a methodology it needs to be augmented with additional tools. To see what we mean and to view the task before us, we need to keep in mind that election fraud is a crime (at least from

the perspective of democratic theory if not according to the legal definitions established by a specific regime). Thus, the difficulties associated with its definition, detection and measurement parallel those we encounter in the treatment of crimes of any sort. First, there is the problem of deciding whether there is probable cause to warrant further investigation leading to a possible indictment. In some instances, such evidence is clear as when a shoplifter's actions are recorded by a security camera or the victim of an ostensible murder lies in a pool of blood with no weapon in sight (thus precluding suicide). But even if, for instance, a bank audit reveals irregularities, we cannot immediately conclude that someone has embezzled funds. Bookkeeping and accounting, even with today's technology (or perhaps because of it), are subject to error – files are sometimes inadvertently erased or decimal points mistakenly moved. Similarly, we cannot assume that election fraud was pervasive simply because the losers claim foul play, too few or too many voters voted, the outcome was unanticipated and didn't correspond to the polls or exit surveys, or even because the "numbers don't add up." Was the unanticipated outcome a consequence of poorly administered polls? What are the inherent biases of exit surveys and are we that clever so as to correct for those biases? Was turnout higher than expected in some areas because we failed to anticipate the salience of some issues? Were voters turned away at the polls because poor planning and logistics dictated the printing or distribution of too few ballots? Did the numbers not add up because of clerical errors and out-of-date registration lists?

Answers to such questions may be straightforward for those with political agendas, but they rarely are for the objective analyst. Confounding matters further is the fact that even if there is no immediate evidence of a crime, further investigation might prove otherwise. In the case of the ostensible murder victim, we might not terminate our investigation even in the absence of evidence that the deceased died of anything other than natural causes, especially if there are ancillary reasons for hypothesizing foul play (for example, a recently purchased life insurance policy covering the deceased and naming a spouse with major gambling debts as beneficiary). The existence of motive and opportunity alone might trigger an investigation. After all, just as a murderer might operate with sufficient skill to confound a preliminary coroner's examination, we need not assume that only data such as

turnout rates in excess of 100 percent or eyewitness accounts of voter intimidation warrant a further evaluation of the extent to which an election achieved or failed to achieve the status of free and fair. Indeed, it was a poorly kept secret that political strategists within the Kremlin initially laid plans to implement a Potemkin-like party (A Just Russia) that would vie, albeit weakly, against the Kremlin's "party of power" (United Russia) in 2007. The intent was to confound critics of Russia's shift to authoritarian rule with the gloss of democratic process. If such a strategy had been pursued with skill or to completion, what guarantee is there that a surface examination of election returns would have turned up incontrovertible evidence of fraud?

In criminal investigations of the usual sort, deciding whether a crime has been committed and who committed it requires skill at forensics – at identifying what might constitute evidence, dissecting the bits and pieces of evidence at one's disposal, ascertaining potential motives, and assessing the opportunity of potential suspects to commit the crime. Potential evidence must be gathered carefully to determine who ought to be deemed a suspect even if there is no immediate reason for linking what one finds to a crime. And, of course, we must also determine what specifically is the crime. In a homicide investigation, for instance, we need to ask whether the evidence points to accidental manslaughter, a crime of passion, or premeditated murder? How was the crime committed? What were the motives of potential suspects and are their alibis credible? The forensic tools available to detectives and criminal prosecutors here are by now well known: fingerprints, DNA, blood samples, confessions, eyewitnesses, the matching of footprints or automobile tire tracks, the trajectory of bullets, and so on. What is critical is the overall consistency of such evidence. The absence of a motive on the part of one suspect or another might lead prosecutors and the police to continue searching for other suspects. And a DNA sample that doesn't match up or, despite all other evidence to the contrary, the existence of a compelling alibi that the prime suspect was somewhere else when the crime was committed is often enough to keep investigators on the hunt.

Of course, any prosecutor prefers that all evidence be consistent, but perfect consistency is often an elusive ideal. Any inconsistency such as fingerprints that don't match the prime suspect or an alibi that doesn't square with the prosecutor's overall theory of the case needs a

good rationalization – a convincing story that explains the inconsistency as a natural product of how the crime was committed – all with the understanding that the defense will exploit any weakness in the case and pursue any theory that exculpates their client. Here, moreover, there are two levels of evidence: that which convinces a prosecutor that his or her theory of the case is the correct one and evidence that is sufficiently compelling so as to move an impartial jury to a verdict of guilty. Prosecutors may be willing, for various reasons, to overlook inconsistent evidence when seeking an indictment, but our legal system is predicated on the supposition ("innocent until proven guilty") that the state's case will convince a jury only if there are sound theoretical and understandable reasons for why the evidence takes the form that it does.

The same is true for the analysis of fraud in elections. First, we must decide what leads us to suspect, a priori, that there might have been fraud. What evidence is there as supplied by eyewitness accounts or self-evident irregularities that correspond to a pattern consistent with the hypothesis that malicious and deliberate falsifications distorted the outcome? What if any were the potential mechanisms of fraud? Should we be concerned primarily about voter intimidation, for example, or with activities of a more criminal nature such as the stuffing of ballot boxes and the entering of fictitious numbers in official vote tabulations? Who might have had authority to direct and implement those mechanisms? Can we implicate the candidate or were supporters simply overzealous? And why was fraud committed in the first place – what was the motive? Was it decisive in determining the eventual winner? Did it avoid the necessity for a runoff? Did it seek to push turnout above some critical number? Did it suppress some party's vote so that it failed to reach a threshold of representation or, as is likely the case in most post-Soviet states, is election fraud simply endemic to the society in question and takes any and all forms?

Second, we must learn to accept the fact that certain types of forensic evidence will be available in some elections but not in others. Some political systems make data readily available whereas others, including a good number of election districts in the United States, make anything but the most general summaries difficult to obtain. Some political systems leave the geographic definition of election or polling districts unchanged across elections, and thereby encourage us

to compare data from one election to the next. Other systems may be too new at the game of democracy for meaningful historical comparisons. Still others such as the United States again, because of population mobility, may change polling stations and precinct definitions from one election to the next so as to confound any comparative analysis except at some high level of data aggregation.

Third, the forensic tools we apply and the evidence we gather must yield a consistent story. If, for example, we anticipate that stolen votes or stuffed ballot boxes will yield several discernable patterns in the data, then each of those patterns should manifest themselves across the forensic indicators designed to illuminate them. If one piece of evidence strongly hints at fraud but a second does not, then barring a strong argument to the contrary, we cannot reject the hypothesis that the election is legitimate. Since major criminal investigations rarely hinge on a solitary piece of evidence (despite what one might be led to believe by Hollywood's portrayal of things), one piece of incriminating evidence, even if nothing contradicts it, should be accompanied by other evidentiary material. And whatever that evidence might be should be consistent with what we already know about a situation. In Russia, for example, we know a priori that the presidents of several ethnic republics can only generously be said to tolerate free, fair, and competitive elections in their regions: Viable election opponents are discouraged or simply not tolerated and reelection with anything less that 95 percent of the vote is unacceptable. Thus, if our forensic tools suggest that fraud was committed elsewhere in Russia but not in those republics, we should be as willing to distrust our tools as we are to entertain the hypothesis that fraud somehow and inexplicably moved elsewhere. In addition, if we find a pattern in the data that points to fraud favoring one candidate, that parallel pattern in the same data should not also point the finger at the opponent unless we have reasons for believing that fraud is itself a competitive enterprise. Forensic indicators should also point fingers in sensible ways. We should be especially suspicious of them if, for instance, they suggest that fraud favored a candidate in districts where that candidate did especially poorly or in districts that were heavily monitored by reliable observers.

Finally, at this stage in the development of election forensics and the search for the fingerprints of fraud, no tool should be applied in an unquestioned way. It took more than time and experience before

courts accepted the value of DNA evidence. It took a well-developed and independently verified theory of genetics. Unfortunately, the theory at our disposal nowhere near matches that in the natural sciences. As a consequence, even if we confront consistent and seemingly incontrovertible evidence of fraud, our indicators need to confront every conceivable objection, every potential counterargument. No indicator ought to be given much weight until we have some understanding of how it functions, how it reacts to alternative forms of fraud and malfeasance, and how it can give false signals. As the last chapter of this volume shows, even data from legitimate and fraud-free elections can play tricks on us. Indeed, because both theory and the quality of data in the social sciences rarely if ever match what we expect in the natural sciences, we need to be especially careful and suspicious of any analysis. Forensic indicators, in short, cannot be applied blindly or mechanically. There is, as we note in the introduction to this volume, no magical or mathematically convoluted black box into which we plug election returns and out of which comes an assessment of an election's legitimacy or illegitimacy. There is no single magic pattern in the numbers summarizing an election that flags it as fraudulent or fraud-free, and, speaking frankly, anyone who argues otherwise is merely perpetrating their own form of fraud. Instead, whatever tools we possess must be interpreted with a considerable dose of skepticism and with as deep an understanding as possible of the substantive context of their application. If we have good a priori reasons for believing that fraud will occur in one way but not another (for example, stolen votes versus stuffed ballot boxes), then we would expect our indicators to register that fact. If our understanding of a state tells us that fraud is more prevalent in one part of the country than another, we would expect our indicators to register that fact as well. If an understanding of a regime's politics tells us that fraud will benefit one party or candidate and not another, then it is reasonable to expect our indicators to correspond to what we already know. And finally, if we are certain that fraud did not occur but our indicators suggest otherwise, then our first instinct should be to question those indicators and to look for how the data can fool us.

In all of this, we need to keep in mind that rarely does incontrovertible evidence of election fraud result in the overturn of an election, especially a national one. Ukraine in 2004 is an exception;

more common are events in Zimbabwe in 2008 wherein an incumbent simply refuses to leave office and his opponent withdraws from the competition rather than incur exile or physical harm; or, as in Russia in 2008, the world simply chooses to ignore the fraud that occurred since it believes it can do nothing about it, and since the winner would most likely have won the election without fraud. However, what acknowledged or self-evident perpetrators and beneficiaries of fraud are more likely to lose is "legitimacy." That word, of course, is no less vague than any other and rests on ill-defined and unmeasurable things. But an international judgment of illegitimacy can hurt and is surely something most national leaders prefer to avoid. How else are we to explain, for instance, the Kremlin's insistence that its elections are as free and fair as anyone else's despite the incontrovertible evidence to the contrary? Thus, if applied with care, the forensics of election fraud can impact outcomes even if that impact does not materialize in boldly discernable events. Indeed, only when they are applied with care can they have any impact.

With these notes of caution in mind, we can summarize the purpose of this volume as being an attempt to add to the forensic tools available to those who wish to assess the legitimacy of elections. Our central hypothesis is that the most egregious forms of fraud – stolen votes, stuffed ballot boxes, and official numbers that bear little relation to actual ballots cast – leave detectible fingerprints in official election returns. Our purpose, then, is to develop, illustrate, and test several forensic tools designed to reveal those fingerprints. We emphasize again that our approach should not be taken to imply that the evidence and opinions offered by outside observers and substantive experts can be discarded. On the contrary, if the analysis that follows establishes anything it is that substantive expertise is essential for a proper interpretation of the forensic evidence we consider. As with any statistical analysis, any anomalies our measures might reveal may have a ready explanation in an electorate's demographics, in the inherent inadequacies of statistical methods, or in the peculiarities of a state's electoral procedures – peculiarities that are apparent to those expert in a state's political and electoral landscape.

Perhaps the best way to understand our approach is to return again to the notion of a driver weaving down the road. The driver is most likely drunk, but there may be other reasons for the erratic behavior.

A police officer, nevertheless, has probable cause to stop the car and examine the situation more closely (for example, require that the driver walk a straight line, stand on one foot). In this context, the officer will be implicitly statistical in his approach: a single swerve is not likely to draw attention. Rather, it is a pattern that is deemed erratic and suspicious, along with experience with seeing how drunk drivers act. The same is true with our methods and indicators. A single aberrant signal might not raise suspicions unless it is part of an otherwise aberrant pattern and consistent with what experience has taught us about the country and election under scrutiny. At times, of course, the driver may provide more than what is legally deemed 'probable cause,' as when he drives on the wrong side of the road, tosses empty beer cans from the window or side-swipes parked cars. The same may be true with our indicators, but we should approach their application with the expectation that the signals they provide will give rise, at most, to a call for further investigation.

Here, in fact, we emphasize that because we limit our forensic measures to official election returns, the data we consider is necessarily aggregate – hopefully only up to individual polling stations, but also up to the level of election districts or counties. Thus, we must always be conscious of the possibility of drawing incorrect inferences because of aggregation error – because our data hides subprocesses and the impact of unobserved variables. Hopefully, by way of real-world examples, we can illustrate the most likely misinterpretations of the data and the specific points at which the knowledge of a substantive expert is essential. And in doing this, we seek to find ways in which expertise can be channeled so as to refine the combination of that knowledge with the objective numbers that elections yield. Thus, a critical caveat to the analyses that follow, and which we repeat again, is that the application of our indicators of fraud cannot be applied blindly. Our indicators may often do little more than point a finger as if to ask the expert, "look here . . . is this pattern suspicious?" The evidence our indicators offer, like the matching of fingerprints on a murder weapon, may be sufficient to indict for a crime, but generally they will be insufficient for establishing guilt beyond "a shadow of a doubt." Contrary to what might be taught in Stat. 101, statistics is as much an art as a science. There is no perfect methodology that takes data and delivers "the truth." Data must be played with, manipulated,

massaged, dissected, turned inside out, upside down. Data must, in short, be made to talk to us, until we tease out whatever truths it contains while separating the inconclusive from the definitive. And in this inexact artful process, evidence of all types must be marshaled. As in criminal investigations as well as the analysis of elections, that includes the opinions of experts who can formulate potentially exculpatory hypotheses, who can assess those hypotheses on an a priori basis, who can guide us through an interpretation of the patterns that emerge from our statistical explorations and direct us to other things to look at, and who in the end can weave together all of the available evidence into a coherent and convincing story based on what they know about motives and opportunities.

## 1.2 THE SPECIAL RELEVANCE OF RUSSIA AND UKRAINE

This volume focuses on elections in Russia and Ukraine. We do this in part because, in pursuit of other research objectives, we have developed a data set on Russian elections at the rayon (county) level that covers all federal (presidential and parliamentary) elections beginning in 1995. Moreover, that data set, which allows us to track changes in the vote across those elections for more than 90 percent of all rayons (approximately 2,500 of 2,700, excluding those with significant alterations in geographic boundaries), has also been augmented for several elections by data aggregated up only to the level of Russia's individual polling stations (precincts). Of course, the mere availability of data is not the primary motivating factor here. As we argue earlier, there is a considerable body of evidence, aside from our indicators, to convince any but the most die-hard Kremlin apologist that elections in Russia are anything but fraud-free. And more to the point, we have a pretty good idea as to where fraud is most prevalent – specifically, in those federal subjects (some oblasts but more generally, Russia's ethnic republics) whose electoral processes are tightly controlled by regional bosses with a commitment to or a conceptualization of democracy that matches Putin's Soviet-era ideas. We also have good reasons for believing that fraud and the wholesale subversion of democratic process has only increased in Russia following Putin's rise to power. Our interest in Russia, then, extends beyond merely documenting the illegitimacy of

elections there. Russia affords us the opportunity to apply our forensic indicators to see if they give signals that are consistent to what we know a priori about a country that quite unashamedly has chosen to render its "democracy" a mere sham.

Our interest in Russia and electoral fraud also derives from our earlier association with the late Dr. Alexander Sobyanin, who, convinced that his country had not yet distanced itself from its Soviet past, first introduced us to the possibility of detecting the manipulation of election outcomes there using aggregate data. Much of what we offer here follows from his earlier analysis of Russia's flirtation with democracy in 1993, some of it growing, admittedly, out of disagreements with him and amongst ourselves over his methods. Whatever special attention we give to Russia, then, derives from it serving as an initial intellectual battleground for the refinement of our ideas and methods.

Ukraine in turn warrants special attention for another reason. In its 2004 presidential contest, Ukraine ran the almost perfect social science experiment from the perspective of testing and validating indicators of fraud. Its November runoff contest, following a first round in October in which no candidate's vote exceeded the 50 percent threshold to preclude a runoff, pitted the Russian and regime-backed Victor Yanukovich against the Western-leaning Victor Yushchenko. That second round, though, was nearly universally condemned (the notable exceptions being Russia's Putin, Belarus's authoritarian president, Alexander Lukashenko, and the then-incumbent president of Ukraine, Kuchma) as invalid owing to massive and self-evident voting irregularities and manipulations that turned the runoff in favor of Yanukovich. With upwards of a half million peaceful protestors camping out in the snow of Kiev's Independence Square in an event termed the Orange Revolution, with one Western democracy after another refusing to recognize the outcome as legitimate, and with countless witnesses to fraud and irregularities in various forms, the runoff was deemed invalid by Ukraine's Supreme Court and a new vote ordered for December. Owing in part to the unsophisticated nature of the fraud that led to his "victory" (and to some arm twisting no doubt on the part of Western governments), Yanukovich was essentially left twisting in the wind between these rounds by Ukraine's incumbent administration

and a greatly embarrassed Putin (who months earlier had arrogantly introduced Yanukovich to the American Secretary of State Condoleezza Rice as "the next president of Ukraine" as if to establish his de facto control of the country). Official Western observers, journalists, and members of Ukraine's diaspora poured into the country to monitor the December revote while the spin doctors and election technocrats Putin had dispatched to Kyiv to facilitate Yanukovich's campaign slithered home to Moscow. With observers and the media now focused on those regions in which Yanukovich's supporters implemented the most blatant manipulations, Ukraine proceeded to offer the example of two elections held a month apart between the same two candidates, with the same electorate, and the same set of issues but with far fewer opportunities and incentives for fraud in one case than the other (at least in its Eastern regions). In short, Ukraine is an ideal case for assessing whether those forensic indicators we take as fingerprints of fraud appear and disappear as predicted.

However, Ukraine's relevance to the study of election fraud does not end with its 2004 vote. Following his defeat in December, Yanukovich skillfully resurrected himself to lead a party, the Party of Regions, that trumped Yushchenko's Our Ukraine and a party block led by his erstwhile October Revolution partner, Julia Timoshencko, in the 2006 parliamentary election, parlaying that victory via the coalitional blunders of his 2004 antagonists to become Ukraine's prime minister. But in contrast to the 2004 November vote, this 2006 contest, aside from the usual quibbles about subtle intimidation or "hard campaigning" by the supporters of one side or the other, was deemed free, fair, and competitive by all observers, including Yushchenko and the heads of most parties who faired poorly. The 2006 parliamentary vote, in turn, was followed by a 2007 contest pitting essentially the same parties and personalities against each other, but with a slightly different outcome – one in which Yanukovich's coalition became a minority, and Timoshenko's party, BYuT, made serious inroads into Yanukovich's strongholds sufficient to put her at the head of a new majority coalition and again as prime minister. However, unlike in 2006, Yanukovich in 2007 had a clear interest in facilitating the vote of one of his principle allies, Oskar Moroz's Socialist Party of Ukraine (SPU), so that it would pass the 3 percent threshold for parliamentary

seats and maintain the coalition that had previously elevated him to the position of prime minister. Thus we can ask whether there is any evidence that Yanukovich's (unsuccessful) assistance to Moroz's SPU employed any measure of fraud. In several different contexts, then, Ukraine presents us with the opportunity to double-check our methodology, and, if observers are correct, to document its somewhat chaotic transition to democracy.

Finally, Ukraine interests us because in many ways it contrasts with Russia. As may be evident by now, we believe that Russia and Ukraine are traveling in different directions on the road to democracy despite their intertwined histories and cultures. It is, of course, beyond the scope of this volume to attempt a full explanation for this difference. We are not here to map out the implications, for example, of Russia's oil and natural gas reserves versus Ukraine's absence of such resources even though we believe that such things should play a critical role in any comprehensive explanation of their political differences. Nor would we want to delve fully into the concept of culture to understand the distinction between Russians and Ukrainians even though it seems reasonable to suppose that such a concept, however murky, should also play a role. Hopefully, however, this study will reveal or document some facts about each country's electoral processes that may be useful in formulating an explanation of why one country appears to be making a successful transition to democracy and the other is not.

A note on our Ukrainian data: Ukraine consists of 26 oblasts (with Crimea and Simferopol counted separately) and 755 rayons. However, unlike Russia, data is normally reported by election district, of which there are 225, so our analysis often switches between rayon and election district data. Our data sets also include returns from Ukraine's 33,120 precincts, beginning with the third round of the 2004 presidential contest. But like the United States, matching precincts from one election to the next so as to form a time series at this lowest level of aggregation is an impossible task (or, if not impossible, would surely indefinitely postpone the research we offer here). Such matching is a far more tractable enterprise at either the rayon or election district level (as is classifying observations as coming from urban versus village or rural areas or percentage Russian versus Ukrainian speaking). Whenever possible, of course, we use the lowest

level of aggregation possible, except in those instances where we illustrate the pitfalls of drawing inferences from data that are too highly aggregated.

## 1.3 OUTLINE

This volume is organized as follows: Our next chapter details three forensic tools for assessing the legitimacy of an election that take as input official election returns as they might be supplied by a central election commission. And since one of those tools includes an econometric method for treating aggregate data in order to estimate the flow of votes between elections, we include here various simulations of the performance of that methodology. Readers uncomfortable with mathematical notation and econometric details can read only the introduction to the more technical sections of Chapter 2 (Sections 2.5 through 2.7) and proceed to the next chapter. Chapter 3 turns to Russia, to the reasons, aside from our indicators, for supposing that significant fraud permeates its elections beginning with its 1995 parliamentary contest and for supposing as well that the magnitude of fraud there is a monotonically increasing phenomenon. Our general conclusion is that the most fraudulent election of the series is Putin's reelection in 2004, with the 2007 parliamentary vote a close second. Indeed, we argue that election fraud has spread and metastasized within the Russian polity to such an extent that the concept of a "democratic election" there is now an oxymoron. In Chapter 4 we turn our attention to Ukraine and its 2004 presidential vote. The specific question that concerns us is whether our indicators signal the massive fraud in the November vote alleged by nearly all objective observers, and whether those signals disappear in the conclusive December runoff. Chapter 5 then turns to Ukraine's 2006 and 2007 parliamentary contests. One question here is whether in a parliamentary as against a presidential contest, our indicators confirm the general assessment that both elections were relatively fraud-free or whether various irregularities escaped notice either out of inattention or a simple desire to judge the contests as free and fair. Chapter 6 concludes with an assessment of data taken from the United States and illustrates in a different context the care that must be applied in any application of those forensic tools.

# 2

# The Fingerprints of Fraud

> Partial compliance to democratic norms does not add up to partial democracy. Gross violation of any one condition invalidates the fulfillment of all the others.
>
> Andreas Schedler (2002, p. 41)

## 2.1 INDICATORS

We emphasize again that the indicators of fraud we detail in this volume are but a part of the forensic evidence that can be brought to bear on an overall assessment of an election's legitimacy. They can be used to confirm what observers and commentators might tell us or give direction to subsequent follow-up analyses by way of suggesting what voting districts or regions yield suspicious patterns and who those patterns favor. We also want to emphasize that our concern is finding ways to detect election irregularities in official returns that are simultaneously consistent with what we know a priori about the election under investigation. With respect to Russia in particular we have, for instance, the rayon in the ethnic republic of Tatarstan in 2004 in which of forty-one polling stations, none reported turnout below 95 percent, none gave Putin less that 98 percent of the vote, and twenty-four reported 100 percent turnout and 100 percent of the vote for Putin. Either voters there were more careful in filling out their ballots than anywhere else on the planet, or their ballots were irrelevant to that rayon's official numbers. More than likely, such

examples illustrate that fraud can be shamelessly committed in Russia with no negative consequences for its perpetrators and no regard for Western opinion (or, with respect to Germany under the leadership of the likes of Gerhard Schröder, with the understanding that other political considerations such as who supplies whom with natural gas or who will appoint who to Gasprom's board of directors following one's career in elected office will lead officials to anoint any election as free and fair).

Of course, the recourse to such self-evident instances of fraud cannot be guaranteed, especially if the perpetrators skillfully hide their deeds from investigators. Unfortunately, such individual examples of blatant fraud cannot help us measure its overall magnitude and whether it was decisive in determining the election's outcome. In this chapter, then, we focus on three alternative indicators wherein, in their actual application and as in any criminal investigation, all three should agree with whatever is our theory of the "crime" before we deem an election suspect. Briefly, the indicators we employ are

1. The relationship between turnout and a candidate's share of the eligible electorate. This relationship ought to be logical, where by "logical" we mean that if turnout increases, then ceteris paribus, a candidate (or party) should share in this increase or at least not suffer from it. Specifically, suppose we estimate the regression

   *Candidate i's share of the eligible electorate* $= A * Turnout + B$

   Absent fraud in homogeneous districts where turnout varies as a function of factors uncorrelated with candidate *i*'s support, the coefficient *A* should equal *i*'s overall share of the vote and *B* should be zero. Hence, if *i* wins on average say 65 percent of the vote, then for every additional 100 votes, *A* should equal 0.65 to indicate that *i* receives 65 additional votes.
2. The distribution of turnout across precincts or districts. Assuming again that our data are reasonably homogeneous and that variations in turnout are the consequence of random or uncorrelated factors, that distribution ought to be approximately normally distributed. But whether normal or not, it ought not be consistent with the hypothesis that some subset of the data has had its turnout artificially augmented with stuffed

ballots or falsified election totals so as to yield, for example, a bimodal distribution wherein one mode corresponds to data from districts in a free and fair contest and the second mode to data drawn from observations augmented with falsified ballots; and

3. Econometric estimates of the flow of votes from one election to the next. In a normal election, those estimates should "make sense," by which we mean (among other things) that the share of the vote a candidate or party receives from a candidate or party in a previous election falls in the interval [0, 100%], that votes come from logical sources, and that our vote flow estimates do not indicate that one candidate or another suddenly and inexplicably received an inordinate share of support from those who previously had been nonvoters.

Each indicator requires considerable discussion and elaboration since each is capable of giving false signals as to the presence or absence of fraud. Hence, each should be applied only with a full understanding of the data that is presumed to be generated by a free, fair and honest contest and how such data, if not dissected carefully, can give the appearance of fraud.

## 2.2 TURNOUT AND ABSOLUTE VOTE

Our first indicator has a history of application to Russia, beginning with that country's 1993 constitutional referendum. That referendum, which saw the Yeltsin-backed constitution win the approval of over 70 percent of those voting, barely passed the 50 percent turnout threshold to be legally valid. Official turnout was approximately 53 percent, but in a series of essays, the Russian physicist (and onetime member of Yeltsin's advisory council) Alexander Sobyanin argued that turnout had been fraudulently augmented (Sobyanin and Suchovolskiy 1993, Sobyanin, Gel'man, and Kaiunov 1994). Using data gleaned from a variety of sources on individual rayons, the evidence Sobyanin offered included the observation that the correlation between turnout, $T$, and the number voting for the constitution as a share of the *eligible* electorate, $V/E$, was essentially zero whereas any increase in turnout appeared to go exclusively against ratification. Sobyanin argued

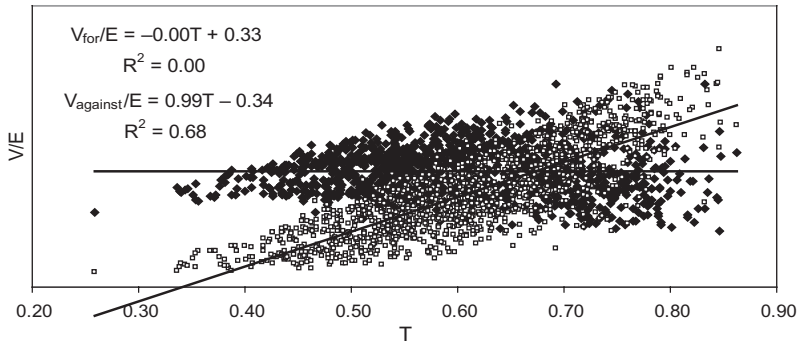


FIGURE 2.1. Turnout versus *V/E*, Russian Constitutional Referendum 1993

that increased turnout should be associated with an increased vote for both positions on the constitution – that if more voters go to the polls, both "for" and "against" should experience an increase in absolute vote. The specific data that concerned Sobyanin is portrayed in Figure 2.1.

We cannot say at this point whether Sobyanin's conclusion is correct, in part because his data was necessarily incomplete and consisted of a sample of approximately 1,300 of Russia's 2,700+ election districts.[1] But let us first look at the logic underlying his methodology and this indicator. First, to illustrate how fraud alone in otherwise homogeneous data – data in which any variation in turnout is uncorrelated with support for a measure, candidate, or party – can yield a negative relationship of the sort that captured Sobyanin's attention, imagine a six precinct election between candidates *X* and *Y*. Suppose 100 potential voters live in each precinct and that *X*'s support is 25 percent across the precincts while *Y*'s is 75 percent. Suppose also that in a regular case and for wholly exogenous reasons, three of these six precincts would have a turnout of 40 percent (40 people vote), and the remaining three a turnout of 60 percent. Now imagine that in two

[1] Briefly, Sobyanin initially worked on a commission established by Yeltsin to guard against the possibility of fraud in Yeltsin's 1991 bid for the presidency of the Russian Republic in the old USSR. Sobyanin continued his investigations and upon forwarding to the Kremlin his analysis and conclusions about the 1993 constitutional referendum (Sobyanin and Suchovolskiy 1993), was summarily dismissed. Nikolai Ryabov then made official data inaccessible to him, so that his data set was gathered from other sources, including local newspaper editors and individual oblast officials.

of the three 40 percent turnout precincts that 40 ballots are fraudulently added to *Y*'s total, raising turnout to 80 percent. If we graph turnout against *X* and *Y*'s share of the eligible electorate, we have three clusters of points for each candidate:

(i) One regular data point per candidate at 0.4 turnout with *X*'s share of the electorate at 0.10 and *Y*'s at 0.3 (i.e., the points *X*: (0.4, 0.1) and *Y*: (0.4, 0.3));
(ii) Three regular points per candidate at 0.6 turnout with *X*'s share of the electorate at 0.15 and *Y*'s at 0.45, or equivalently, the data points for *X* (0.6, 0.15), and for *Y* (0.6, 0.45); and
(iii) Two fraudulent points at 0.8 turnout: for *X* (0.8, 0.1) and for *Y* (0.8, 0.7).

Since with fraud there is more weight (more points) on the highest value of observed turnout as compared to the lowest value (two points at 0.8 vs. one point left at 0.4), ordinary least squares will estimate a relationship between turnout and absolute vote that exceeds 1.0 for *Y* and is negative for *X*. Moreover, we can simplify the example if we assume that not only are votes added to *Y*, but that some are stolen from *X*. Consider just two precincts, both initially with 40 percent turnout and suppose that in one of them 40 new votes are added to *Y*'s total while 5 are stolen from *X*'s and credited to *Y*. Then the high-turnout precinct will have the following coordinates: for *X*, (0.8, 0.05) and for *Y*, (0.8, 0.75). The low-turnout (regular) precinct will correspond to the data points for *X* (0.4, 0.1) and for *Y* (0.4, 0.3). If we now regress turnout against absolute vote share, the coefficient for *Y* will be $(0.75 - 0.3)/(0.8 - 0.4) = 0.45/0.4 = 1.25$, whereas the coefficient for *X* will be $(.05 - 0.1)/(0.8 - 0.4) = -0.125$.

To see further how this indicator might raise or allay suspicions of fraud and also help pinpoint the nature of fraud, suppose there are reasons for believing that a candidate will fare especially well in specific regions as a function of turnout (as when, in the United States, Republican precincts on average report higher rates of turnout than Democratic ones). Indeed, for a specific source of nonhomogeneity in the data, suppose a candidate enjoys a legitimate organizational advantage in districts that normally yield higher than average turnout. It might seem, then, that this fact alone will yield coefficients on *T* that would lead us, inappropriately, to infer fraud. However, to see

that things are a bit more complicated, consider again a simple two-precinct example where the "natural" turnout in the two precincts is $X$ and $Y$ respectively, with $X < Y$. Suppose the candidate in question would, without fraud or special campaign effort, win, in accordance with the assumption of homogeneity, the share $Z$ ($0.0 < Z < 1.0$) of the vote in both districts. Now suppose that turnout at the second station is raised, in some way but ostensibly fraudulently, to 100 percent with all additional ballots going to our candidate. The coefficient on $T$ then becomes $[ZY + (1 - Y) - ZX/(1 - X)$, which exceeds 1.0 only if $Z > 1.0$, which is impossible. On the other hand, if votes are instead similarly added to the first, low-turnout, precinct so as to raise its turnout to 100 percent, then that coefficient becomes $[ZX + (1 - X) - ZY]/(1 - Y)$, which necessarily exceeds 1.0 (i.e., if $Z < 1.0$). Thus, if we in fact observe a coefficient on $T$ greater than 1.0 but, on the basis of what we know about things, discount the hypothesis that the candidate in question enjoys a legitimate organizational advantage in what now appears to be the high-turnout precinct, then the hypothesis that "extraordinary means" (for example, fraud) was used to augment the candidate's vote gains credibility.

This example illustrates two things. Assuming the correctness of our a priori belief that our data, absent fraud, is reasonably homogeneous, then the first thing, as just noted, is that coefficients greater than 1.0 provide probable cause for inferring that turnout has been artificially augmented on one candidate or party's behalf in what would otherwise be low-turnout districts. The second thing is that coefficients less than one, but greater than the candidate's average share of the vote, are somewhat more ambiguous in their implications. Here our suspicions that fraud contaminated things will depend on whether we believe it was in the "normally" high-turnout districts that fraud occurred or whether the candidate in question has a "natural" advantage in those districts (i.e., whether our data fails to satisfy our assumption of homogeneity for benign reasons).

There are other inferences to be drawn from the various patterns that a graph of turnout versus absolute vote can reveal as, hopefully, will become clear as we proceed into the analysis of data from Russia and Ukraine. Minimally, however, the preceding discussion serves to emphasize that the interpretation we give to coefficients using this indicator depends on what we know about voting and potential

sources of nonhomogeneity in our data. Indeed, this aspect of Sobyanin's methodology offers an example of the care that must be exercised in the treatment of aggregate data and in looking at any one indicator. Although it is reasonable to suppose that a candidate or party's share of the eligible electorate should, ceteris paribus, increase as turnout increases – if say 100 additional voters go to the polls, then surely it is reasonable to suppose that a viable candidate should get some share of those additional votes and surely shouldn't lose votes as turnout increases – we need to keep in mind that Sobyanin looked across districts and not simply within any one district. Thus, we must be careful that we do not run afoul of the statistical problems that arise when we analyze aggregates of variables with unobserved correlates of the vote and turnout – that is, nonhomogeneous data.

To see what we mean, consider Figure 2.2a, which portrays forty fictitious data points and the regression line describing the overall relationship between turnout and a fictitious candidate's share of the eligible electorate. Absent further analysis we might deem the share of the electorate the candidate receives as a function of turnout to be suspicious: As more people are reported to have voted, our candidate not only doesn't gain votes, but appears to lose some. We might infer then that votes are being stolen from the candidate in high-turnout districts or that imaginary voters have been added and credited to opponents. However, suppose the data here are taken from four distinct regions such that, in the aggregate, higher turnout regions tend, on average, to give this candidate, in a wholly legitimate fashion, less absolute support (a smaller share of the eligible electorate). For example, it might be that our candidate appeals to low-income voters and that regions vary by average income so that the higher the income of a region, the lower is the candidate's level of support. Figure 2.2b, then, illustrates what can occur if we disaggregate the data set by running separate regressions within each region. Now the relationship between turnout and the candidate's share of the electorate within each region is of the sort Sobyanin deemed normal. The negative coefficient on turnout in Figure 2.2a, then, is merely the by-product of aggregation error – of nonhomogeneity of the data in the form of the relevance of an intervening variable that varies across regions and impacts both the vote and turnout.

The reader will notice, moreover, that if we reverse the horizontal scale on turnout in these two figures, we can contrive an example in

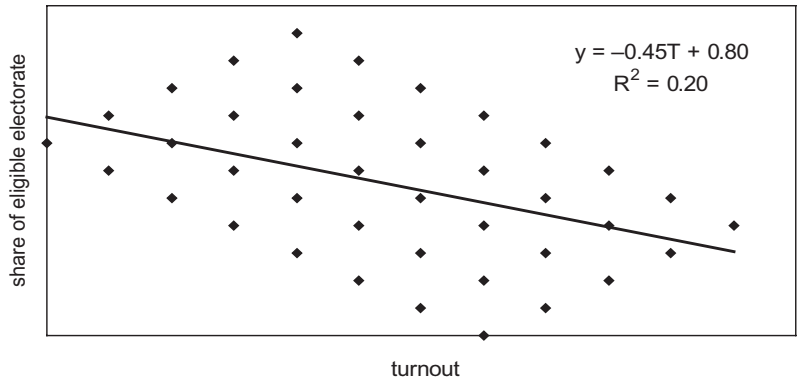


FIGURE 2.2a. Example of Potential Aggregation Error

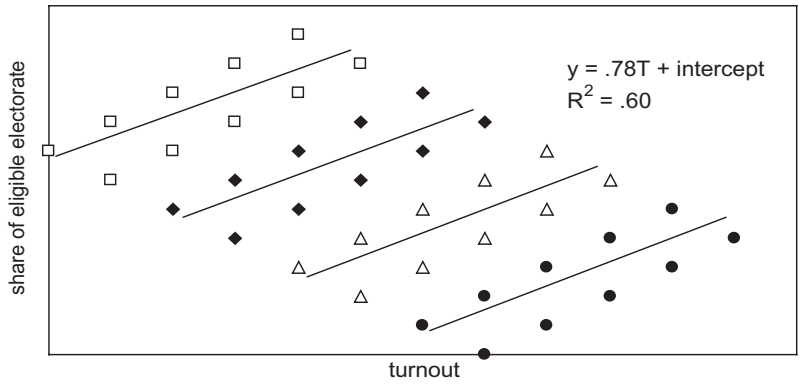


FIGURE 2.2b. Four "Regions" Disaggregated

which overall we secure what appears to be an otherwise regular positive correlation between turnout and a candidate's share of the eligible electorate and that disguises a negative (and suspicious) relationship within each district. Thus, just as a negative relationship in a full data set does not necessarily signal fraud, a positive relationship does not necessarily signal a clean bill of health.[2] There are,

[2] More formally, suppose the true relationship between the percentage of the vote for a candidate or for some motion on a referendum, $V$, and turnout is given by the expression $V = \alpha + \beta T$. The percentage of the eligible electorate, $V/E$, casting votes for, then, is $TV = \alpha T + \beta T^2$, in which case $M(V/E)/MT = \alpha + 2\beta T$. It follows that if $\alpha$ and $\beta$ are both positive, then $ME/MT$ is necessarily positive. On the other hand, if $\beta$ is negative (e.g., if nonheterogeneity in the data implies that the greater the natural

then, two explanations for coefficients that fall outside of the interval [0, 1] – one that is innocuous and appeals to the possibility of aggregation error and a second that suggests fraud – as well as two explanations for coefficients that look normal in the aggregate. This serves to emphasize that our first indicator, when returning a negative coefficient or a coefficient in excess of 1.0, can at best be but one piece of a puzzle when dissecting an election, and needs to be weighted against all other evidence in reaching any conclusions. However, rather that take this to mean that this indicator is of little value given that it can create a false signal of fraud in an otherwise legitimate election and a false signal of legitimacy when, at a more disaggregate level, we might find evidence of fraud, notice in Figure 2.2a that it is the variance in the data about the negatively sloping regression line that opens the door to a regrouping of the data (by region) in such a way as to eliminate a negative coefficient within each group. Were the data to fall wholly along the regression line, there would be no opportunity for such a regrouping. Thus, the value of any inferences we might draw from this indicator needs to be weighted by the variance explained by the regression. In addition, if we ignore the econometric problems associated with bounded dependent and independent variables, it should also be the case in a fraud-free election with homogeneous data that our regression coefficient yields a number approximately equal to a candidate's overall share of the vote. In other words, (1) we ought to treat as conditionally suspicious a regression that yields a high $R^2$ and coefficients that fall outside of the interval [0, 1]; (2) we ought to treat as conditionally normal regressions with high $R^2$ that yield coefficients in line with each candidate's overall share of the vote; and (3) we need to treat as inconclusive (and explore further for the possibility of nonhomogeneity in the data) any regressions with low $R^2$ that yield coefficients that bear no self-evident relationship to each candidate's overall share of the vote, including coefficients outside of the interval [0, 1].

turnout of a district, the lower is that candidate's general level of support), then $ME/MT$ is positive only if $T$ is less than $\alpha/2\beta$. Thus, absent homogeneity, the relationship between $T$ and $V/E$ is not linear or even positive and monotonic. Instead, if turnout is sufficiently high for a sufficiently great number of observations, then a simple linear model would yield a negative estimate of the relationship between $T$ and $V/E$.

Notice now that we knew by construction how to cluster our observations in Figure 2.2a to eliminate a negative coefficient. This then is where substantive expertise plays a critical role in assessing sources of aggregation error and the distortions caused by unobserved variables – an understanding, for example, that a country's regions are demographically dissimilar or historically different in their electoral character, or that individual observations within regions are themselves fundamentally different in some critical way. In places like Russia and Ukraine, for example, we know to treat carefully any data that mixes urban and rural data, or, in the case of Russia, data drawn from both oblasts and ethnic republics. In actual practice, however, neither we nor the substantive expert may be sure how to perform any sorting or clustering when determining the meaning of a regression that we might otherwise deem suspicious. It is not that Russians differ genetically in some relevant way across the country, but rather that different parts of the country are governed in different ways with different opportunities for committing fraud (see for instance Berezkin et al. 1999, 2003). The same is true of Ukraine, and it is only the expert who can tell us what those differences are and when they might be relevant. Indeed, it is only the expert who can look at Figure 2.2b and tell us whether there is a benign reason why regions with greater turnout show less absolute support on average for the candidate in question or whether that fact suggests fraud. That is, we must take care that in explaining a negative coefficient nationally (Figure 2.2a) we have not, in fact, uncovered something suspicious across regions.

Thus, regardless of the initial estimate of the relationship between $T$ and $V/E$, the careful (and skeptical) analyst will see if there aren't subsets of the data that yield discernibly different estimates and that, at the same time, have a ready and innocuous explanation. Here historical data plays a critical role since such data allow us to detect the sudden and otherwise inexplicable emergence of suspicious patterns or trends. Since demographics are unlikely to change in any appreciable way between elections, the sudden appearance of a suspicious relationship between $T$ and $V/E$ should occasion greater suspicion than one that exists over a long period of time and that may, thereby, have a ready explanation in the underlying character of the electorate. All of this serves to emphasize that this indicator can

only augment a comprehensive assessment of an election and not be a substitute for that analysis.

With these qualifications and caveats in mind, it is useful to reconsider Sobyanin's analysis and ask if in fact his conclusions might have been "contaminated" by any problems of ecological regression. The first thing to notice about the relationship between *T* and *V/E* in votes for the constitution (Figure 2.1) is the considerable variance in the data around the regression line, which opens the door to the possibility of aggregation error. In fact, if we regress *V/E* against *T* in each of the forty oblasts and republics in Sobyanin's data set we find coefficients for *T* outside the interval [0, 1] in only six of them. However, our investigation should not end here since we have not yet allowed the data to fully talk to us. We also need to keep in mind the context of the 1993 referendum and the political forces that operated then. For the most part political bosses in Russia's regions cared little about the proposed constitution – it was, insofar as their experience with Stalin and Brezhnev's Soviet-era constitutions were concerned, a mere piece of paper that would ultimately bear little relationship to Russian politics and the internal struggle for power. If anything, they probably weakly opposed the document because of the power it conferred on the presidency at the expense of their regions, but more important was the simultaneously held parliamentary election and the ongoing struggle between Yeltsin and the Duma – a conflict that was resolved ultimately only with tanks. Regional bosses could reasonably guess, moreover, that the constitution would be approved by an overwhelming majority of those voting and the only question was whether turnout would exceed 50 percent so as to render the referendum valid. Those bosses, few of whom could be classified as reformist, could, then, give Yeltsin what he wanted by inflating the vote both for and against without worrying about the consequences. But how were they to "balance the books" with these excess votes in the parliamentary contest? Some, of course, would be given to the Communists so as to offset Yeltsin's position with the Duma. Few, if any, would go to the despised party of Egor Gaidar, Russia's Choice. So why not to the seemingly irrelevant if not comical Vladimir Zhirinovsky and his Liberal Democratic Party of Russia (LDPR)? The net result is that Yeltsin gets what he wants, Zhirinovsky pulls off a surprising showing

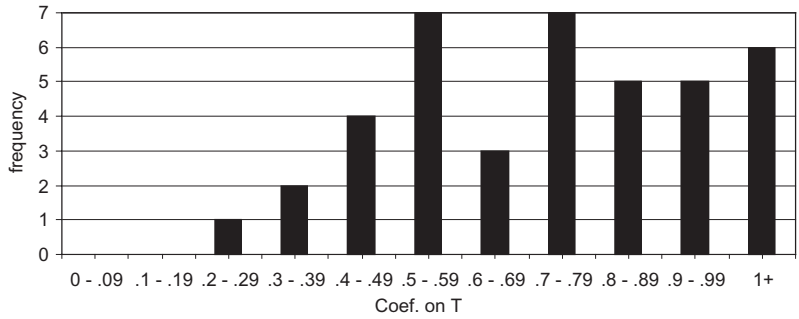


FIGURE 2.3. Distribution of Coefficients for *T*, Russian Constitutional Referendum 1993

(which he fails to repeat in any subsequent election), and to the satisfaction of regional officials, the parliamentary weight of Russia's Choice is diluted.

As a partial check on this interpretation of things, consider Figure 2.3, which gives the distribution of coefficients for turnout, *T*, across the forty regions in Sobyanin's data when regressed against the absolute vote for, $V_{for}/E$. The first thing to notice here is the absence of any coefficient that is negative. Thus, the overall coefficient of zero that Sobyanin reports is clearly the consequence of aggregation error. Nor are all but a handful of coefficients greater than 1.0 (six). One might be tempted to conclude, then, that Sobyanin's assertion of fraud is wide of the mark. However, notice also the clear absence of any pattern in Figure 2.3. Coefficients seem utterly random, with too many seemingly too low and too many seemingly too high. And keep in mind also that if the normal (free and fair) share of those supporting an alternative is, say, 65 percent or so and if fraud inflates this to only 70 percent or reduces it to 60 percent, we are unlikely to see a coefficient on *T* that appears exceptional (i.e., outside of the interval [0, 1]). But if we suppose that some regional bosses were adding votes for, others against, and still others mixing between the two simply to give Yeltsin his 50 percent turnout, then in an otherwise homogeneous society we would see a distribution of coefficients much like what Figure 2.3 shows – a distribution without a pattern.

Our reanalysis, then, neither confirms nor disconfirms Sobyanin's assertions of an inflated turnout. It is simply evidence as in a normal criminal investigation that needs to be set in a larger context before its

meaning can be understood (in the case of the constitutional referendum, that means a parallel analysis of voting in the parliamentary contest). Minimally, though, a distribution of coefficients such as in Figure 2.3 should lead us to ask why, in regions that otherwise seem similar and homogeneous, we should find such a disparity in the relationship between turnout and the absolute vote won by the same alternative. In other words, Figure 2.3, in the terminology of a criminal investigation, at best serves as probable cause for further investigation.

## 2.3 THE DISTRIBUTION OF TURNOUT

Turning now to our second forensic tool, we note that turnout can vary across election districts or polling stations for any number of innocuous reasons. But variations here can also have a more sinister source such as when too few polling booths are supplied relative to the overall number of potential voters, when ballots for purely partisan reasons are deemed to be marked illegitimately and invalid, or when ballot boxes are simply stuffed with fraudulent votes. Suppose once again, though, that we are dealing with a relatively homogeneous data set wherein turnout varies across observations for innocuous and random reasons. Overall, then, we would expect the distribution of turnout to look approximately "normal" (i.e., bell-shaped or Gaussian). But now suppose we take a representative subset of those observations and add votes to one or more of the candidates via the simple expedient of ballot stuffing. The overall distribution of turnout, then, would no longer be normal, but skewed to the right. And the more ballots we add, the greater would be the skewing, to the point where the overall distribution becomes bimodal.

**Example:** To illustrate the impact of ballot stuffing on the distribution of turnout, consider Figure 2.4. We begin with a data set in which turnout is approximately normally distributed (the thin solid line in the figure). Then, mimicking the creating of fraudulent votes, we take one-third of these observations and augment turnout in each by a fixed percentage of those who actually failed to vote. This augmentation shifts the turnout distribution of the effected data to the right (the dark solid line), leaving all other data as is (the thin dotted line). The summed result is the dark dashed line in Figure 2.4, which shows the impact on the overall distribution of turnout.

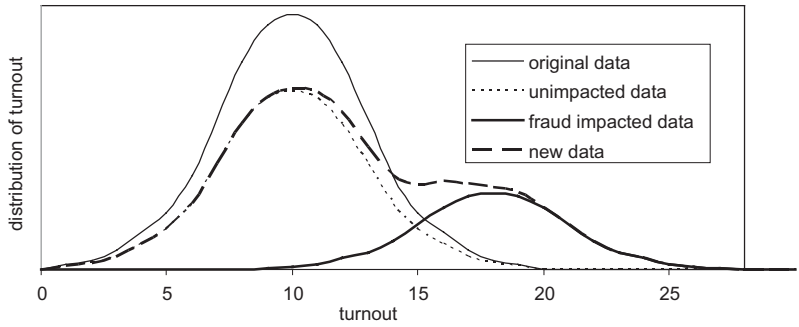


FIGURE 2.4. Impact of Stuffed Ballot Boxes

As before, of course, we must take care that we are not comparing apples and oranges when examining turnout distributions and making inferences on the basis of something other than a normal distribution. Specifically, we must take care that the overall distribution is not skewed or bimodal because our data set combines two distinctly different types of observations such as polling stations located in neighborhoods of the rich and elderly, who, at least in the United States, normally exhibit very high rates of turnout, versus stations located where the population is predominantly poor and young and traditionally exhibit lower rates of participation. Here, then, we should pay close attention to the demographic mix of our data where observable demographic variables are known to correlate with voting patterns. It is also important that we look across elections to see if any distribution in turnout that we might deem suspicious characterizes earlier voting patterns. If an aberrant pattern is consistent over time, then, as with our first indicator, we should place greater weight on the possibility that it is not fraud, but demographics that give rise to any seemingly abnormal distribution. On the other hand, the sudden appearance of bimodality from one election to the next suggests that turnout did not change uniformly in the election at hand, and explanations that allow for an inference of fraud should be considered along with less nefarious possibilities. And if that change corresponds to a sudden and seemingly selective upsurge in participation in an election that is otherwise a forgone conclusion (as we show in the next chapter occurred in Russia), then suspicions of fraud are heightened further still.

Examining temporal changes in the distribution of turnout is important moreover since, if fraud does take the form of stuffed ballot

boxes, it can help us distinguish between two distinct processes. One possibility is that the magnitude of fraud (the number of fictitious ballots) increases over time among the same subset of voting districts (observations). In this case the overall distribution of turnout will simply become increasingly bimodal as that subset's distribution is moved to the right. The second possibility, however, is that while the extent of fraud in the initial subset may or may not increase with time, fraud infects other districts. In this case we can envision an overall distribution that, in the initial sequence of elections, becomes bimodal and then transforms itself back into a unimodal density, but one that is skewed wholly to the right. Looking at distributions of turnout across elections and across regions of a country then can suggest to us whether fraud is an isolated concern or whether it is metastasizing and infecting the polity as a whole.

As before, due consideration needs to be given to the hypothesis that a non-unimodal or skewed turnout distribution can arise for wholly innocuous reasons. Aside from nonhomogeneity in the data owing to demographics, the presence of a favorite son can also perturb things whereby specific regions or precincts yield greater-than-usual turnout in support of that candidate in wholly legitimate ways. Once again, then, the interpretation of this indicator requires some understanding of the election at hand. In Ukraine in 2004, for example, one presidential candidate, Victor Yanukovich, was seen as the favorite son of the industrial oblast of Donetsk (he had been governor of the region). Thus, nothing can be inferred from simply observing a sharp rise in turnout there (provided, as was not the case in several election districts, that turnout does not exceed 100 percent). It is only when we look at other indicators along with the overall pattern of turnout that suspicions of fraud gain traction.

## 2.4 STUFFED BALLOT BOXES VERSUS STOLEN VOTES

There are two especially insidious forms of election fraud that our first two indicators can be used jointly to detect and differentiate. The first is simple ballot box stuffing wherein votes are added to one candidate or party without regard to the votes won by others. In this case both indicators described above should give a simultaneous signal of irregularity. However, suppose those who commit fraud are more

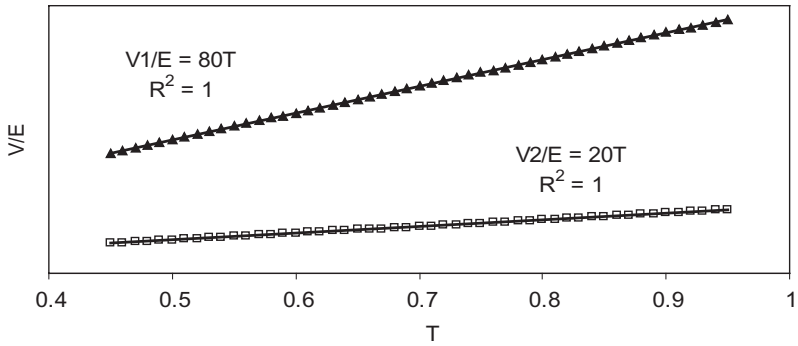


FIGURE 2.5a. *T* versus *V/E*, Artificial Data Absent Fraud

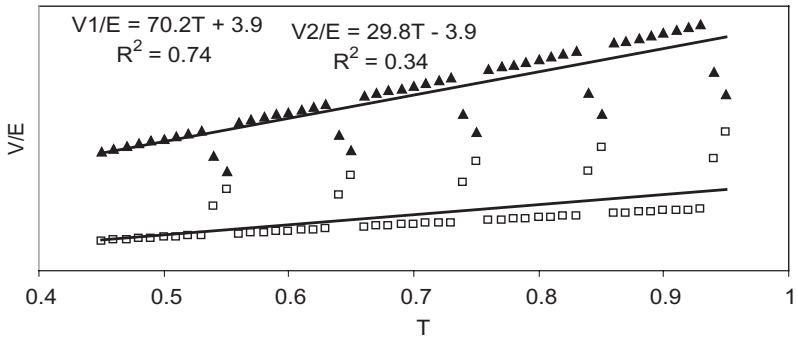


FIGURE 2.5b. *T* versus *V/E*, Artificial Data with Stolen Votes

careful in what they do so as to avoid any telltale upsurge in turnout among some subset of districts or precincts. Instead, suppose they simply steal votes from one candidate or party and award them to someone else. In this case the distribution of turnout will look utterly normal and occasion no suspicions. But consider what happens to our first indicator. Figure 2.5a offers some artificial data that is assumed to be wholly regular, with one candidate dominating the second (more regular, of course, than we can expect any real data to be). Candidate 1 here gets 80 percent of the eligible electorate in each of fifty districts while candidate 2 gets 20 percent. Now, however, suppose that in every ninth district, 30 percent of candidate 1's votes are transferred to 2 and in every tenth district, 20 percent of 1's votes are given to 2. The resulting graph of *V/E* versus *T* is shown in Figure 2.5b.

Aside from the fact that the coefficient on $T$ for candidate 1 decreases and for candidate 2 increases, the impact of fraud in this form is evident: the impacted observations for candidate 1 appear be falling like snowflakes while those for candidate 2 move in the opposite direction (an opposite pattern of snowflakes falling down for the weakest candidate and falling up for the strongest occurs if votes are instead transferred from candidate 2 to 1).[3] Admittedly, when examining real data with all of its usual attendant statistical noise, it may be difficult to detect a pattern such as the one Figure 2.5b portrays. Among other things, the coefficients and variances explained in Figure 2.5b look utterly normal; we know they are not only because we created the data in accordance with a specific pattern of fraud. More than likely, we will detect such patterns only if we have some a priori suspicions that vote fraud in the form of stolen votes has occurred. In presidential contests, votes might be stolen from a competitive candidate by his or her opponents and given to an uncompetitive one so as to not arouse suspicions, whereas in proportional representation parliamentary elections votes might be taken from a party assured of parliamentary representation and given to an allied party to ensure that it crosses some legal threshold for representation. Inspection of a figure such as Figure 2.5b, then, can be used to confirm such suspicions once we understand the opportunities that exist and motives that operate in a specific contest. Moreover, by seeing what it takes to render the data "regular" we might thereby even form an estimate of the magnitude of any inferred fraud and, as a way of assessing the veracity of our methods, use that estimate to pass judgment on whether falsifications of that magnitude are feasible.

Our example also illustrates the potential importance of on-the-ground observers and poll monitors. Figure 2.5b reveals an aberrant pattern only because not every district (data point) suffers from the same type of fraud. If instead every district had between 20 and 30 percent of candidate 1's vote transferred to 2, the data would again look regular. But suppose observers and poll watchers are assigned randomly to a subset of precincts who, by their mere presence,

[3] For an example of the application of this indicator and the patterns that emerge when districts of different types are combined in the same sample but there is little or no fraud, see Chiang and Ordeshook (2008).

discourage fraud in those precincts. Our observers, of course, see no fraud since it occurs where they are not, but the result is a confirmation of fraud in the unobserved districts that might otherwise go wholly unnoticed. This suggests, then, that our methods can be combined with a careful accounting of which polling stations were monitored and which were not so as to generate an even more powerful data set subject to even closer and more discriminating post-balloting analysis. Indeed, we can even imagine a circumstance in which fraud is suppressed in the unobserved precincts so as to not occasion what would otherwise be discoverable patterns.

## 2.5 THE FLOW OF VOTES

Our third indicator is based on the seemingly uncontroversial supposition that the share of votes a candidate receives from some candidate or party in an earlier election should not exceed 100 percent nor be less than 0 percent. Admittedly, though, estimating vote flows using aggregate data is fraught with difficulties owing to the inherent errors of ecological correlation. Readers who prefer to avoid a technical treatise on how we handle estimation here are advised to skip the next two sections and proceed directly to Chapter 3.[4] Otherwise, suppose we attempt to estimate the flow of votes from one election to another using a simple Goodman OLS regression. That is, letting $X_i$ denote candidate or party $i$'s share of the vote in the election at hand that necessarily comes from the $n$ parties or candidates who competed in some previous election (with $i = 0$ denoting nonvoters) and letting $Y_j$ denote $j$'s vote in that earlier election, then we might try to estimate the following model:

$$X_i = \beta_0 Y_0 + \beta_1 Y_1 + \cdots + \beta_n Y_n$$

where $Y_0 + Y_1 + \cdots + Y_n = 100$. The difficulty with applying this model (aside from the linear dependence of our independent variables) is that the validity of any set of estimates of the $\beta_j$'s depends on the assumption of homogeneous data – on the assumption that the same coefficients apply to all observations. However, this assumption is

[4] A user-friendly version of the proposed methodology can be found on the Web site http://www.dataliteint.com.

violated if, for instance, candidate *i* is attractive to voters who earlier preferred *j* in districts of one type whereas in regions of a different type *i* fares poorly among those who supported *j*. Such a problem is readily envisioned in a national party list proportional representation election, where parties with limited regional appeals compete against those with national support. Equally problematical from our perspective is the fact that fraud itself can render the assumption of homogeneity invalid as when ballot boxes are more likely to be stuffed in some candidate's favor where that candidate is especially strong and well-organized. In this instance, the true coefficient measuring the flow of votes from "nonvoters" to this candidate will, in fact, vary across the data as a function of the candidate's support.

Aggregation error of this sort can yield not only biased coefficients, but coefficients that fall outside of the interval [0, 1] and as such are commonly interpreted as evidence of such error. One response has been to devise methods that force coefficients into the theoretically prescribed interval. This approach may be valid in some applications, but imagine a simple, regular case in which all coefficients are constants across the observations (say precincts) and where there are only two candidates plus nonvoters. In this instance a Goodman regression would reveal the true coefficients. Now suppose that the observed dependent variable is tainted by fraud and that the amount of fraud in each precinct is proportional to the candidate's vote in the previous election (i.e., fraud = $kX_i$). In the Russian case this would correspond, as we argue later, to the reasonable scenario in which there is proportionately greater fraud in the ethnic republics than in, say, a contested oblast such as Samara. This is also likely to have been true in Ukraine's 2004 presidential contest wherein fraud favoring Victor Yanukovich in the second round of balloting was greatest in those regions (e.g., Donetsk and Luhansk) where Yanukovich did especially well in the first round. Finally, suppose that absent any fraud, candidate *i* would have secured 100 percent of his votes from the previous election (i.e., the estimated coefficient at $X_i$ would be 1.0). Under these conditions, an OLS flow of votes analysis would, in effect, add fraud ($kX_i$) to both sides of the true equation so as to yield the observed dependent variable on the left and a coefficient at $X_i$ that exceeds 1 (1 plus the constant) on the right. The intuition is simple: If fraud is proportional to $X_i$, it will all go into the coefficient at $X_i$, in which case if the normal

coefficient at $X_i$ is already high, our vote flow estimate will exceed 1.0. For example, if we take $X_i$ for each observation and multiply it by, say, 1.2 to get $Y_i$ then OLS will yield 1.2 at $X_i$. (Note that if fraud is uncorrelated with any of the variables, its impact will be spread across all independent variables, but can still drive a coefficient above 1.0, although in this case $R^2$ will be lower than if fraud hadn't occurred.)

For the purpose of using a vote flow analysis for detecting fraud, then, we require a method of ecological regression that allows for coefficients outside of the interval [0, 1.0] when fraud occurs. The method we summarize here and apply in later chapters to Russia and Ukraine is based on ideas first offered by Chambers and Steel (2001), who propose using Goodman regression combined with a local smoothing approach for the 2 X 2 case (e.g., two parties or candidates in each election). Unfortunately, what we can show in the more general $l$ X $m$ case is that the use of independent variables as covariates for local smoothing leads to inconsistent estimates. Here we generalize their model to the $l$ X $m$ case and provide a method that fixes the inconsistency problem. Put simply, the extension we offer treats the issue of aggregation error by seeking, in effect, to render the data homogeneous in a statistically justifiable way so that we have greater confidence in supposing that unusual coefficients are not the consequence of such error but, instead, indicate the likelihood of electoral irregularities.

To begin, suppose there are two variables, $X$ and $Y$, which take on only a finite number of values ($l$ for $X$ and $m$ for $Y$). For example, $X$ can be gender ($l = 2$) and $Y$ can be place of residence (e.g., urban or rural, $m = 2$). Suppose individual data are unavailable, but we have data aggregated to some level (county, district, or country). In other words, we observe $x_{ij}$, $0 \leq x_{ij} \leq 1$, which equals the shares of the population of territory $j$ for which $X$ equals $l$ (and analogously for $Y$). Clearly, we must have, for all $j$,

$$\sum_{i=1}^{l} x_{ij} = 1$$
$$\sum_{i=1}^{m} y_{ij} = 1$$

What may interest us now is $\beta_{ikj}$, the share of people with $Y = k$ within district $j$ with $X = I$ (for example, the share of women among a country's rural population). That is, we may observe the percentage urban and percentage female within each district $j$, and wish to estimate the percentage women in rural areas. For each territory $j$ and each value $k$ of variable $Y$ we can write the following equality

$$y_{kj} = \sum_{i=1}^{l} \beta_{ikj} x_{ij} \tag{1}$$

Moreover, by definition we have

$$\sum_{k=1}^{m} \beta_{ikj} = 1$$

for all $i$ and $j$ as well as $0 \leq \beta_{ijk} \leq 1$ for all $i$, $j$, and $k$.

If no further assumptions are made, not much can be said about the coefficients $\beta_{ijk}$. However, if we impose some structure on these coefficients, some statistical methods can be employed for an estimate of their averages. The most obvious choice for such averages is

$$\beta_{ik} = \frac{\sum_{j=1}^{n} \beta_{ikj} x_{ij} p_j}{\sum_{j=1}^{n} x_{ij} p_j}$$

where $n$ is the total number of districts and $p_j$ is the population of district $j$. At this point the simplest (and most restrictive) assumption that would allow us to estimate $\beta_{ik}$ is that of the homogeneity of districts. That is, we can assume

$$\beta_{ijk} = f_{ik} + \varepsilon_{ikj}, E\lfloor \varepsilon_{ikj} : x_{1j}, \ldots, x_{lj} \rfloor = 0$$

In this case expression (1) becomes the standard Goodman regression

$$y_{kj} = \sum_{i=1}^{l} f_{ik} x_{ij} + \varepsilon_{kj}$$

where $\varepsilon_{kj} = \sum_{i=1}^{l} \varepsilon_{ikj} x_{ij}$ and $E\lfloor \varepsilon_{ikj} : x_{1j}, \ldots, x_{lj} \rfloor = 0$. Under the standard assumption of independent and identically distributed observations, this regression equation can be consistently estimated using OLS where $\beta_{ik}$ converges asymptotically to $f_{ik}$ as $n \to \infty$.

In reality, of course, the assumption of homogeneity is not merely restrictive, but knowingly unlikely to be satisfied, which leads to inconsistency of the OLS estimator. So let us consider Chambers and Steele's (2001) approach with $l = m = 2$. Briefly, they propose the following semiparametric specification

$$\beta_{ikj} = f_{ik}(x_{1j}) + \varepsilon_{ikj}, E\lfloor \varepsilon_{ikj} : x_{1j} \rfloor = 0 \tag{2}$$

(for $l = 2$ we have $x_{2j} = 1 - x_{1j}$) where $f_{ik}$ is an unknown but sufficiently smooth function. In this case expression (1) becomes

$$y_{kj} = f_{1k}(x_{1j}) x_{1j} + f_{2k}(x_{1j})(1 - x_{1j}) + \varepsilon_{kj} \tag{3}$$

where $\varepsilon_{kj} = \varepsilon_{1kj} x_{1j} + \varepsilon_{2kj}(1 - x_{1j})$ and $E\lfloor \varepsilon_{kj} : x_{1j} \rfloor = 0$. For estimation of this specification, it was suggested that one use standard kernel techniques (see, for example, Hardle 1990). However, it is straightforward to see that the functions $f_{1k}$ and $f_{2k}$ are unidentified in the preceding expression. To resolve this problem, assume there are some additional observable variables $z_j$ that quantify the heterogeneity in the districts. More precisely, assume that

$$\beta_{ikj} = f_{ik}(z_j) + \varepsilon_{ikj}, E[\varepsilon_{ikj} : x_{1j}, \ldots, x_{lj}, z_j] = 0$$

This expression is, of course, similar to expression (2) from the Chambers-Steele formulation. So using this, we can modify expression (1) to

$$y_{kj} = \sum_{i=1}^{l} f_{ik}(z_j) x_{ij} + \varepsilon_{kj} \tag{4}$$

where $\varepsilon_{kj} = \sum_{i=1}^{l} \varepsilon_{ikj} x_{ij}$ and $E[\varepsilon_{ikj} : x_{1j}, \ldots, x_{lj}, z_j] = 0$. To guarantee identification (see Myagkov, Shakin, and Shulgin 2007), we assume for all $z_j$ ($x_j = (x_{1j}, \ldots, x_{lj})'$) that

$$\det E[x_j x_j' : z_j] \neq 0 \tag{5}$$

Under the assumption now that the triples $(x_j, z_j, y_j)$ are independent and identically distributed across $j$, the specification (4) can be consistently estimated using standard nonparametric techniques. In this volume we employ the following procedure: to estimate the value of $f_{ik}$ at $z$ we use a local linear regression; that is, we select the $p$ nearest neighbors of $z$ in our sample according to the following measure of distance:

$$|x_j - z| = \sqrt{(z_j - z)' \Sigma^{-1} (z_j - z)}$$

where $\Sigma$ is the sample covariance matrix of $z$. Using these $p$ observations, we compute the matrix $X_p(z)$ and $y_p(z)$ and estimates

$$\hat{f}_k(z) = (X_p(z)' X_p(z))^{-1} X_p(z)' y_p(z)$$

where $\hat{f}_k(z) = (\hat{f}_{1k}(z), \ldots, \hat{f}_{lk}(z))'$. Finally, we set

$$\hat{f}_{ik} = \frac{\sum_{j=1}^{n} f_{ik}(z_j) x_{ij} p_j}{\sum_{j=1}^{n} x_{ij} p_j}$$

Since the asymptotic distribution of $f_{ik}$ is unknown, we use the bootstrap approach for inference: Hall confidence intervals are computed by means of the wild bootstrap procedure (see Liu 1988), and the estimates of $f_{ik}$ can be corrected for the finite sample bias using similar bootstrap procedure.

Roughly speaking, the core assumption of using expression (4) in econometric estimation is that all influence of $x$ on $\beta_{ikj}$ operates through $z$. If this assumption is invalid, then the conditional expectation $E[y_{kj} : x_j, z_j]$ is nonlinear in $x$. Thus, a specification test for this model is a test for linearity in $x_j$. In other words,

$$H_0 : E[y_{kj} : x_j, z_j] \text{ is linear in } x_j, \text{ and}$$

$$H_A : E[y_{kj} : x_j, z_j] \text{ is nonlinear in } x_j$$

Suppose then that $m_{kR}((x_1, \ldots, x_l, z_j)$ is a consistent estimator of the regression function $E[y_{kj} : x_j, z_j]$ under $H_o$ but inconsistent under $H_A$ and let $m_{kU}((x_1, \ldots, x_l, z_j)$ be a consistent estimator under both $H_o$ and $H_A$. Then the statistic

$$T_n = \frac{1}{n}\sum_{j=1}^{n} m_{kR}(x_j, z_j) - m_{kU}(x_j, z_j)$$

measures the distance between these two estimators in our sample where under $H_o$ it should be small. To obtain the critical values for this statistic, we consider the following bootstrap procedure: Let $\hat{\varepsilon}_j^*$ be a pseudo-sample of residuals, generated from the residuals of the general model using wild bootstrap, and let $y_j^* = m_{kR}(x_j, z_j) + \hat{\varepsilon}_j^*$. Using a large number of such pseudo-samples $\{(x_j, z_j, y_j^*)\}_{j=1}^n$ we can construct the bootstrapping distribution of $T_n$. $H_o$ is then rejected if the initial values of $T_n$ are greater than the corresponding quantile of the bootstrapping distribution.[5]

## 2.6 EVALUATING OUR ECOLOGICAL METHOD

### Relative Performance

There are other things we can look at when forming a judgment about an election. For example, if a candidate or party competes in two successive elections against essentially the same field of opponents, then a graph of that candidate or party's vote in the first election against the second should yield a distribution in the data that looks much like a cigar. This expectation is based on the assumption that a candidate's relative appeal should not change much from one election to the next. Alternatively, if we consider an election in which there is a runoff contest as in Russia in 1996 or Ukraine in 2004, then a calculation of the minimum number of voters who had to switch their votes from one candidate to the other in order to account for differences between rounds should not strain credulity. In subsequent

[5] Hardle and Mammen (1993) propose similar testing procedures for parametric specifications; in particular the asymptotic distribution of statistic $T_n$ is computed and shown that such a test has power against local alternatives of order $O(n^{-1/2})$. In what follows here we use this test for our semiparametric specification (4) though its theoretical properties are unexplored. The use of the bootstrap approach for computation of critical values is justified by the fact that for the semiparametric model the asymptotic distribution is unknown. In turn the use of wild bootstrap does not work for the parametric case (Hardle and Mammen 1993, Theorem 1).

chapters, then, we elaborate on these two additional forensic views of official election statistics. But now we need to turn our attention to a more careful evaluation of our methodology for assessing the flow of votes by considering several simulations using artificial and real data in order to assess the utility of the methodology we propose. At issue here are three things. First, does our methodology perform satisfactorily when the assumption of homogeneity in the data is not satisfied? Second, does it perform better than alternative aggregate data methodologies? And finally, does it perform satisfactorily when our artificial data are perturbed by specific mechanisms of fraud – either by artificially adding votes to a candidate or subtracting votes from an opponent?

To begin, then, consider an artificial data set with the following characteristics:

$$x,\, u \approx 0.5U[0,1]$$

$$v,\, w \approx 0.1(U[0,1] - 0,5)$$

$$z = 0.5x + 0.5u$$

$$f_1(z) = 0.1 + 0.2(z - 0.25)$$

$$f_2(z) = 0.9 + 0.2(z - 0.25)$$

$$y = (f_1(z) + v)(1 - x) + (f_2(z) + w)x$$

where $U[0,1]$ is the uniform distribution over the interval $[0,1]$ and $x, u, v, w$ are independently distributed. In this setup, $E[f_1(z)] = 0.1$, $E[f_2(z)] = 0.9$. Using these parameters, we generate 1,000 random samples of size 1,000 and consider four alternative estimators:

1. OLS (OLS)
2. The Chambers-Steele estimator (ChS)
3. The semiparametric estimator with $z$ as the additional variable (SP1)
4. The semiparametric estimator with $z^{-1/2}$ as the additional variable (SP2)

For each estimator we compute the average bias for both coefficients, and, letting $p = 30$ for the Chambers-Steele's (ChS) approach

TABLE 2.1. *Average Bias for Different Estimators*

| | Bias($f_1$) | Bias($f_2$) | Std($f_1$) | Std($f_2$) |
|---|---|---|---|---|
| OLS | 0.075 | −0.025 | 0.005 | 0.002 |
| ChS | 0.076 | −0.025 | 0.050 | 0.017 |
| SP1 | 0.009 | −0.003 | 0.007 | 0.003 |
| SP2 | 0.009 | −0.003 | 0.007 | 0.003 |

and both semiparametric estimators, our results are given in Table 2.1.[6]

Unsurprisingly, OLS is highly biased, but so too is ChS. In contrast, both semiparametric estimators yield nearly unbiased estimates and demonstrate the relative insensitivity of performance to the transformation of $z$. Table 2.1 also shows that the variance of results using ChS is considerably greater than any of the other procedures considered here, while the stability of SP1 and SP2 is comparable to OLS.

## An Empirical Illustration

We appreciate of course that the relative performance of SP1 and SP2 may be a function of the underlying structure of our artificial data, but rather than explore alternative specifications endlessly, let us consider some real world data drawn from Russia – the cities of Moscow and Novosibirsk. Specifically, we consider precinct level data drawn from three elections: the 2003 State Duma election, the 2004 presidential election and the 2005 local legislative election. Altogether there are 3,350 precincts in Moscow and 1985 in Novosibirsk. However, owing to redistricting between 2003 and 2005, the only precincts we use are those that can be matched across all three elections (excluding as well precincts that correspond to "special institutions" such as hospitals, military units, jails, etc.). After this pruning, our data set consists of 1,751 precincts for Moscow and 1,173 for Novosibirsk.

[6] We compute bias here as average values of the estimates for the corresponding models minus the true values implied by the simulation model. Since both OLS and Chambers-Steele models are incorrectly specified (the conditional expectation of $y$ on $x$ is nonlinear in $x$ so OLS is biased, and the Chambers-Steele model is not identified), the estimates obtained from these models are potentially biased. The simulations seek to show that these biases can be quite substantial in practice.

The proxy variables for Moscow use data from the 2004 presidential contest (specifically, the vote for Putin, Haritonov, and Glazyev) whereas for Novosibirsk we use the Agrarian party's 2003 vote along with Haritonov's 2004 vote. For both samples we set $p$ (the number of "nearest neighbors") equal to 50, while the number of bootstrap pseudo-samples for the specification test is set at 1,000.

Table 2.2 presents the estimated vote flow coefficients for Moscow along with 99 percent confidence intervals, and without delving at this point into Russian political realities, we can say that our results correspond perfectly to prior expectations. The two ideologically driven parties – the Communists (CPRF, Communist Party of the Russian Federation) and the pro-Western Yabloko – kept about two-thirds of their 2003 vote. Thus, only about one-third of their prior support stayed home for the off year local vote despite the fact that that turnout in Moscow's local election was significantly lower in 2005 than 2003 (35 percent versus 58 percent). Instead, the decline in participation is most strongly felt among those who supported United Russia, the LDPR, and Rodina. The nationalistic LDPR and progovernment United Russia kept about 40 percent of their vote, but as expected there was no vote flow from them to the liberal pro-reform Yabloko: voters who left the LDPR and United Russia preferred to stay home rather than vote for another party. Also unsurprising is the fact that those who failed to vote in 2003 either stayed home in 2005 (82 percent) or voted for the only party armed with those "administrative resources" that can be applied to mobilizing otherwise habitual nonvoters, Putin's United Russia.

Insofar as the statistical veracity of these numbers is concerned, Table 2.3 shows the bootstrap $p$-values of model specification tests for both Goodman regression and our semiparametric method.[7] As the numbers suggest, Goodman regression's main assumption of constant coefficients can be rejected for every party at the 99 percent level of

[7] The following statistics pertain to Tables 2.3 and 2.5: Row CM $R^2$ offers the $R^2$ for the constrained models (either OLS or semiparametric). Row UM $R^2$ contains $R^2$ for the alternative unconstrained models, which are an arbitrary nonlinear function of $x$ and an arbitrary nonlinear function of $x$ and $z$ for OLS and semiparametric models, respectively. Finally, row HM contains p-values for the Hardle-Mammen test. The lower (upper) 95 percent intervals for diagnostic statistics for a particular coefficient are built using the bootstrap. Diagnostic statistics are the same as Hardle-Mammen. In other words, it is a p-value for the HM test for model specification: if it is large we cannot reject the hypothesis as to the semiparametric nature of the model.

TABLE 2.2. *Flow of Votes, 2003–2005, Moscow*

| | | 2005 Moscow City Council Vote | | | | | |
|---|---|---|---|---|---|---|---|
| | | **United Russia** | **CPRF** | **LDPR** | **Yabloko** | **Other** | **Nonvoters** |
| 2003 Duma Vote | United Russia | **0.42** | −0.04 | 0.01 | −0.03 | 0.01 | **0.64** |
| | | 0.35, 0.49 | −0.06, −0.02 | −0.02, 0.01 | −0.05, −0.02 | −0.01, 0.03 | 0.56, 0.73 |
| | CPRF | −0.08 | **0.65** | −0.02 | −0.00 | 0.12 | **0.32** |
| | | −0.35, 0.24 | 0.59, 0.73 | −0.07, 0.03 | −0.06, 0.07 | 0.03, 0.19 | 0.00, 0.63 |
| | LDPR | −0.06 | −0.02 | **0.44** | −0.08 | 0.10 | **0.62** |
| | | −0.33, 0.23 | −0.09, 0.05 | 0.38, 0.51 | −0.14, −0.02 | 0.03, 0.18 | 0.31, 0.93 |
| | Rodina | 0.08 | **0.25** | 0.01 | −0.04 | 0.05 | **0.66** |
| | | −0.07, 0.24 | 0.21, 0.29 | −0.02, 0.03 | −0.07, −0.00 | 0.01, 0.09 | 0.47, 0.84 |
| | Yabloko | 0.01 | 0.03 | −0.04 | **0.61** | 0.02 | **0.37** |
| | | −0.18, 0.20 | −0.01, 0.07 | −0.07, −0.00 | 0.57, 0.65 | −0.03, 0.06 | 0.17, 0.55 |
| | SPS | 0.15 | 0.05 | 0.04 | **0.27** | **0.14** | **0.36** |
| | | −0.06, 0.37 | 0.01, 0.10 | −0.00, 0.07 | 0.22, 0.31 | 0.09, 0.19 | 0.13, 0.61 |
| | Other | 0.06 | 0.06 | 0.08 | −0.02 | **0.17** | **0.65** |
| | | −0.09, 0.23 | 0.02, 0.11 | 0.05, 0.12 | −0.06, 0.03 | 0.11, 0.21 | 0.45, 0.84 |
| | Nonvoters | 0.15 | 0.01 | 0.01 | 0.01 | −0.00 | **0.82** |
| | | 0.12, 0.18 | 0.00, 0.02 | 0.01, 0.02 | 0.00, 0.02 | −0.01, 0.01 | 0.79, 0.86 |

TABLE 2.3. *Diagnostic Statistics, Moscow*

| | | 2005 Parties | | | | | |
|---|---|---|---|---|---|---|---|
| | | United Russia | CPRF | LDPR | Yabloko | Other | Nonvoters |
| OLS | CM $R^2$ | 0.24 | 0.71 | 0.50 | 0.84 | 0.19 | 0.24 |
| | UM $R^2$ | 0.39 | 0.81 | 0.65 | 0.89 | 0.37 | 0.42 |
| | HM | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Semiparametric | CM $R^2$ | 0.49 | 0.82 | 0.69 | 0.89 | 0.40 | 0.53 |
| | UM $R^2$ | 0.53 | 0.84 | 0.70 | 0.90 | 0.45 | 0.56 |
| | HM | 0.13 | 0.02 | 0.30 | 0.17 | 0.29 | 0.12 |

significance whereas the semiparametric model cannot be rejected at even the 90 percent level for all parties except the CPRF.

Turning to our second sample, from Novosibirsk, our results closely match what we find in Moscow (see Table 2.4). However, there are differences occasioned by the fact that in a region geographically removed from the Kremlin, authorities doubtlessly have a more flexible hand in directing and influencing outcomes. Again, nonvoters in 2003 largely remain so in the off year 2005 Regional Council vote. But unlike Moscow where two-thirds of the 2003 supporters of United Russia and the LDPR stayed home, it is instead the supporters of the CPRF and the liberal Socialist Part of Siberia (SPS) who do so in Novosibirsk. And while approximately two-thirds of the supporters of the CPRF and Yabloko remained loyal in Moscow, communist and liberal voters in Novosibirsk exhibit far greater volatility. Instead, it appears that regional bosses were more successful at maintaining the same share of support for United Russia and the LDPR from their initial 2003 support base as occurred in Moscow (approximately 40 percent), and, in accordance with the hypothesis that those bosses would have an incentive to curry favor with the Kremlin by fair means or foul, succeeded as well in adding votes to United Russia from those who cast their ballots in 2003 for other parties. Finally, as the summary diagnostic statistics in Table 2.5 show, our nonparametric method clearly outperforms OLS.

## 2.7 SIMULATING FRAUD

### Simulation Setup

Perhaps the surest way to evaluate our indicators of election fraud is to apply those indicators to artificial data that is perturbed with specific forms of falsifications such as moving votes from one party to another or simply adding votes to one party. So consider the following setup: Suppose there are two competing parties (plus nonvoters) where $x_i$ $(i = 1, 2)$ denotes the vote share to parties in the first election and $y_i$ $(i = 1, 2)$ denotes their share in the second. Thus, $x_3 = 1 - x_1 - x_2$ and $y_3 = 1 - y_1 - y_2$ is the share of nonvoters in the corresponding elections. Election results are then simulated thus: Let

TABLE 2.4. *Flow of Votes, 2003–2005, Novosibirsk*

| | | 2005 Novosibirsk City Council Vote | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **United Russia** | **CPRF** | **LDPR** | **Rodina** | **SPS** | **Agrarian** | **Other** | **Nonvoters** |
| 2003 | United | **0.43** | −0.02 | 0.05 | 0.05 | 0.01 | 0.18 | 0.05 | **0.26** |
| Duma | Russia | 0.31, 0.53 | −0.06, 0.02 | 0.02, 0.09 | 0.01, 0.08 | 0.00, 0.02 | 0.12, 0.25 | 0.01, 0.08 | 0.09, 0.43 |
| Vote | CPRF | −0.04 | **0.41** | −0.05 | −0.05 | −0.02 | 0.06 | −0.04 | **0.72** |
| | | −0.21, 0.15 | 0.34, 0.51 | −0.11, 0.01 | −0.10, 0.01 | −0.03, 0.00 | −0.02, 0.14 | −0.11, 0.03 | 0.46, 0.96 |
| | LDPR | 0.07 | 0.00 | **0.41** | 0.04 | −0.01 | 0.12 | 0.14 | **0.22** |
| | | −0.15, 0.32 | −0.08, 0.09 | 0.32, 0.49 | −0.03, 0.11 | −0.03, 0.01 | 0.02, 0.23 | 0.06, 0.23 | −0.12, 0.56 |
| | Rodina | −0.11 | **0.20** | −0.01 | 0.10 | 0.02 | −0.00 | 0.10 | **0.69** |
| | | −0.42, 0.17 | 0.08, 0.33 | −0.10, 0.08 | 0.01, 0.20 | −0.01, 0.05 | −0.14, 0.15 | −0.03, 0.21 | 0.27, 1.20 |
| | Yabloko | 0.24 | 0.27 | −0.10 | 0.28 | 0.13 | −0.24 | 0.11 | **0.31** |
| | | −0.27, 0.79 | 0.00, 0.51 | −0.22, 0.04 | 0.15, 0.42 | 0.08, 0.18 | −0.42, −0.05 | −0.04, 0.28 | −0.37, 0.98 |
| | SPS | 0.11 | 0.13 | −0.04 | −0.08 | 0.14 | 0.06 | −0.18 | **1.08** |
| | | −0.56, 0.32 | −0.12, 0.34 | −0.16, 0.10 | −0.21, 0.05 | 0.09, 0.18 | −0.11, 0.22 | −0.34, −0.02 | 0.46, 1.72 |
| | Other | **0.41** | 0.08 | 0.08 | 0.05 | 0.02 | 0.06 | 0.15 | **0.17** |
| | | 0.25, 0.58 | 0.00, 0.15 | 0.03, 0.13 | −0.00, 0.09 | 0.00, 0.04 | −0.03, 0.14 | 0.08, 0.20 | −0.07, 0.40 |
| | Nonvoters | 0.01 | 0.02 | −0.00 | 0.01 | 0.00 | 0.01 | −0.00 | **0.96** |
| | | −0.02, 0.05 | 0.00, 0.04 | −0.01, 0.01 | −0.00, 0.02 | −0.00, 0.00 | −0.01, 0.03 | −0.02, 0.01 | 0.90, 1.02 |

TABLE 2.5. *Diagnostic Statistics, Novosibirsk*

| | | 2005 Parties | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | United Russia | CPRF | LDPR | SPS | Rodina | Agrarian | Other | Nonvoters |
| OLS | CM $R^2$ | 0.23 | 0.23 | 0.51 | 0.37 | 0.05 | 0.56 | 0.73 | 0.06 |
| | UM $R^2$ | 0.44 | 0.44 | 0.61 | 0.51 | 0.27 | 0.67 | 0.80 | 0.28 |
| | HM | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Semiparametric | CM $R^2$ | 0.49 | 0.45 | 0.64 | 0.53 | 0.28 | 0.71 | 0.80 | 0.29 |
| | UM $R^2$ | 0.53 | 0.52 | 0.67 | 0.59 | 0.34 | 0.75 | 0.82 | 0.41 |
| | HM | 0.17 | 0.40 | 0.23 | 0.21 | 0.32 | 0.19 | 0.22 | 0.05 |

$x_{01} = 0.2 + 0.4e_{01}$, $x_{02} = 0.2 + 0.4e_{02}$, $x_{03} = 0.1 + 0.2e_{03}$, $x_{04} = 0.1 + 0.2e_{04}$, and

$$x_1 = 0.5x_{01} + 0.5(1 - x_{02} - x_{04})$$

$$x_2 = 0.5x_{02} + 0.5(1 - x_{01} - x_{03})$$

where $e_{01}$, $e_{02}$, $e_{03}$, and $e_{04}$ are independent random variables distributed uniformly on [0,1]. Notice that such a construction makes $x_1$ and $x_2$ negatively correlated and keeps all values within [0, 1].

We now use the generated data to create data for the subsequent "election" as follows. Letting the true vote flow coefficients in precinct or district $k$ be given by

$$f_{ijk} = c_{ij} + 0.1(u_{ijk} - 0.5)$$

where $i, j = 1, 2, 3$ and $u_{ijk}$ are independent random variables distributed uniformly on [0,1], we set $c_{ii} = 0.8$ ($i = 1, 2, 3$) and $c_{ij} = 0.1$ for $i$ not equal to $j$. The true results of the second election in district $k$ then become

$$y_{ik} = f_{ill}x_1 + f_{i2k}x_2 + f_{i3k}x_3 \text{ for } i = 1, 2, 3$$

while the average or expectation across all districts is

$$y_i = c_{il}x_1 + c_{i2}x_2 + c_{i3}x_3 \text{ for } i = 1, 2, 3$$

We also set a proxy variable $z$ to be used with our vote flow analysis that is correlated with $x_1$, namely, $z = 0.75x_1 + 0.25v$, where $v$ is independent of all previous random variables and distributed uniformly on [0, 1]. Finally, to model fraud, we consider three possibilities:

*Case 1. Subtract votes from the second candidate in favor of the first.* The amount subtracted from $y_2$ and added to $y_1$ is set equal to $0.15z + 0.1w$ if $z > 0.5$ and 0, otherwise, where $w$ is uniformly distributed on [0,1] and independent of other variables.

*Case 2. Add votes to the first candidate leaving the votes of the second unchanged.* The amount added to $y_1$ and subtracted from

$y_3$ (nonvoters; thus, our simulations preclude the more egregious form of fraud as occurred in some Eastern districts of Ukraine in 2004 in which turnout exceeds 100 percent) is equal to $0.1z + 0.05w$ if $z > 0.5$ and 0, otherwise, where $w$ is uniformly distributed on [0,1] and independent of other variables.

*Case 3. Subtract votes from the second candidate, leaving the votes of the first unchanged.* The amount subtracted from $y_2$ and added to $y_3$ is equal to $0.15z + 0.1w$ if $z > 0.5$ and 0, otherwise, where $w$ is uniformly distributed on [0,1] and independent of other variables.

The idea behind each or these scenarios is that, as seems to be the case in both Ukraine (specifically Eastern Ukraine with respect to the fraud that favored Yanukovich in 2004) and Russia (the fraud favoring Putin in the ethnic republics), falsifications favoring the first candidate (or disadvantaging the second) occur only if the first is strong in the district or precinct under consideration (since $z$ is positively correlated with $x_1$). Moreover, in accordance with the idea that suspicious or blatantly illegal efforts on behalf of a candidate are likely to be more effective in his or her regions of core support, the magnitude of fraud in our simulations increases with $x_1$. Finally, the results we report here are based on 1,000 simulated "elections" with 1,000 districts.

## Simulation Results

*Case 1*: We can begin with Figure 2.6, which gives the distribution of turnout in our simulations for the first election (distribution $x$) and for the second, falsified election. Of course, since in Case 1 we leave turnout unaffected, both the true and falsified turnout data are, as the figure shows, the same.

Turning then to the relationship between turnout and each candidate's share of the eligible electorate as well as the flow of votes, consider Table 2.6. What we see here, of course, is a nearly perfect semiparametric estimation of actual vote flows and the anticipated poor performance of OLS. For example, in our simulated data, candidate 1 gains on average 12.6 percent of 2's initial vote – the additional 2.6 percent corresponding to fraud – while our semiparametric method estimates 12.5 percent and OLS estimates but 0.3 percent. Of course, we need to keep in mind that our analysis here proceeds with precisely

TABLE 2.6. *Case 1 Fraud (Votes Transferred from 2 to 1)*

| | | | |
|---|---|---|---|
| | *Flow of Votes, No Falsifications* | | |
| | $x_1$ | $x_2$ | $x_3$ |
| $y_1$ | 0.800 | 0.100 | 0.100 |
| $y_2$ | 0.100 | 0.800 | 0.100 |
| $y_3$ | 0.100 | 0.100 | 0.800 |
| | *Actual Flow of Votes with Falsifications* | | |
| $Y_1$ | 0.837 | 0.126 | 0.130 |
| $Y_2$ | 0.063 | 0.774 | 0.070 |
| $Y_3$ | 0.100 | 0.100 | 0.800 |
| | *Semiparametric Estimated Flow of Votes* | | |
| $Y_1$ | 0.838 | 0.125 | 0.128 |
| $Y_2$ | 0.062 | 0.775 | 0.0718 |
| $Y_3$ | 0.100 | 0.100 | 0.7997 |
| | *OLS Estimated Flow of Votes* | | |
| $Y_1$ | 1.023 | 0.003 | 0.0035 |
| $Y_2$ | −0.123 | 0.897 | 0.1961 |
| $Y_3$ | 0.100 | 0.100 | 0.7996 |

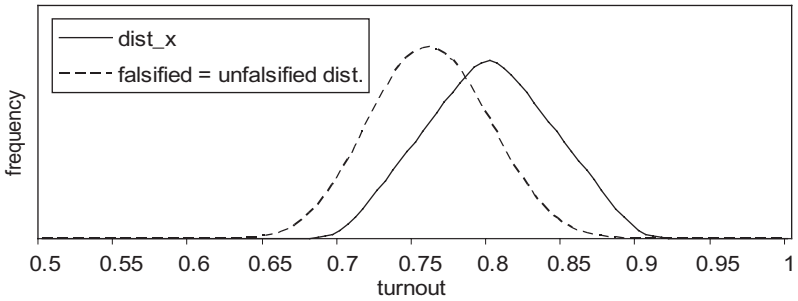


FIGURE 2.6. Case 1 Simulation, Distributions of Turnout

the correct proxy variable, and actual results in practice – since proxy variables can only be guessed at – are likely to fall somewhere between these two extremes.

Finally, to round out the assessment of our indicators, consider Table 2.7, which summarizes our results about the relationship between turnout and each candidate's share of the eligible electorate. Notice that for the unfalsified data, the intercept term is nearly 0 as required while the coefficient on $T$ nearly identically matches each

TABLE 2.7. *Case 1, Relationship between T and V/E*

| | Actual Vote Share | *T* versus *V/E* Constant | Coefficient on *T* |
|---|---|---|---|
| | *Unfalsified Data* | | |
| $y_1$ | 0.4999 | −0.0013 | 0.5015 |
| $y_2$ | 0.5001 | 0.0013 | 0.4985 |
| | *Falsified Data* | | |
| $y_1$ | 0.5407 | −0.0662 | 0.6277 |
| $y_2$ | 0.4593 | 0.0662 | 0.3723 |

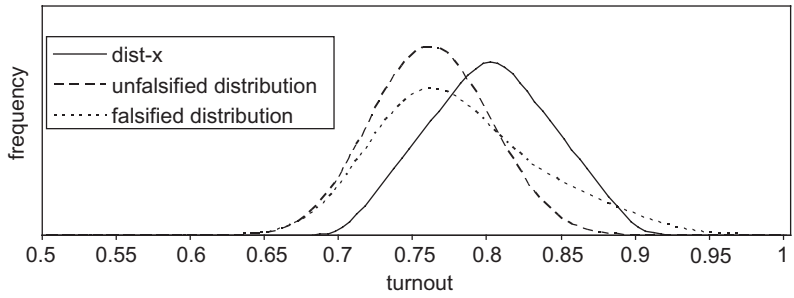


FIGURE 2.7. Case 2 Simulation, Distributions of Turnout

candidate's actual share of the vote. For the falsified data, on the other hand, the constant term begins to diverge from 0 and, as we argue earlier when fraud occurs, we see an overestimate in the relationship between *T* and *V/E* for the candidate benefiting from fraud.

*Case 2*: Turning now to the scenario in which votes are subtracted from the ranks of nonvoters and added to candidate 1, Figure 2.7 gives the three relevant distributions of turnout, Table 2.8 summarizes our vote flow analysis, and Table 2.9 summarizes the relationship between turnout, *T*, and a candidate's share of the absolute vote, *V/E*. Notice first the deviation in Figure 2.7 of the falsified distribution from normality; specifically, its elongated right tail. Next, with respect to the data in Table 2.8, notice the remarkably accurate semiparametric estimates of the vote flow coefficients. Indeed, one has to move typically to the second or third decimal point to see a difference between estimated and actual coefficients. OLS, in contrast, while not performing especially poorly, nevertheless yields, as expected, inferior

TABLE 2.8. *Case 2 Fraud (Votes Transferred from Nonvoters to 1)*

| | | | |
|---|---|---|---|
| | *Flow of Votes, No Falsifications* | | |
| | $x_1$ | $x_2$ | $x_3$ |
| $y_1$ | 0.800 | 0.100 | 0.100 |
| $y_2$ | 0.100 | 0.800 | 0.100 |
| $y_3$ | 0.100 | 0.100 | 0.800 |
| | *Actual Flow of Votes with Falsifications* | | |
| $y_1$ | 0.823 | 0.116 | 0.118 |
| $y_2$ | 0.100 | 0.8 | 0.1 |
| $y_3$ | 0.078 | 0.084 | 0.782 |
| | *Semiparametric Estimated Flow of Votes* | | |
| $y_1$ | 0.823 | 0.115 | 0.117 |
| $y_2$ | 0.100 | 0.7996 | 0.101 |
| $y_3$ | 0.077 | 0.084 | 0.783 |
| | *OLS Estimated Flow of Votes* | | |
| $y_1$ | 0.935 | 0.041 | 0.042 |
| $y_2$ | 0.100 | 0.7997 | 0.101 |
| $y_3$ | −0.035 | 0.159 | 0.858 |

TABLE 2.9. *Case 2, Relationship between T and V/E*

| | **Actual Vote Share** | ***T* versus *V/E* Constant** | **Coefficient on *T*** |
|---|---|---|---|
| | *Unfalsified Data* | | |
| $y_1$ | 0.4999 | −0.0008 | 0.5001 |
| $y_2$ | 0.5001 | 0.0008 | 0.4999 |
| | *Falsified Data* | | |
| $y_1$ | 0.5120 | −0.4303 | 1.0645 |
| $y_2$ | 0.4880 | 0.4303 | −0.0645 |

estimates. Finally, looking at Table 2.9 and the relationship between *T* and *V/E*, we find a stark example of how that relationship can signal fraud of the sort considered here. Although candidate 1 wins only 51.2 percent of the vote, the coefficient on *T* there exceeds 1.0, with a significantly negative intercept.

*Case 3:* Our third case assumes the votes are fraudulently subtracted from candidate 2 and go uncounted – thus, in effect transferring them to the ranks of nonvoters. Unsurprisingly, then, Figure 2.8 shows the

TABLE 2.10. *Case 3 Fraud (Votes Transferred from 2 to Nonvoters)*

| | | | |
|---|---|---|---|
| | *Flow of Votes, No Falsifications* | | |
| | $x_1$ | $x_2$ | $x_3$ |
| $y_1$ | 0.800 | 0.100 | 0.100 |
| $y_2$ | 0.100 | 0.800 | 0.100 |
| $y_3$ | 0.100 | 0.100 | 0.800 |
| | *Actual Flow of Votes with Falsifications* | | |
| $y_1$ | 0.800 | 0.100 | 0.1 |
| $y_2$ | 0.063 | 0.774 | 0.070 |
| $y_3$ | 0.137 | 0.126 | 0.830 |
| | *Semiparametric Estimated Flow of Votes* | | |
| $y_1$ | 0.800 | 0.100 | 0.0997 |
| $y_2$ | 0.062 | 0.775 | 0.071 |
| $y_3$ | 0.138 | 0.125 | 0.829 |
| | *OLS Estimated Flow of Votes* | | |
| $y_1$ | 0.800 | 0.1 | 0.0997 |
| $y_2$ | −0.123 | 0.898 | 0.195 |
| $y_3$ | 0.324 | 0.002 | 0.704 |

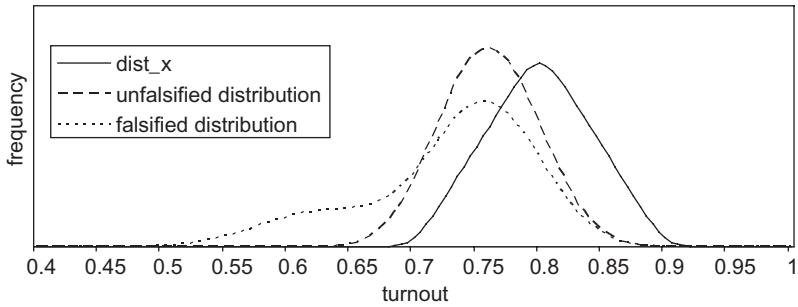


FIGURE 2.8. Case 3 Simulation, Distributions of Turnout

elongated left tail of the falsified turnout distribution. Table 2.10, in turn, parallels Table 2.8 in its implications; namely, the evident accuracy and superiority of our semiparametric method and the distortions occasioned by OLS. Finally, Table 2.11, which parallels Table 2.9 in construction, once again illustrates the value of looking at the relationship between $T$ and $V/E$ when there is a suspicion of fraud. Specifically, now it is the candidate who is the victim of fraud whose coefficient for $T$ exceeds 1.0 (owing largely to the increased

TABLE 2.11. *Case 3, Relationship between T and V/E*

| | Actual Vote Share | *T* versus *V/E* Constant | Coefficient on *T* |
|---|---|---|---|
| | *Unfalsified Data* | | |
| $y_1$ | 0.4999 | 0.0002 | 0.4999 |
| $y_2$ | 0.5001 | −0.0002 | 0.5001 |
| | *Falsified Data* | | |
| $y_1$ | 0.5213 | 0.5385 | −0.2176 |
| $y_2$ | 0.4787 | −0.5385 | 1.2176 |

amount of data at lower turnout rates that pull a regression line down so as to occasion a significantly negative intercept). In contrast, the data for candidate 1, despite having won the election, now yields a negative coefficient for *T*. Thus, while our vote flow estimates might not occasion suspicions, the distribution of turnout in conjunction with the estimated relationships between *T* and *V/E* signal that something is amiss.

*Case 4*: The preceding observation – that even a falsified vote can yield vote flow estimates that look reasonable – serves to emphasize that more than one forensic indicator ought to be examined when analyzing any election or electoral system. Nevertheless, not only did we introduce vote flows as a forensic indicator in the context of testing whether estimated flows in a specific election made sense in terms of our substantive understanding of a situation, but we also noted that estimates in excess of 1.0 or less than 0 also signaled fraud. Thus, the question is whether fraud can yield such estimates. To that end, consider the following modifications of our examples of fraud: Let $c_{11} = 0.9$ instead of 0.8, and $c_{12} = c_{13} = 0.05$ instead of 0.1. That is, suppose candidate 1's "honest" level of support already is high. Next, set the falsification amount *F* equal to $(0.2z + 0.15w)x_1$ (as opposed to $(0.2z + 0.15w)x_1$) where $w$ is as defined previously. This amount is added to $y_1$, while $y_2$ and $y_3$ are replaced with $y_2 - 0.65F$ and $y_3 - 0.35F$, respectively. That is, suppose that votes are "stolen" on candidate 1's behalf from candidate 2 and from the ranks of nonvoters in approximately the ratio of 2 to 1. Table 2.12, now, gives the results of our semiparamteric model as well as the estimates

TABLE 2.12. *Case 4, Fraud*

| | *Flow of Votes, No Falsifications* | | |
|---|---|---|---|
| | $x_1$ | $x_2$ | $x_3$ |
| $y_1$ | 0.900 | 0.050 | 0.050 |
| $y_2$ | 0.100 | 0.800 | 0.100 |
| $y_3$ | 0.100 | 0.100 | 0.800 |
| | *Actual Flow of Votes with Falsifications* | | |
| $y_1$ | 1.063 | 0.050 | 0.050 |
| $y_2$ | −0.006 | 0.800 | 0.100 |
| $y_3$ | 0.043 | 0.100 | 0.800 |
| | *Semiparametric Estimated Flow of Votes* | | |
| $y_1$ | 1.064 | 0.049 | 0.0496 |
| $y_2$ | −0.007 | 0.800 | 0.101 |
| $y_3$ | 0.043 | 0.1003 | 0.8003 |
| | *OLS Estimated Flow of Votes* | | |
| $y_1$ | 1.097 | 0.027 | 0.027 |
| $y_2$ | −0.028 | 0.815 | 0.115 |
| $y_3$ | 0.031 | 0.108 | 0.808 |

provided by OLS. Keeping in mind that these votes are stolen only in those districts in which candidate 1 is strong (for example, $z > 0.5$) – thereby introducing heterogeneity in the flow coefficients – the estimates in Table 2.12 reveals our semiparametric model's accurate signal as to the existence of fraud. And although OLS does the same, it does so with less accurate estimates.

## 2.8 OVERVIEW

That the indicators set forth in this chapter are not the only ones that might be developed warrants emphasis. We can imagine, for instance, refinements of our first two that make greater use of statistics, including formal measures of the extent to which a turnout distribution is normal or Gaussian along with estimates of the relationship between $T$ and $V/E$ that directly incorporate intervening parameters. Naturally enough, if official election returns can be augmented with other (demographic) data, then our indicators can be applied with far greater sophistication than we suggest here. Different electoral

systems, moreover, offer different opportunities for detecting and measuring election irregularities. Herron and Johnson (2003), for example, illustrates the opportunities that exist when parliamentary elections (in this case, Ukraine in 2002) use a split system, where one part of the parliament is elected in single-mandate districts and the other part with party list proportional representation. It is also important that we understand better the various "natural" (e.g., demographic) sources of heterogeneity in the data. Our indicators are designed to detect heterogeneity from a specific source – vote fraud. But the signals they give can be confounded severely if there are other unaccounted for sources. Hence, any application of our indicators needs to be set in the context of a thorough understanding of the data at hand – of what to expect in the event that fraud does not exist. At the same time one also needs to appreciate the limits of what can be inferred from aggregate official election returns since there is, after all, only so much information in that data. There is an advantage, moreover, to keeping it simple. If, as we argue earlier, the impact (if any) of electoral assessments falls primarily on a regime's legitimacy, then the basis for any assertion that falsifications permeated an election needs to be understandable to a wide audience – political elites, government bureaucrats, journalists, and the general public – and not just a coterie of academics who are satisfied with reporting their results in professional journals and quibbling with their colleagues over the arcane details of methodology. This may not be an excuse for not refining our statistical methods, but it is an argument for ensuring that that is not all that we do.

# 3

# Russia

> Never in a single country did the people manifest such activity in elections as did the Soviet people. Never has any capitalist country known nor can it know such a high percentage of those participating in voting as did the USSR.
>
> Andrei Vyshinky (1937)

## 3.1 SUSPICIOUS ANOMALIES OF RUSSIAN ELECTIONS

Before applying our forensic indicators to Russia, beginning with its 1995 parliamentary contest through its 2004 presidential election, as well as its 2007 parliamentary vote, it is useful to first consider some auxiliary indicators that, by themselves, give probable cause for believing that those elections were anything but free and fair. We do not do this merely to cast doubt on the democratic legitimacy of Russia's electoral politics, but because we want to use Russia as a test of our indicators since the measure of our confidence in them will depend on the extent that they agree with all other things we know about Russia's political landscape. We also want to take advantage of the fact that by several independent measures, Russia's status as a transitional democratic state fell markedly during Putin's regime. As Freedom House states the matter, "Russia has been included in the Not Free category since 2004, as a function of the systematic erosion of rights, including the flawed nature of Russia's parliamentary elections in December 2003 and presidential elections in 2004, the further

TABLE 3.1. *Some Peculiar Trends in Russian Elections*

| | 1996–2001 | 1999 | 2000 | 2003 | 2004 | 2007 |
|---|---|---|---|---|---|---|
| **National Turnout** | 71.8% | 64.2% | 71.3% | 60.3% | 69% | 64% |
| **# Rayons with > 90% Turnout** | 37 | 56 | 83 | 84 | 251 | 197 |
| 2-Candidate *Plurality* of 50–70% | 29 | – | 264 | – | 655 | – |
| 70–80% | 2 | – | 61 | – | 81 | – |
| 80–90% | 0 | – | 25 | – | 87 | – |
| 90–100% | 0 | – | 6 | – | 120 | – |

consolidation of state control of the media, and the imposition of official curbs on opposition political parties and groups within that country" (*Russian Analytical Digest*, May 15, 2007). And as Gorbachev himself noted shortly after Russia's 2007 parliamentary vote, "something is wrong with our elections" (*New York Times*, January 29, 2008). An important question for us here, then, is whether our forensic indicators are consistent with such assessments.

We begin with the observation that the Soviet Union illustrated the capacity of an authoritarian regime to produce unusually high turnout in what were officially labeled "elections." Indeed, one has to wonder, in reference to the quotation that introduces this chapter, whether Vyshinsky actually thought there was anyone outside the USSR who regarded a 99 percent turnout rate as anything other than contrived. In true democracies turnout can vary widely across elections and election districts, but a participatory rate as high as 84 percent, as occurred in France in 2007, is deemed a remarkable even historic event. Moreover, although turnout might be high on average in one election and low in another, if overall turnout remains relatively constant, the proportion of precincts, counties, rayons, or whatever reporting unusually high or low participation rates will be relatively constant as well. However, with a governing elite that is apparently not yet disconnected from its Soviet past, this is not the case in Russia. Table 3.1 reports overall turnout and the number of rayons with turnout in excess of 90 percent for each election beginning with 1996, and despite the relative constancy in overall numbers, the peculiar pattern here is the gradual

increase in districts with Soviet-style participation rates up to the 2003 contest and then an explosion of the type with Putin's reelection in 2004 and his party's parliamentary victory in 2007.

Setting aside for the time being a consideration of the 2007 parliamentary vote, one has to wonder which rayons saw their turnout rates decline in 2004 so as to compensate for the sharp rise in the number reporting unusually high turnout. This question is partially answered by Figure 3.1a, which plots turnout in 2004 against turnout in 2000 (and where, for purposes of comparison, we plot in Figure 3.1b turnout in 2000 versus 1999). What we see here is that although turnout increased among all types of rayons, virtually all of those reporting an already extraordinary turnout in excess of, say, 80 percent in 2000 report a further increase in 2004. That is, turnout

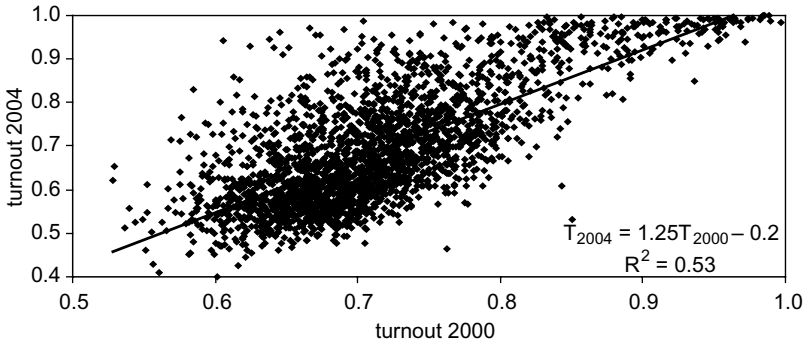


FIGURE 3.1a. Turnout in 2004 versus 2000

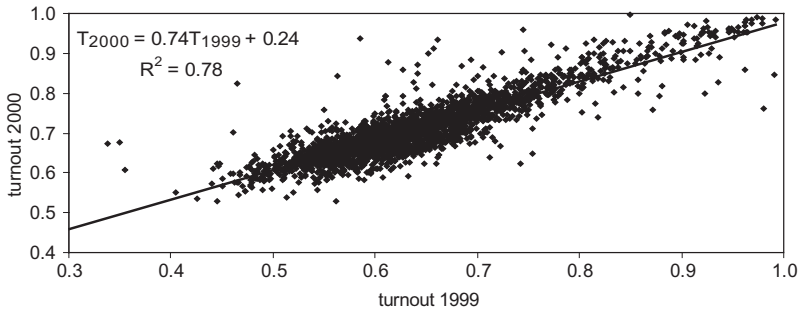


FIGURE 3.1b. Turnout in 2000 versus 1999

jumped markedly in those rayons that already recorded rates of participation significantly above the national average in 2000. This occurred, moreover, despite the fact that the outcome in 2004 was virtually predetermined. On the other hand, among rayons reporting turnout below 80 percent in 2000, the overwhelming majority exhibit a decrease in rates of participation in 2004. Thus, it is almost as if the Russian electorate was bifurcating, with one subset of rayons moving in a direction contrary to the norm of an uncompetitive contest and the remainder moving in the opposite direction. Interestingly, as Figure 3.1b shows, no such trends are apparent in the move from the highly contested parliamentary election of 1999 to the presidential contest of 2000.

Of course, it is premature to say that the pattern in the data portrayed by Figure 3.1a portends anything relevant to fraud although surely any student of Russian politics should seek an explanation for any such curious pattern. But notice also the data Table 3.1 reports with respect to the number of rayons that awarded Yeltsin or Putin a specific plurality. We were impressed, to say the least, to find 120 rayons giving Putin a plurality in excess of 90 percent, which required that Putin's vote exceed 95 percent and his strongest opponent fall below 5 percent. The real "miracle" of Russian participation, then, is not simply the sharp increase in the number of rayons reporting exceptionally high turnout in the face of declining competitiveness, but the fact that anyone chose to vote at all if in fact there were voters associated with officially reported numbers.

It is true that Putin was an unusually popular figure in Russian politics in 2004 – a fact to which we might appeal if seeking a benign explanation for the next to last column of Table 3.1. Russia's economy had been resurrected from the crash of 1998 thanks to it having become Europe's gas station, the separatist revolt in Chechnya had been largely, if brutally, suppressed, and Putin, with Russia given the gift of G-8 membership, took every opportunity to have himself photographed with the leaders of the other great powers, thereby resurrecting Russia's image, at least domestically, as the equal of France or Germany. A damaged Russian psyche was being assuaged moreover by Putin's Cold War rhetoric and his incessant goading of the West, especially its presumed principle adversary, the United States. However, the peculiarities of Russia's electoral politics hardly

TABLE 3.2. *Rayons with the Greatest Shift in Vote between Rounds, 1996*

| | First Round | Second Round | Increase in # of Votes | Minimum # Vote Switches | Region |
|---|---|---|---|---|---|
| Yeltsin | 2,064 | 8,512 | 1,037 | 5,411 (73%) | Tatarstan |
| Zyuganov | 7,461 | 2,050 | | | |
| Yeltsin | 7,436 | 21,777 | 4,928 | 9,413 (87%) | Tatarstan |
| Zyuganov | 10,841 | 1,428 | | | |
| Yeltsin | 5,342 | 23,350 | 5,225 | 12,783 (51%) | Dagestan |
| Zyuganov | 25,067 | 12,284 | | | |
| Yeltsin | 2,792 | 10,287 | 1,401 | 6,094 (58%) | Tatarstan |
| Zyuganov | 10,546 | 4,452 | | | |
| Yeltsin | 1,237 | 11,237 | 1,803 | 8,197 (46%) | Dagestan |
| Zyuganov | 1,7976 | 9,779 | | | |
| Yeltsin | 8,827 | 22,550 | 2,171 | 11,552 (64%) | Tatarstan |
| Zyuganov | 18,039 | 6,487 | | | |

end with Table 3.1. Looking at an election that took place even before Putin's "managed democracy" appeared on the scene, consider the movement of votes between rounds in Russia's 1996 presidential contest wherein Boris Yeltsin was forced into a runoff against his communist challenger, Gennady Zyuganov. Briefly, a shift in plurality from Yeltsin to Zyuganov occurred in 756 rayons, but twice that number exhibited shifts favoring Yeltsin. However, it is not this distribution's skewness that attracts our attention – after all, once it became evident that Yeltsin could win the presidency despite his single-digit approval rating in the polls, it is only reasonable that a significant share of the electorate would switch to him. However, it is the magnitude of some of these shifts that strains credulity and the fact that the most incredible ones are concentrated in three regions not known for the transparency of their "democratic" processes – Tatarstan, Bashkortostan, and Dagestan.[1] As Table 3.2 shows for the six rayons reporting the greatest shifts in official data, it is almost as if the

[1] To dissuade the reader unfamiliar with Russian demography who might think these three ethnic republics small relative to the rest of the country in terms of population and that the fraud within them cannot impact outcomes, we note that on a comparative basis (share of the population relative to national population), Dagestan is equivalent to Minnesota, Tatarstan to Virginia, and Bashkortostan to New Jersey.

candidates' names had been transposed between rounds. In the first rayon listed, Yeltsin initially won 2,064 votes as against Zyuganov's 7,461, whereas in the second round, with but 1,037 additional voters, Yeltsin's vote increased to 8,512 while Zyuganov's dropped to 2,050. Even if we suppose that Yeltsin won every vote in round 2 that was initially given to eliminated opponents, we must still conclude that 5,411 of Zyuganov's first round supporters (8,512 – 2,064 – 1,037 = 5,411) – or 73 percent of his support as shown in parentheses – switched to Yeltsin in the second round. Equivalent shifts are required to account for the reversals of fortune in the remaining rayons in Table 3.2. Indeed, as if not to be outdone, fully 87 percent of those voting for Zyuganov in the first round would have had to have shifted to Yeltsin within the second rayon listed in this table.

There are four possible explanations for such shifts: (1) voters who "saw the light" between rounds on the basis of features of the campaign that escaped the notice of all observers; (2) a violation of independence from irrelevant alternatives (i.e., if choices include candidate A, voters chose C, but if A is eliminated, they choose D); (3) an electorate that acts as if it were a docile puppy by voting as directed by regional bosses who shifted their loyalties between rounds when it became apparent that Yeltsin would be the eventual winner; or (4) massive falsifications or manipulations. Explanation #1 is patently silly, explanation #2 is feasible in some instances but not on the scale reported in Table 3.2, #3 may explain a part of the shift (just as it is an unwise career strategy for a regional boss to back a loser, it can be equally disadvantageous for voters to reside in a region that does the same); and #4 seems eminently reasonable. For either case 3 or 4, however, it is evident that elections in Tatarstan and Dagestan are unlike elections in established Western democracies.

Of course, 1996 might seem like ancient history – a bygone era wherein Russians and the West alike imagined Russia emerging as something other than a KGB designed and managed state. So for a more contemporary anomaly, let us turn temporarily to some data from the United States and the relationship between a party's presidential vote in one election versus its vote in the next. As Figure 3.2a shows for the United States as a whole, there is, naturally enough, a close relationship: counties that supported one candidate are likely to support that same candidate or that candidate's party with nearly equal strength in the next comparable election.

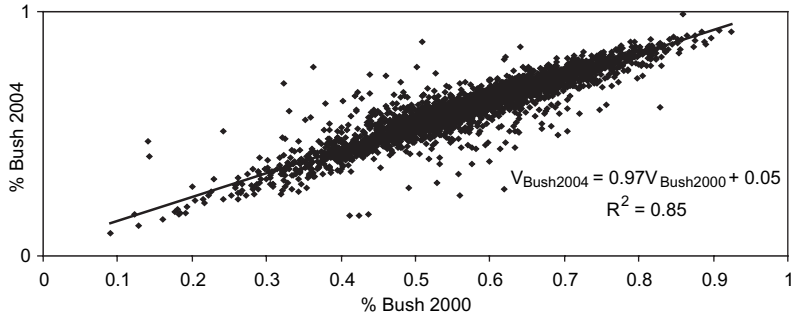


FIGURE 3.2a. All U.S. Counties, Bush 2004 versus 2000

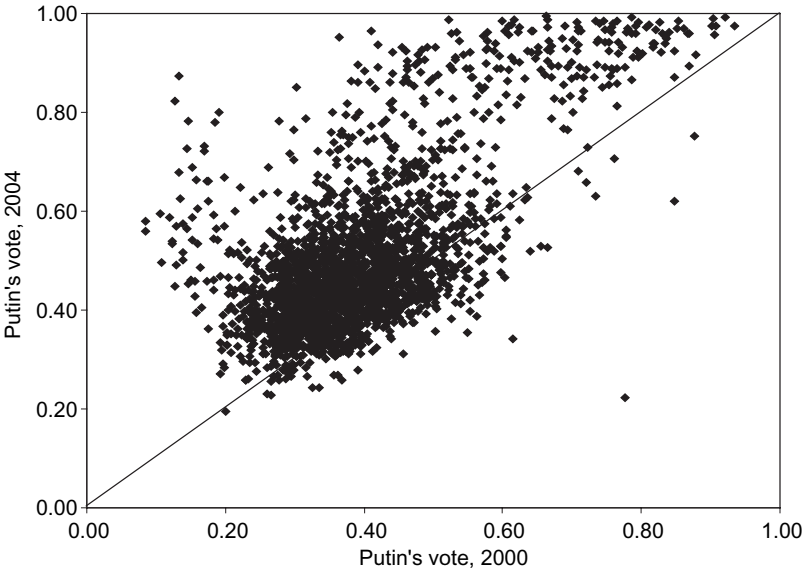


FIGURE 3.2b. Putin's Vote Compared

This figure tells us something we already know about elections in established democracies; namely, they are won or lost at the margin. The difference between victory and defeat in presidential contests is the shifting of a few percentage points here and there, a handful of voters in each of America's nearly 200,000 precincts. Now, for contrast, consider Figure 3.2b, which, for each rayon, plots Putin's vote in 2004 against his vote in 2000. This chart stands in sharp contrast to

Figure 3.2a. Although the data in Figure 3.2b matches expectations for a share of rayons, notice that there is essentially no relationship between Putin's vote in 2004 and 2000 if his vote exceeded 80 percent in 2004. That is, knowing that Putin received 85 percent versus 95 percent of the vote in 2004 in a rayon tells us only that he got more than 40 percent in 2000. At the same time, if told that Putin did poorly in a rayon in 2000 (less than 20 percent), we cannot predict anything about his performance in 2004. We appreciate Putin's increased popularity, but one has to wonder why that increase was not spread uniformly across the electorate so as to yield data that lies uniformly above, say, the 60 percent line. And we appreciate as well the fact that the absence of meaningful parties diminishes an electorate's stability. But it is almost as if the 2000 and 2004 elections among a significant number or rayons took place in different countries.

Of course, to counter any sinister hypothesis about the 2004 election, a Putin apologist might argue that Russia is too early in its democratic transition for the emergence of stable voting patterns. And with weak parties it is thus dependent on personalities and personal appeal, which can swing voters wildly in one direction or another. This argument, though, does not wash. To see how dissimilar the data in Figure 3.2b are from Russia's prior electoral experiences, consider Figures 3.3a–3.3f. Figure 3.3a graphs the Communist Party's vote in 1999 against its vote in 1995; Figure 3.3b graphs that party's vote in 2003 against 1999; Figure 3.3c graphs Zyuganov's vote in the first round of 1996 against his vote in 2000; and Figure 3.3d graphs the Communist Party candidate's vote, Haritonov, in 2004 against Zyuganov's in 2000. Although the scatter in all four figures is considerably greater than what we see in Figures 3.1a and 3.1b (which, of course, is to be expected since our data in Figures 3.3a–3.3d include all rayons in Russia as opposed to the rayons in a specific oblast or republic), Figure 3.2b remains a stark and suspicious contrast. Indeed, even if we graph the combined support of Edinstvo and Otechestvo in 1999 against that of the preceding "party or power," the NDR (Our Home Is Russia political party) in 1995 (Figure 3.3e) or United Russia's vote in 2003 against the combination of Edinstvo and Otechestvo's votes in 1999 (Figure 3.3f), we find a pattern that is wholly unlike that in Figure 3.2b and the relationship between Putin's vote in 2000 versus his vote in 2004, despite the greater scatter of data

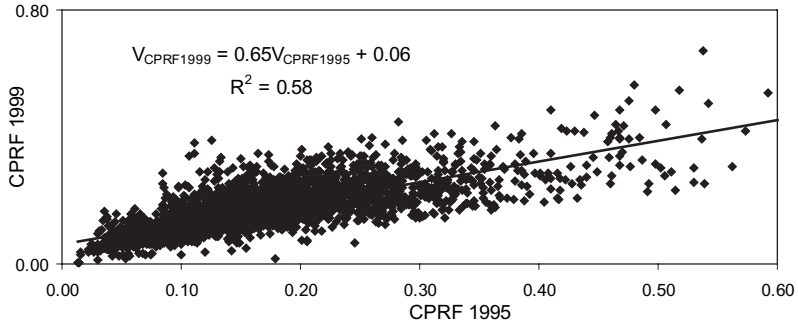


FIGURE 3.3a. CPRF 1999 versus 1995

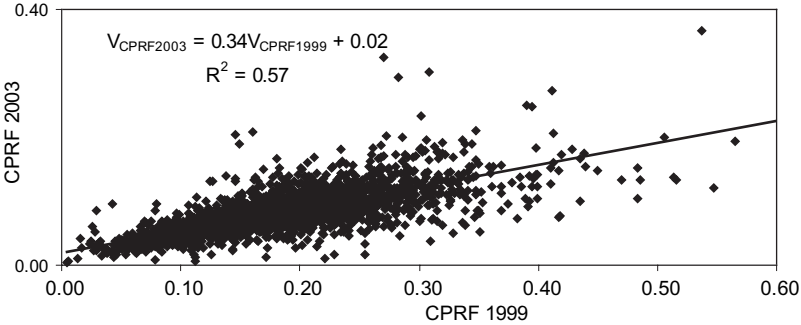


FIGURE 3.3b. CPRF 2003 versus 1999

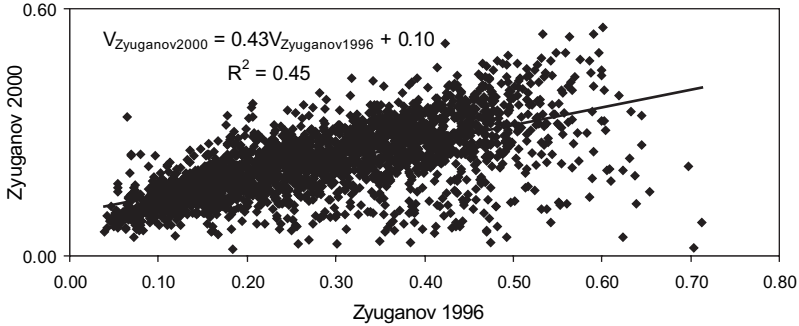


FIGURE 3.3c. Zyuganov 2000 versus 1996(1)

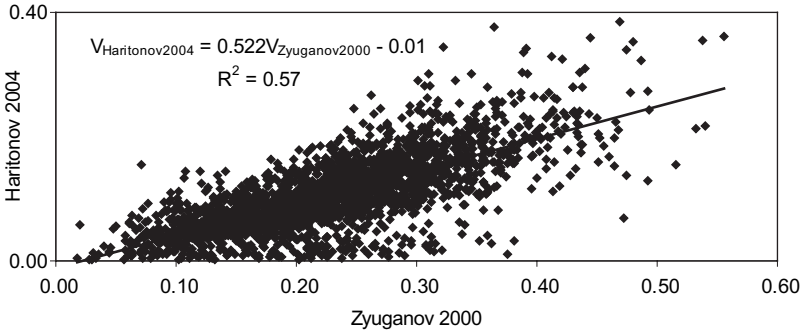


FIGURE 3.3d. Haritonov 2004 versus Zyuganov 2000

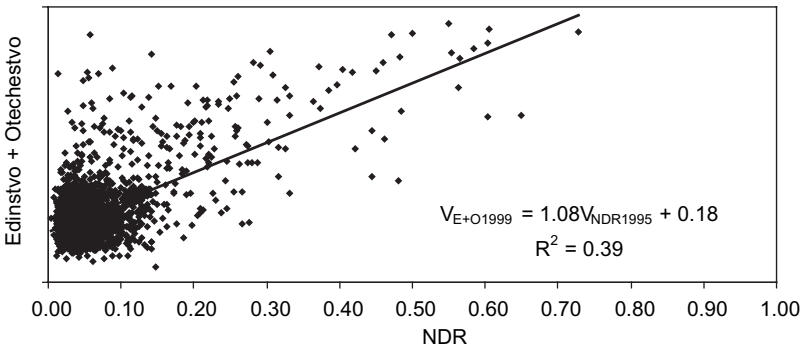


FIGURE 3.3e. Edinstvo and Otechestvo 1999 versus NDR 1995

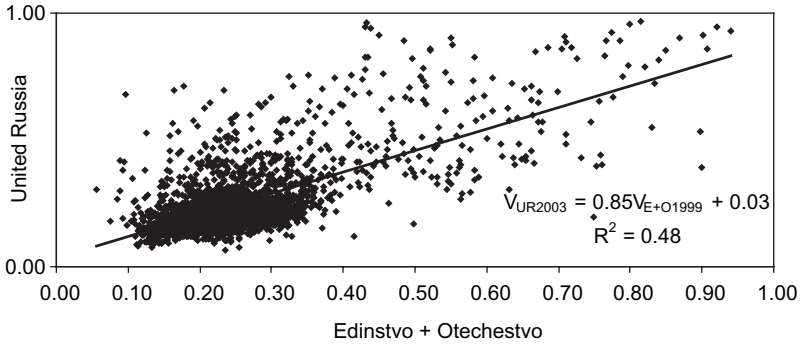


FIGURE 3.3f. United Russia 2003 versus Edinstvo and Otechestvo 1999

TABLE 3.3. *Nurlatinski Rayon, Tatarstan, 2004*

| Eligible Voters | # Voting | Votes for Putin | Turnout % | Putin % |
|---|---|---|---|---|
| 936 | 936 | 934 | 100.0 | 99.8 |
| 185 | 185 | 185 | 100.0 | 100.0 |
| 204 | 204 | 204 | 100.0 | 100.0 |
| 251 | 251 | 250 | 100.0 | 99.6 |
| 348 | 348 | 348 | 100.0 | 100.0 |
| 130 | 130 | 129 | 100.0 | 99.2 |
| 320 | 320 | 320 | 100.0 | 100.0 |
| 177 | 177 | 177 | 100.0 | 100.0 |
| 332 | 332 | 332 | 100.0 | 100.0 |
| 513 | 513 | 513 | 100.0 | 100.0 |
| 468 | 468 | 468 | 100.0 | 100.0 |
| 220 | 220 | 220 | 100.0 | 100.0 |
| 367 | 366 | 356 | 99.7 | 97.0 |
| 296 | 296 | 296 | 100.0 | 100.0 |
| 334 | 334 | 334 | 100.0 | 100.0 |
| 663 | 663 | 661 | 100.0 | 99.7 |
| 267 | 267 | 267 | 100.0 | 100.0 |
| 706 | 706 | 706 | 100.0 | 100.0 |
| 305 | 305 | 305 | 100.0 | 100.0 |
| 166 | 164 | 164 | 98.8 | 98.8 |
| 442 | 440 | 438 | 99.5 | 99.1 |
| 395 | 389 | 386 | 98.5 | 97.7 |
| 621 | 621 | 620 | 100.0 | 99.8 |
| 556 | 555 | 554 | 99.8 | 99.6 |
| 556 | 556 | 555 | 100.0 | 99.8 |
| 382 | 382 | 382 | 100.0 | 100.0 |
| 1,012 | 1,012 | 1,012 | 100.0 | 100.0 |
| 598 | 598 | 598 | 100.0 | 100.0 |
| 773 | 764 | 764 | 98.8 | 98.8 |
| 431 | 431 | 427 | 100.0 | 99.1 |
| 975 | 975 | 970 | 100.0 | 99.5 |
| 857 | 857 | 857 | 100.0 | 100.0 |
| 511 | 511 | 511 | 100.0 | 100.0 |
| 441 | 441 | 440 | 100.0 | 99.8 |
| 323 | 323 | 323 | 100.0 | 100.0 |
| 178 | 178 | 178 | 100.0 | 100.0 |
| 157 | 157 | 157 | 100.0 | 100.0 |
| 597 | 589 | 589 | 98.7 | 98.7 |
| 592 | 592 | 592 | 100.0 | 100.0 |
| 455 | 453 | 451 | 99.6 | 99.1 |
| 150 | 147 | 145 | 98.0 | 96.7 |
| 197 | 194 | 192 | 98.5 | 97.5 |
| 439 | 419 | 419 | 95.4 | 95.4 |
| 283 | 283 | 283 | 100.0 | 100.0 |

as compared to Figures 3.3a–3.3f. The data in these figures, then, matches the image of the largely stable electorate that existed in Russia prior to Putin's regime (Myagkov et al. 1997, Moser 2001, McFaul 2001, Colton and McFaul 2003, Sitnikov and Shakin 2005, Myagkov et al. 2005).

As a final bit of evidence that something is amiss in an electoral system encouraged or put in place by Putin and his apparatchiks, consider Table 3.3, which, for a single rayon in Tatarstan in 2004 (Nurlatinskii), gives: (1) the total number of registered voters by polling station (precinct); (2) the number reported officially to have voted, the tally of votes for Putin; (3) the percentage turnout; and (4) the percentage voting for Putin. Clearly, Andrei Vyshinky or his protégées are alive and well in Nurlatinskii. Of forty-four polling stations, thirty-three (75 percent) reported 100 percent turnout. And of those, twenty-four (55 percent of the total) reported 100 percent of the vote for Putin. One might say then, using the words of the EU's OSCE report on this election, that elections in Nurlatinskii were indeed "well administered" since care was clearly taken to ensure that Putin did not win more votes than there were voters. Nevertheless, one must deem Putin to be not merely a popular fellow, but, if one is to somehow accept the legitimacy of these numbers, he is also someone whose ability to secure votes and ignite the participatory spirit of his countrymen exceeds the capabilities of politicians in all other democracies and matches the skills of the nomenklatura and apparatchiks from Russia's Soviet past. Surely Andrei Vyshinsky would be proud.

## 3.2 THE DISTRIBUTION OF TURNOUT

The preceding peculiarities, while they establish that Russian elections differ from what we expect in a normal democratic state and suggest that irregularities are rampant in various parts of the country, do not tell us how widespread those irregularities might be, the number of votes in total we should deem suspect, and whether there is any temporal trend in the magnitude of irregularities. Indeed, without additional analysis we might not be able to convince a skeptical jury that the previously cited patterns and peculiarities are merely examples of over-zealous local and regional bosses in a subset of regions who, at

times, step over the line in their eagerness to apply the administrative resources at their disposal in currying favor with the Kremlin and where voters respond to those bosses as they did in Soviet times. But if we turn to the three indicators discussed in the previous chapter, we see that not only are there other fingerprints of manipulated votes, but, as confirmation that our indicators have value in discovering and measuring fraud, that the most evident manifestations of electoral malfeasance occur precisely when and where we anticipate them and of a magnitude that belies the attribution "isolated."

Consider first the distribution of turnout across rayons. As we note earlier, absent significant heterogeneity in the data, if anything like the law of large numbers operates and if there are no incendiary issues spurring parts of the electorate to the polls in unusual numbers, such a distribution should be approximately normal with some rayons reporting high or low turnout, but the bulk reporting rates clustered around some mean. Here, however, we want to immediately separate Russia's oblasts from its ethnic republics since we are confident in asserting that politics and electoral processes differ significantly between these two types of federal subjects. Postponing consideration of the 2007 election until later in this chapter (so we can look back and get a clear sense of trends), Figures 3.4a and 3.4b show, in fact, that our expectation about the normality of the distribution of turnout is met in the nonrepublic regions for both rounds of the 1996 presidential election, the 2000 contest, and the 1995, 1999, and 2003 Duma elections.

Were these distributions to characterize all of Russia we might, then, be compelled to seriously question Freedom House's assessment of things. Now, however, and in line with our discussion from the previous chapter, suppose a subset of rayons are untainted by fraud, but, as is generally assumed to be the case for some republics, that explicit fraud in the form of ballot stuffing and inflated official counts increase turnout in the remaining regions and we note by way of example, that the six regions reporting turnout in excess of 73 percent in 1999 include the republics of Dagestan (ranked second), Mordovia (ranked third), Tatarstan (ranked fourth), and Bashkortostan (ranked sixth). This second subset might also yield a normal distribution, but with a mean shifted in accordance with the magnitude of the fraud committed. Thus, if we fail to separate the two subsets and simply add

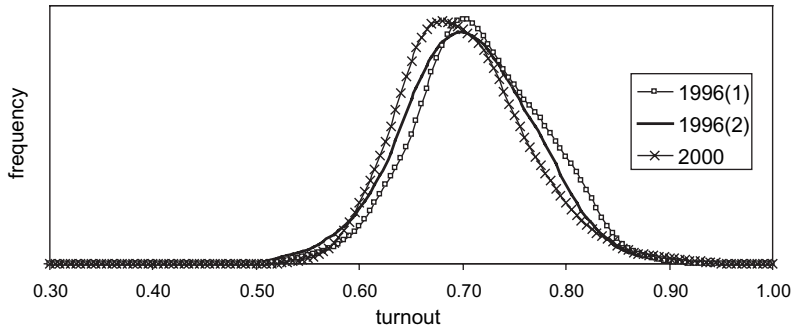


FIGURE 3.4a. Distributions of Presidential Turnout, Oblasts

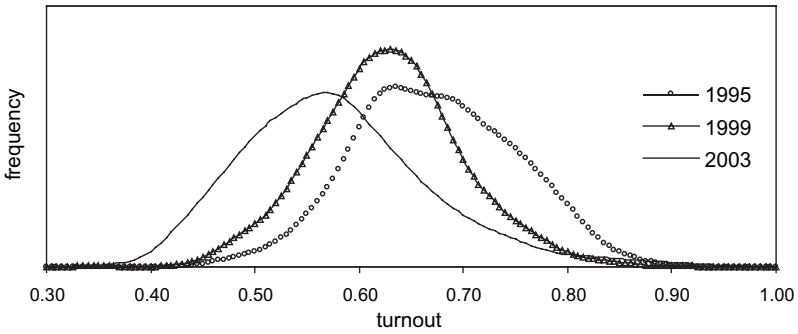


FIGURE 3.4b. Distributions of Duma Turnout, Oblasts

distributions, we should observe a multimodal density or one with an overly fat or extended right tail. As Figures 3.5a and 3.5b show, that is precisely what we see in the ethnic republics in 1995 through 2003. Note, in fact, the remarkable similarity of these figures to Figure 2.4, which we use in Chapter 2 to illustrate the impact of ballot box stuffing on the distribution of turnout.

It remains true that the data employed to create Figures 3.5a and 3.5b are consistent with two alternative hypotheses. The first is the one that fits our priors; namely that a significant subset of republics have had their vote artificially augmented in each and every election, most likely with election protocols filled out without reference to ballots cast. Alternatively we might suppose that, as a function of geography and demography, there are two distinct types of

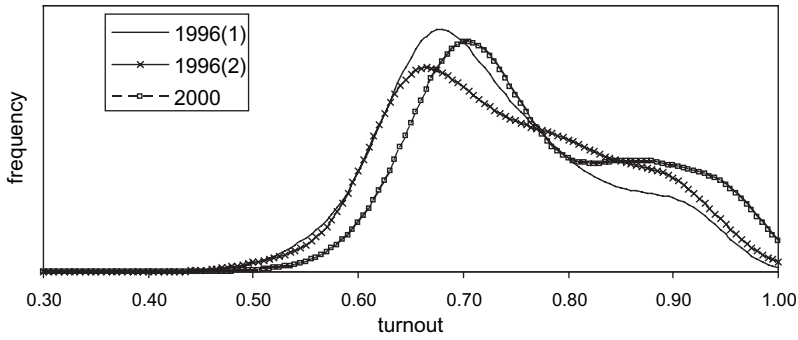


FIGURE 3.5a. Distribution of Presidential Turnout, Republics

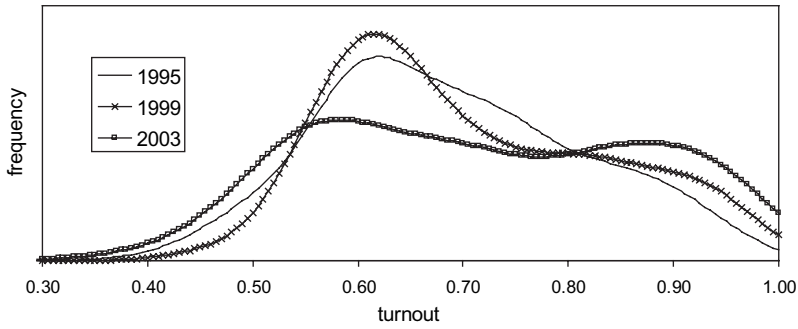


FIGURE 3.5b. Distribution of Duma Turnout, Republics

republics – those that in a free and fair vote report high turnout and those that report lower rates of participation and those that show little difference from their oblast counterparts. We cannot imagine what characteristics of Russia's republics might rationalize such a disjuncture, but rather than simply reject this hypothesis out of hand, notice the increasingly elevated right tail in Figures 3.5a and 3.5b from one election to the next. If there are two distinct types, then either an increasing number of those in the lower turnout category are evolving to be like their high-turnout cousins owing to some otherwise unidentified demographic changes or these high-turnout cousins are experiencing a secular trend of increased turnout entirely on their own. In fact, the more reasonable hypothesis is a combination of these two suppositions – that an augmentation in the vote among a subset of

republics has increased in severity between 1996 and 2000, and when, between 1995 and 2003 for purely political reasons, other republics joined in "the game." Rather than attempt to account for the shape of the distributions in Figures 3.5a and 3.5b and the secular trend displayed there with an appeal to a monotonic shift in demographics related to turnout, we in fact see here the consolidation of political power within republics by entrenched regional bosses following the collapse of the Soviet Union, along with greater effort on their part at controlling votes and vote tabulations.

Partial support for this argument comes when we consider the 2004 presidential election (with additional support coming when we later consider the relationship between turnout and a candidate's share of the eligible electorate). To begin, we should not discount the power of the Kremlin to influence events – witness Putin's rise from middling KGB bureaucrat, mocked as mere fodder for the Kremlin's mill (even by those who later became his sycophants), to the presidency as the chosen heir of a president whose own approval rating hovered in the teens or single digits. However, what many observers agree on in the context of the 2004 contest and the ones that preceded it is that a good share of ballot falsifications and administrative exertions to aid one candidate or party is not necessarily the product of some central directive. We can in fact say that the Kremlin saw large-scale falsification of the vote as unnecessary in 2004, and some members of Putin's staff, viewing the election from Moscow, thought the election free and fair (which may be as much of a comment on standards in Russia as it is on the legitimacy of the country's electoral politics). It is likely, then, that a good share of any manipulation of the results derived from competition among local and regional elites to deliver a vote to the center (Myagkov 2003, Shvetsova 2003). Since, unlike 1996 and 2000, there was little uncertainty in 2004 as to who would win, we can assume that the motive to please the Kremlin operated with special force in Putin's recoronation.

Figure 3.6, which graphs the 2004 distribution of turnout for both oblasts and republics and, for comparison, includes the corresponding distributions for the 2000 election, confirms this supposition. Although overall turnout was lower in the oblasts, the exaggerated right tail there suggests the possibility of artificially inflated turnout in at least a subset of election districts – election districts that did not

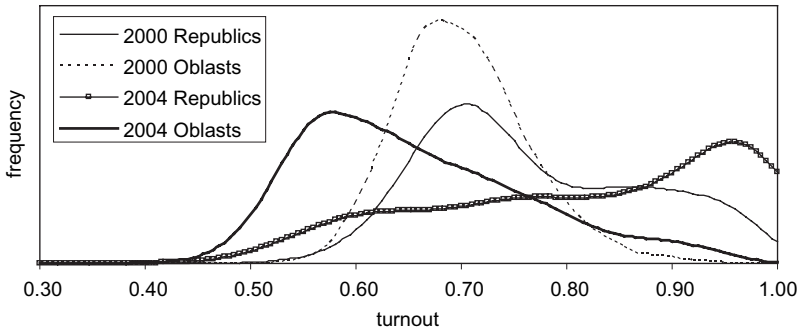


FIGURE 3.6. Distribution of Turnout 2004 Compared to 2000

follow the lead of most oblast rayons with lower rates of participation. In fact, Figure 3.6 illustrates the value of having an historical comparison when considering any piece of forensic evidence. By itself, the distribution of oblast turnout for 2004 might seem unexceptional. It is only when we compare it to earlier elections that a sticky right tail becomes apparent. More dramatic, however, is the distorted distribution for the republics. In an election in which overall turnout failed to match the numbers reported in 2000 and the first round of 1996, a subset of republic rayons appear in 2004 to have produced a remarkable measure of "civic-minded" participation. Clearly, the distribution of turnout among republics in 2004 is not merely a part of a trend made evident by Figures 3.5a and 3.5b. It is an absolute acceleration of things to light speed.

As additional confirmation that distributions like those in Figure 3.6 point to artificially augmented turnout, we can begin by noting that regional elites generally have a free hand in rural areas. As at least one informed observer of Russian politics commented, "they [governors] look at peasants like a boa constrictor does a rabbit. The level of political culture in our villages is not high . . . if something happens here, no one will pay attention" (Viktor Sheinis, *The Moscow Times*, September 9, 2000). For a more precise characterization of the control regional elites exert over their domain it is useful to review Berezkin et al.'s (2003) assessment of Russia's 1996 election. In setting the stage for that review we note that unlike the support they gave Putin in 2004, regional elites were anything but unanimous in their desire to see Yeltsin reelected in 1996. As Yeltsin's deputy chief of

staff (Zverev) and "PR czar" (Lisovskii) reported at the time, "I believed that communists could win. Even worse . . . most of the regional leaders believed in that as well. When we worked in the regions . . . they [the governors] would arrest our cars and equipment, they would ban printing our campaign materials, they would cut electricity. There was sabotage all over the place" (Zverev); "Chubais thought that the administrative resources [of the governors] was unpredictable. It turned out he was right. About 50 percent of the governors were against Yeltsin and of the other 50 percent about one half remained neutral" (Lisovskii).[2] The question, however, is precisely how the influence of political bosses was felt in their regions. After measuring the actual distance between the geographic center of each rayon and its corresponding regional capital, Berezkin et al. (2003: 176) offer the following regression:

$$Vote_{Yeltsin} = .41 + .27U - 0.05D, R^2 = 0.07$$

where $U$ denotes percentage urban and $D$ denotes distance. Clearly, $R^2$ is low, but both coefficients are statistically significant (with $t$-statistics of 12 and 2.2, respectively). Thus, even after controlling for percentage urban, distance from the regional capital has a significant negative effect – an effect that is consistent at least with the hypothesis that the greater the distance from media centers and other competing political elites, the greater is the ability of regional bosses to influence perceptions, incentives, and outcomes. As further confirmation of the impact of regional bosses over their subjects, this study goes on to show that if we look at those rayons that are closer to an urban center outside of their oblast or republic and test to see if it is distance from the regional center or that urban center that best predicts voting patterns, it is distance from the regional center that is the stronger predictor – thereby supporting the hypothesis that in a tug of war between the influence of the ostensible liberalizing influence of a nearby but "alien" urban economy versus the impact of a regional boss, it is the impact of that boss that wins out. If we assume, then, as Berezkin et al. (2003) argue, that regional bosses were, on average, opposed to

[2] "Russian Roulette of 1996: How the Presidency was Made," Moskovskiy Komsomolets, 141, July 3, 2001 (see www.lisovsky.ru/eng/bizneso3072001.htm).

Yeltsin in 1996 when set against his communist challenger (as evidenced by the negative sign on *D*), the preceding regression and subsequent analysis tell us that we ought to separate urban and rural regions when attempting to uncover electoral malfeasance and the undue application of "administrative advantage" that would most likely be implemented or directed by regional bosses.

With this distinction between urban and rural regions in mind, consider Figures 3.7a and 3.7b, which graph turnout for 2004, 2000, and the first round of 1996 after separating urban and rural rayons. Within oblasts (Figure 3.7a), we find no suspicious perturbation of a normal distribution for 1996 or 2000 in either the rural or urban data. However, when we move to 2004, it is largely the rural oblast rayons

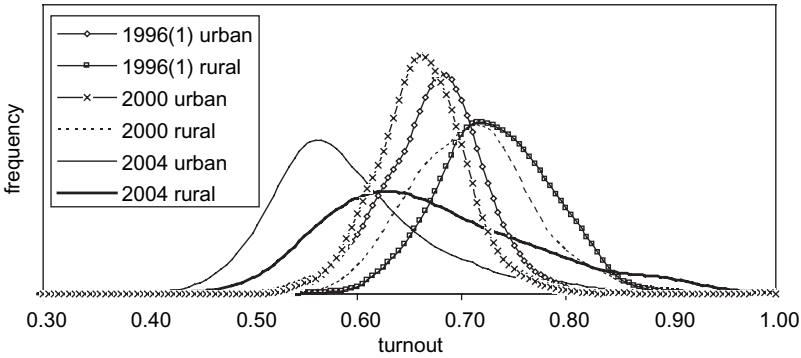


FIGURE 3.7a. Urban versus Rural Turnout, Presidential, Oblasts

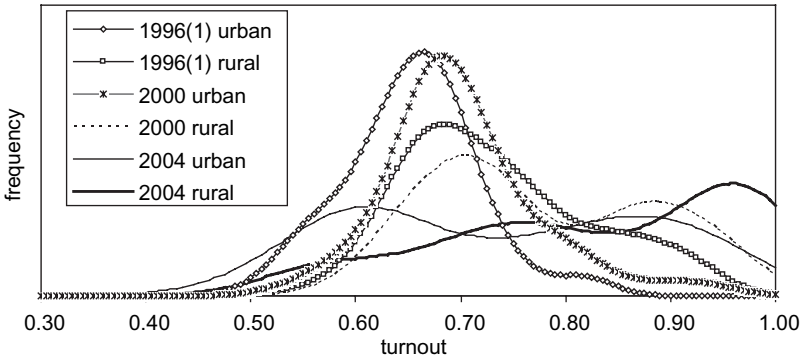


FIGURE 3.7b. Urban versus Rural Turnout, Presidential, Republics

that exhibit what we can only assume is the impact of the efforts of regional bosses on Putin's behalf so as to yield the suspicious "stretch" in the right tail of the distribution in Figure 3.6 (although that stretch is now somewhat evident even in urban rayons). More dramatic, however, are data for the republics (Figure 3.7b) where we see the suspicious "bump" in each distribution's right tail for all three elections and for both urban and rural rayons. But the distortion from a normal distribution is most evident in the rural data, and, as our earlier figures show, grows more severe as we move from 1996 to 2000 to 2004. Put simply, rural republic rayons wholly match a model that presumes two distinct distributions – one with a natural mean and one with its mean artificially inflated.

In summary, then, Figures 3.7a and 3.7b are consistent with a characterization of Russian politics wherein

(i) Regional bosses in the republics have on average greater political control of their domains and greater opportunities to exert extraordinary administrative efforts (including outright falsification of ballots) than do oblast bosses;
(ii) That control is greatest in remote rural regions as opposed to regional urban centers;
(iii) Those bosses were at best lukewarm to Yeltsin in 1996;
(iv) Regional bosses prevaricated in the 2000 and especially in the 1999 election owing to uncertainty as to the eventual winner, although several explicitly backed Luzhkov and Primakov's party; but
(v) Absent any uncertainty as to who would inhabit the Kremlin after the 2004 vote, a subset of oblast bosses and nearly all republic bosses committed full effort at facilitating turnout or at least the official tabulation of votes.

## 3.3 WHO WINS THE EXTRA VOTES

To this point we have seen evidence consistent with the hypothesis that turnout in a subset of republic and rural rayons has been consistently artificially inflated, and that this inflation gained momentum in 2004 when it was obvious that Putin would be reelected. The 2004 election, though, was not replay of the 1993 referendum where

regional bosses may have been indifferent about Yeltsin's constitutional proposal, or even of the 1996 vote where they were most likely divided in their preferences or predictions about the eventual outcome. It was not turnout per se that a boss should have sought to augment in 2004 when currying favor with the Kremlin, but Putin's vote. We should also keep in mind that the 2004 contest was not one that yielded an exceptionally high turnout. Thus, even if some rayons were manipulated to generate unusual participation rates, the preceding analysis might understate the fraud committed. If the preferences of voters can be manipulated by a biased media or direct intimidation, then regional elites might find it unnecessary to resort to the more explicitly undemocratic practice of falsifying turnout in order to be seen as part of Putin's loyal team.

To assess this argument we return to an idea used initially to raise suspicions about Russia's 1993 constitutional referendum (Sobyanin and Suchovolsky 1993; Sobyanin, Gelman, and Kaiunov 1994): namely, the relationship between turnout, *T*, and a candidate's share of the eligible electorate, *V/E*. Once again we emphasize that nonhomogeneity of the data can befuddle our analysis. Nevertheless, we are certain of this: elections in republics such as Tatarstan and Bashkortostan are anything but free, fair, and competitive. Indeed, if they were to appear so in our data, we would seriously question, if not discard, our methods. At the same time, regions such as Tver and Samara pose a useful contrast. As the Kremlin was wont to do under Putin's administration, the governor of Tver was charged with various "economic crimes" prior to the 2003 election, while the conflict at the time between Putin and the governor of Samara (one of Putin's electoral opponents in 2000) was well known. Should the data in these two oblasts mirror what we find in Tatarstan or Bashkortostan, we would again have to question the things we take as forensic evidence of fraud.

No such questioning is necessary. First, as Figures 3.8a and 3.8b reveal, Putin appears to have gained a remarkable 1.67 percent (sic!) of the eligible vote in 2004 for every 1 percent increase in turnout in Tatarstan, while in Bashkortostan his gain was "limited" to 1.41 percent (sic!). In other words, for every unit increase in turnout, Putin gained 1 percent from new voters and 0.67 percent in Tatarstan and 0.41 percent in Bashkortostan from other mysterious sources. In contrast, Figures 3.8c and 3.8d give the corresponding graphs for Tver

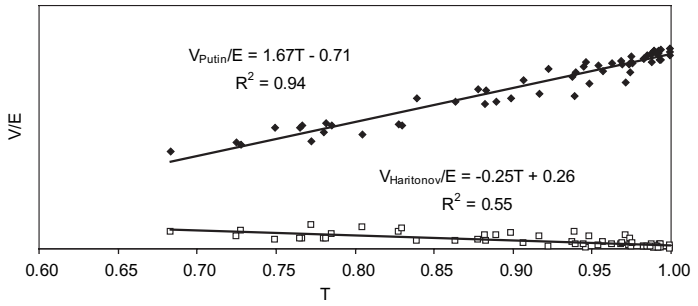


FIGURE 3.8a. *T* versus *V/E*, Tatarstan 2004

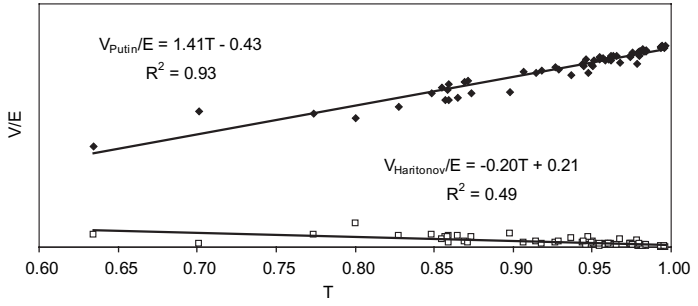


FIGURE 3.8b. *T* versus *V/E*, Bashkortostan 2004

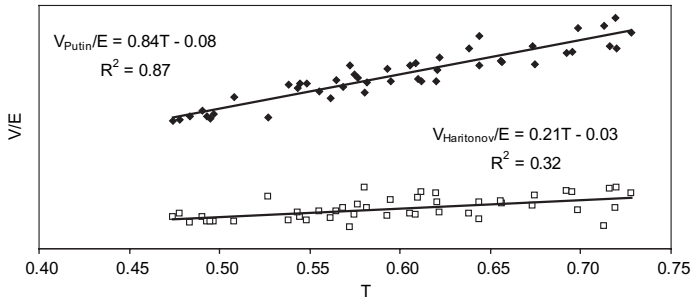


FIGURE 3.8c. *T* versus *V/E*, Tver 2004

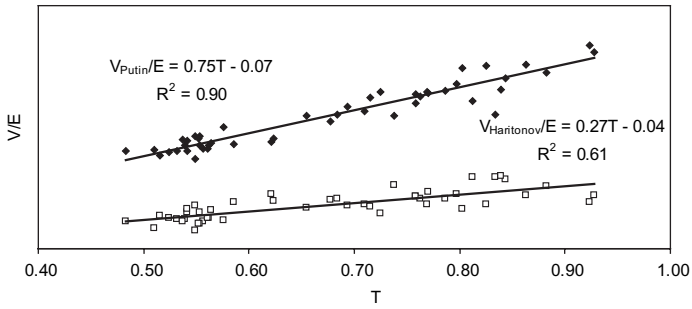


FIGURE 3.8d. *T* versus *V/E*, Samara 2004

and Samara. Notice the several important contrasting features of these figures. First, if we sum the coefficients in Tatarstan and Bashkortostan for Putin and Haritonov, then, despite the negative coefficient for Haritonov, we still get a number greater than 1.0 (1.33 and 1.21, respectively). Thus, even if we generously assume that Haritonov is less popular for some reason in high-turnout rayons than is the norm, there remain 33 unexplained votes in Tatarstan and 21 in Bashkortostan going to Putin for every additional 100 votes recorded by election officials. In Tver and Samara, in contrast, we get summed coefficients that closely approximate what we should observe in a free and fair contest (1.06 and 1.03, respectively). There is at the same time a marked contrast in intercept terms, with only Tver and Samara reporting intercepts that approximate the theoretical value of 0.0. Thus, while these last two figures show Putin winning a share of any increase in turnout that should satisfy even the most avaricious politician, there is little here to raise suspicion of tampered ballots or official vote totals.

When considering the processes that might account for Tatarstan and Bashkortostan, we can, then, eliminate the possibility that votes were simply subtracted from Haritonov's total and awarded instead to Putin. There had to be other sources of votes. Of course, Putin apologists might argue that there is nothing more sinister here than the zeal of his supporters who engender higher rates of participation in those districts that most strongly support him. Alternatively, recalling our discussion in Chapter 2 of this indicator, we might speculate that the excessively high coefficients on *T* that Figures 3.8a and 3.8b report derive from the fact that regional bosses possess a considerable administrative advantage in rural districts. If that advantage is then

applied when turnout would otherwise be lower than in urban rayons, coefficients in excess of 1.0 can readily result. Thus, what we infer about fraud in Tatarstan and Bashkortostan depends largely on what interpretation we give to the notion of administrative advantage, which can of course range from merely "hard campaigning" to the outright falsification of election returns. However, any inclination to apply a benign interpretation here should be put to rest by what we know about the "democratic credentials" of political bosses in these two republics as well as by our earlier example of Tatarstan's Nurlatinskii rayon (see Table 3.3) with 19,109 registered voters in 2004, of whom 19,052 voted (99.7 percent) and, of those, 19,012 voted for Putin (99.49 percent). The more reasonable hypothesis is not that some share of Haritonov's votes were given to Putin (although that may have happened as well) or that Putin's allies did an especially good job at mobilizing his vote in rayons of a specific type but rather that, especially in rural regions, any counting of ballots was irrelevant to the numbers reported officially to Russia's Central Election Commission.

In offering this explanation for the coefficients and data in Figures 3.8a and 3.8b we shouldn't hesitate to add that unlike what may have occurred in 1993 and Sobyanin's analysis of the constitutional referendum, the hypothesis of aggregation error cannot account for things. First, $R^2$ ranges in all four regions considered thus far between 0.87 and 0.94. Thus, the data in each case lay almost on a line with little room for the sort of phenomena illustrated in Figures 2.2a and 2.2b. And just as aggregation error cannot account for the coefficients that suggest fraud in Tatarstan and Bashkortostan, it cannot also subvert the evidence that elections were normal in Tver and Samara, at least relative to their ethnic republic counterparts. Indeed, with the data so tight about their corresponding regression lines, it is impossible to regroup the data in any of these four regions so as to eliminate excessively large coefficients in a subset or, in the case of Tver and Samara, to produce them. And unlike what might have occurred with Sobyanin's data in 1993, we cannot pick and choose subsets of observations on the basis of, say, urbanization or distance from a regional capital, and secure an appreciably different coefficient on *T*. Any heterogeneity in these observations, then, cannot account for the coefficients Figures 3.8a–3.8d report.

Of course, the four regions considered in Figures 3.8a–3.8d are not chosen at random. As previously noted, we expect fraud a priori in Tatarstan and Bashkortostan. Tver and Samara, though, are chosen for different reasons. First, after having apparently displeased the Kremlin, the governor of Tver, Vladimir Platov, was indicted for corruption and later failed to win reelection in December 2003 when opposed by one of Putin's close associates, whereas the governor of Samara, Konstantin Titov, ultimately resigned in August 2007 because of his apparent inability or unwillingness to raise United Russia's low rating in his oblast.[3] Nevertheless, the distinction between oblasts and republics that Figures 3.8a–3.8d illustrate is not wholly the consequence of the four specific regions we select there. For example, the corresponding regression equations for the oblast of Sverdlovsk are

$$V_{Putin}/E = 0.99T - 0.12, R^2 = 0.86$$

$$V_{Haritonov}/E = 0.00T + 0.05, R^2 = 0.00$$

In the oblast of Chelyabinsk they become

$$V_{Putin}/E = 0.90T - 0.14, R^2 = 0.78$$

$$V_{Haritonov}/E = 0.15T + 0.00, R^2 = 0.10$$

In Pskov,

$$V_{Putin}/E = 0.80T - 0.05, R^2 = 0.61$$

$$V_{Haritonov}/E = 0.30T + 0.08, R^2 = 0.22$$

In Ulianovsk,

$$V_{Putin}/E = 0.86T - 0.12, R^2 = 0.95$$

$$V_{Haritonov}/E = 0.21T + 0.00, R^2 = 0.54$$

[3] http://en.novayagazeta.ru/data/2007/66/02.html.

In Chita,

$$V_{Putin}/E = 0.73T - 0.01, R^2 = 0.96$$

$$V_{Haritonov}/E = 0.18T + 0.06, R^2 = 0.76$$

And finally in Moscow oblast,

$$V_{Putin}/E = 0.84T - 0.10, R^2 = 0.80$$

$$V_{Haritonov}/E = 0.21T + 0.00, R^2 = 0.54$$

This is not to say that Putin's vote was not artificially augmented in each of these regions. The coefficients for Putin are often remarkably close to 1.0. But because the coefficients for both candidates nearly sum to one, the more reasonable hypothesis here is that if Putin was given an extra "push" it came in the form of votes denied Haritonov and in the extra, perhaps even legal, efforts on the part of regional and local bosses rather than outright falsifications in the form of stuffed ballot boxes. Indeed, the general decline in turnout in the oblasts in 2004 suggests that if Putin did enjoy any special administrative advantage there, it came in the form of votes taken from his communist opponent by persuasion and intimidation rather than outright theft and phony ballots.

The preceding coefficients are not, we might add, much different from what we commonly observe in the United States. Looking ahead to some of the numbers offered in Chapter 6, we note, for instance, that in the overwhelmingly Democratic county of San Francisco, the coefficient on $T$ for Kerry in 2004 is 0.93, whereas that for Bush, 0.05; in North Carolina, after separating Kerry from Bush precincts, the coefficient on $T$ in Bush's precincts is 0.77 and for Kerry 0.23, whereas in precincts carried by Kerry those coefficients become 0.45 and 0.55, respectively; and if we look at one of the contested counties in the controversial election in Florida in 2000, Dade County, the coefficient for Gore in the precincts he carried is 0.71 as against 0.32 for Bush, whereas those coefficients become 0.19 and 0.87, respectively, in the precincts carried by Bush. However, now consider Dagestan, where our regressions become

$$V_{Putin}/E = 1.43T - 0.46, R^2 = 0.69$$

$$V_{Haritonov}/E = -0.32T + 0.34, R^2 = 0.15$$

Chechnya, which somehow succeeded in voting despite the carnage, offered no meaningful data for Haritonov

$$V_{Putin}/E = 1.32T - 38.74, R^2 = 0.45$$

What is especially interesting about Chechnya is the estimates we obtain when considering United Russia's vote in 2003. Specifically, here we get something that looks utterly normal:

$$V_{United\ Russia}/E = 0.88T - 10.72, R^2 = 0.12$$

Of course, other testimony exists as to the nondemocratic nature of various republics and the interpretation that ought to be given to suspicious statistical relationships between turnout and a candidate or a party's share of the eligible electorate. For example, the anecdotal evidence amassed by the *Moscow Times* (September 9, 2000) includes the unintentionally humorous remark of Vladimir Shevchuk, associated with Tatarstan's central election commission, that "there has been fraud of course but some of it may be due to an inefficient mechanism used to count ballots.... To do it the right way they would need more than one night. They were already dead tired, so they just did it in an expedient way." However, the *Times* assessment of fraud in the 2000 presidential contest when focusing on Dagestan notes that "it is possible to definitively document 87,000 votes stolen from other candidates and given to Putin simply by comparing documentation at about 16 percent of the local precincts." Extrapolating from this evidence "to documentation at the national level, if fraud in the precincts that would not give out protocols was no worse than it was in those that did," the *Times* estimates that no less than 551,000 votes were "crudely falsified" in this one republic. What is relevant to our analysis is that Putin's anomalous advantage in Dagestan as reported above matches what we find in Bashkortostan. Thus, the *Times* analysis is wholly compatible with what we find in our assessment of the relationship between turnout and the vote and our

TABLE 3.4. *Maximum Turnout Advantages by Region*

| | 0–0.2 | 0.2–0.4 | 0.4–0.6 | 0.6–0.8 | 0.8–1.0 | > 1.0 |
|---|---|---|---|---|---|---|
| 1996–2001 | 17 | 20 | 20 | 10 | 2 | 4 |
| 1996–2002 | 27 | 26 | 14 | 3 | 1 | 1 |
| 1999 | 29 | 28 | 9 | 4 | 2 | 1 |
| 2000 | 26 | 24 | 8 | 9 | 2 | 4 |
| 2003 | 39 | 15 | 10 | 9 | 0 | 2 |
| 2004 | 36 | 22 | 11 | 3 | 0 | 1 |

conclusion that Tatarstan and Bashkortostan presented Putin with a comparable artificial inflation of his vote.

With the contrast of these regions in mind, we can now consider the general trend throughout Russia in the relationship between turnout and share of the eligible electorate. Briefly, if we subtract a candidate or party's vote in a region from the coefficient for *T* and if the share of eligible voters gained from increased turnout equals a candidate's overall share among those voting in the region, this calculation should yield a measure of zero; if negative, the candidate is disadvantaged by increased turnout, and if positive, the candidate is advantaged. After using only data from rural rayons (so as to avoid any issues of heterogeneity) and deleting those regions with few or no such rayons (e.g., Moscow, St. Petersburg), Table 3.4 summarizes these calculations for Russia by recording the distribution of the maximum advantage enjoyed by one candidate or another for each of the elections considered.

What Table 3.4 shows is that large coefficients and relative advantages concentrate in the earlier elections. For example, round 1 of 1996 and the 2000 contest yield a greater number of net coefficients that exceed 0.6 than the 2004 contest. It might seem, then, that these numbers contradict the hypothesis that there was a greater artificial inflation of turnout in 2004 than earlier. But since we are subtracting potentially illicit gains, the greater those gains, the greater the vote share subtracted. Hence, our measure yields a downward bias in the estimate of turnout advantage. And since Putin was awarded an extraordinary 70+ percent of the vote in 2004, we can presume that this bias is greatest then. Also, Table 3.4 reports only the gains that

TABLE 3.5. *Number of Regions in Which a Candidate Is Advantaged by Increased Turnout*

| | # Regions with Turnout Advantage | | # Regions with Advantage > 0.25 | |
|---|---|---|---|---|
| | **Yeltsin or Putin** | **Communist Challenger** | **Yeltsin or Putin** | **Communist Challenger** |
| 1996(1) | 19 | 41 | 17 | 40 |
| 2000 | 50 | 14 | 42 | 10 |
| 2004 | 51 | 11 | 39 | 0 |

accrue from increased turnout and not how many regions inflated participation to a specific candidate's advantage. Table 3.5, then, shows that this advantage in 2004 was entirely Putin's. The first two columns give the number of regions in which Yeltsin or Putin versus their communist opponent was most advantaged by increased turnout. The third and fourth columns give the number of regions in which that advantage exceeds 0.25 – where a 1 percent increase in turnout gives a candidate an additional 0.25 percent of the vote over and above what they would have received as a reflection of their normal share. As we see, this data documents the declining competitiveness of elections in Russia's Potemkin democracy. In 1996, it was Yeltsin's main challenger, Zyuganov, who most often gained from turnout. In 2000, the edge was Putin's by a factor of 4 to 1. But Putin not only gained from turnout in fifty-one regions in 2004 while the number of regions in which his communist challenger held the advantage fell from 14 to 11, in thirty-one regions his gain exceeded 25 percent per unit increase in turnout whereas Haritonov failed to enjoy such an advantage anywhere (and keep in mind that there are only eighty-nine regions in all of Russia).

Once again, the regions reporting the greatest advantage from turnout are not representative of all of Russia. Table 3.6 gives the number of republics ranked in the top fifteen regions giving the highest relative advantage, the number of republics giving the lowest advantage, and the rank of five specific republics.

Notice that with the exception of Tatarstan, there is no linkage between share of the eligible electorate and *T* in the republics up

TABLE 3.6. *The Republics and Turnout Advantage, 1996–2004*

| | 1996–2001 | 1996–2002 | 1999 | 2000 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| **# Republics in Top 15** | 3 | 5 | 10 | 10 | 6 | 8 |
| **# Republics in Bottom 15** | 5 | 2 | 2 | 2 | 1 | 1 |
| Rank of Tatarstan | 48 | 4 | 3 | 14 | 10 | 8 |
| Rank of Dagestan | 34 | 36 | 47 | 10 | 34 | 7 |
| Rank of Bashkortostan | 46 | 50 | 1 | 3 | 19 | 9 |
| Rank of Chuvash | 62 | 52 | 59 | 28 | 3 | 10 |
| Rank of Mordovia | 65 | 47 | 6 | 9 | 1 | 1 |

through the second round of 1996 – perhaps a reflection of the strained or uncertain relations between the republics and the Kremlin at the time. (Keep in mind that Yeltsin's constitution was drafted in the context of the signing of a number of bilateral treaties between Moscow and individual republics as the Kremlin sought to defuse what many saw as the threat of separatist sentiment in the republics.) Dagestan enters "the game" only in 2000 and only for presidential contests, whereas Chuvash postpones its "entry" until 2003. Tatarstan provides an advantage to the Kremlin in the second round of the 1996 election, and Bashkortostan and Mordovia appear to have lent a special hand to Putin or his party only since 2000. Logically, it is Otechestvo in 1999 that is advantaged in the three republics of Tatarstan, Bashkortostan, and Mordovia since the leaders of those republics were initially part of the Luzhkov-Primakov coalition. In subsequent elections, these republics corrected their "ideological error" and voted overwhelmingly for Putin. Table 3.6, then, puts some "flesh" on Figures 3.5a, 3.5b, and 3.6. Specifically, it is not that the bump in the turnout distributions discussed in the previous section grows more pronounced over time because a specific small subset of republics are leaving the others behind in terms of their ability to "mobilize" the vote in favor of one candidate or the other. Rather, while it is doubtlessly true that the "technology of mobilization" has been refined, others have joined the ranks of compliant republics such as Tatarstan.

## 3.4 THE FLOW OF VOTES

Turning now to the application of the econometric methodology described in the previous chapter to estimate the flow of votes across elections, Table 3.7 begins by giving the results of our analysis for 1995 to 1999 as well as the estimated vote flows between 1999 and 2000.[4] Briefly, and aside from the emergence of a new cadre of parties (or at least, new party labels), these estimates paint a picture of a largely stable and unexceptional electorate – or at least of an electorate that might be studied using the usual methods applied to voters in Western democracies. The estimated share of NDR's 1995 vote (the Party of Power in that election) that Otechestvo (the presumed new Party of Power before Putin established his stranglehold on resources and power) captures in 1999 is a reasonable 0.63, whereas, as expected, this party wins nothing of Yabloko's 1995 vote. The two "reformist" parties, Yabloko and SPS, simply trade votes among themselves, the communists (CPRF) get their votes largely from where they always get them – from themselves – and Edinstvo's support (the surprise stand-in for Putin and the Kremlin, established to undercut Luzhkov and Primakov's Otechestvo) is spread relatively evenly across the NDR, the LDPR's voter base and others. Table 3.7 also gives the estimate for the flow of votes to nonvoters and here we see a wholly normal pattern. First, as in most democracies, nonvoters tend to remain so: 73 percent of them in 1999 are estimated to have come from the ranks of those who failed to vote in 1995. In addition, we

[4] The proxy variables employed in our analysis are as follows: when estimating the flow of votes between 1995 and 1999, the CPRF share in 1995, Zuganov's share in 1996 (second round), Yeltsin's share in 1996 (second round), percent urban, and a dummy for republics; for votes between 1999 and 2003, Unity's share in 1999, Otechestvo's share in 1999, percent urban, and a dummy for republics; for estimating the flow of votes between 1999 and 2000, Yeltsin's share in 1996 (first round), percent urban, and a dummy for republics; and for estimating the vote flow between 2003 and 2004, the proxy variables employed are Zuganov's share in 1999, Putin's share in 2000, percent urban, and a dummy for republics. Naturally, we should test for the sensitivity of our results to alternative proxies and would in fact prefer using proxies other than previous votes. Unfortunately, our time series at present allows us only percent urban as a demographic variable. With respect to using other vote shares as proxies, what we can say here is that although coefficients vary somewhat when alternatives are considered, qualitative results and substantive conclusions remain largely unaffected.

TABLE 3.7. *Estimated Flow of Votes from 1995 to 1999, 1999 to 2000*

| 1995–1999 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **To/From** | **NDR** | **Yabloko** | **SPS** | **CPRF** | **LDPR** | **Nonvoters** | **Other** |
| Edinstvo | 0.13 | −0.06 | −0.01 | 0.05 | 0.46 | −0.04 | 0.45 |
| Otechestvo | 0.63 | −0.03 | 0.27 | 0.14 | −0.22 | 0.09 | −0.03 |
| Yabloko | 0.01 | 0.42 | 0.21 | −0.01 | 0.01 | 0.03 | −0.01 |
| CPRF | 0.00 | 0.06 | −0.04 | 0.65 | 0.16 | 0.09 | 0.03 |
| SPS | 0.06 | 0.27 | 0.54 | −0.03 | −0.01 | 0.05 | −0.01 |
| LDPR | −0.01 | −0.04 | −0.02 | −0.03 | 0.24 | 0.00 | 0.11 |
| Nonvoters | 0.02 | 0.32 | 0.04 | 0.21 | 0.23 | 0.73 | 0.22 |

| 1999–2000 | | | | | | | |
|---|---|---|---|---|---|---|---|
| **To/From** | **Edinstvo** | **Otechestvo** | **SPS and Yabloko** | **CPRF** | **LDPR** | **Nonvoters** | **Other** |
| Putin | **1.09** | 0.95 | 0.07 | −0.01 | 0.02 | 0.10 | 0.80 |
| Zyuganov | −0.22 | 0.02 | −0.10 | 0.98 | 0.59 | 0.10 | 0.31 |
| Yavlinski | −0.01 | 0.13 | 0.38 | −0.04 | −0.05 | 0.01 | −0.03 |
| Zhirinovsky | 0.00 | −0.03 | 0.01 | 0.00 | 0.42 | 0.01 | 0.01 |
| Nonvoters | 0.01 | 0.03 | 0.15 | 0.02 | 0.16 | 0.74 | −0.02 |
| Others | 0.12 | −0.11 | 0.49 | 0.05 | −0.10 | 0.03 | −0.06 |

begin to see the melting away of support for parties of the left and right. But rather than simply jump to some new Party of Power, 32 percent of Yabloko's 1995 support enter the pool of abstainers, while 21 and 23 percent of those who voted for the CPRF and LDPR, respectively, in 1995 do the same.

If we now turn to the vote flow between the 1999 Duma and 2000 presidential contests (the second part of Table 3.7), we again see results that are not especially suspicious (although the estimate that exceeds 1.0 is a red flag): Putin, unsurprisingly, captures all of Edinstvo's vote and, with Luzhkov and Primakov now removed from the picture so as to not be caught opposing an unstoppable Kremlin juggernaut, nearly all of Otechestvo's support. He wins none of the Communist vote, but does capture a majority of those who voted for minor parties in 1999. Zyuganov's primary support, as before, comes from his CPRF and a majority share of the shriveling LDPR, while nonvoters in 2000 once again come predominantly from the ranks of nonvoters in 1999 plus a share of the LDPR, SPS, and Yabloko vote base. Finally, the share of SPS's vote that went to Otechestvo in 1999 appears to have returned to Yavlinski's Yabloko in 2000.

The 10 percent that Putin and Zyuganov won in 2000 from those who abstained in 1999 should not be deemed unusual since turnout is greater in presidential than in parliamentary contests. So if there is an unusual coefficient, it is Putin's 109 percent share of Edinstvo's vote. Nevertheless, setting aside the potential significance of this estimate for the moment, let us turn to the 2003 parliamentary contest and Table 3.8, which suggests an erosion of the stability of the electorate that characterized earlier elections. United Russia, the new Party of Power, enjoyed the most favorable environment and was viewed by many as the core of Putin's strategy to wholly subvert the independence of Russia's parliament, the Duma. Yet despite its privileged position, and with turnout declining by some 10 percent, it received less than two-thirds of those who voted for either Edinstvo or Otechestvo in 1999. Even considering the overall relative success of United Russia in 2003 (37.57 percent of the vote, 223 seats), this "loss" amounts to approximately eight million votes – lost votes that were almost equally split among LDPR (which increased its vote over 1999 from 5.98 to 11.45 percent), Motherland (Rodina), and voters who simply stayed home. However, United Russia's vote was

TABLE 3.8. *Flow of Votes from 1999 to 2003*

| To/From | Edinstvo | Otechestvo | CPRF | Yabloko | SPS | LDPR | Nonvoters | Others |
|---|---|---|---|---|---|---|---|---|
| United Russia | 0.65 | 0.63 | 0.19 | 0.18 | 0.05 | 0.26 | 0.02 | 0.16 |
| CPRF | 0.00 | −0.04 | 0.37 | −0.01 | 0.09 | −0.06 | 0.00 | 0.13 |
| LDPR | 0.09 | −0.03 | 0.05 | 0.15 | 0.03 | 0.70 | 0.02 | 0.04 |
| Rodina | 0.07 | 0.14 | 0.08 | 0.15 | 0.14 | −0.17 | 0.03 | −0.02 |
| Yabloko | 0.01 | 0.06 | −0.01 | 0.27 | 0.15 | 0.00 | 0.01 | −0.02 |
| SPS | 0.00 | 0.04 | −0.02 | −0.01 | 0.37 | −0.13 | 0.00 | 0.06 |
| Nonvoters | 0.08 | 0.03 | 0.23 | 0.37 | 0.07 | 0.29 | 0.93 | −0.02 |
| Others | 0.10 | 0.17 | 0.11 | −0.08 | 0.20 | 0.10 | −0.01 | 0.66 |

augmented by other sources: 20 percent of the 1999 Communist vote, a quarter of the LDPR's support base, and a good share of Yabloko's electorate. In fact United Russia became the biggest beneficiary of the communist party's collapse (which saw its vote shrink from 24.29 to 12.61 percent). Overall, the CPRF lost about 60 percent of its electoral base between 1999 and 2003. In addition to United Russia, the CPRF's former voters could be found among Rodina's electorate (9.02 percent and 37 seats), among minor parties and, for its biggest loss, among those who stayed home. Like the CPRF, the two pro-reform parties (SPS and Yabloko) managed to keep only about one-third of their 1999 supporters (and saw their overall vote decline from 14.45 to 8.27 percent). Both parties lost about 15 percent of their old support to the newly created Rodina, while one-third of Yabloko's supporters, like their Communist opponents, stayed home. Indeed, the ranks of nonvoters were swelled by precisely those parties of the left, right, and nationalist persuasions (LDPR) who previously had given the Russian electorate the appearance of stability. One would have to say, then, in the jargon of those who study American elections, that 2003 was a realigning election.

Since our vote flow analysis thus far puts oblasts and republics together, it may hide some of the mischievous tactics that permeate voting and vote tabulating in the ethnic regions. Moreover, that analysis suggests little (with the exception of a single coefficient) in the way of fraud. Thus, if we combine this analysis with what we learned from our other indicators, we are left with the conclusion that although fraud may have been widespread in a subset of Russia's republics up to 2003, we cannot say that any specific election turned on fraud. Furthermore, whatever suspicions we have might be written off to Russia's Soviet past – a weak to nonexistent democratic spirit and institutional structure in its republics (especially their rural areas) and a yet-to-die-off cadre of Soviet apparatchiks still in control. That is, up until 2004, we can find here a glimmer of hope that Russia's ostensible transition to democracy was something more than a mere promise and we might even have held out the hope that politics in its republics could be encouraged to evolve eventually to match that of the oblasts. Now, however, let us consider the 2004 presidential contest and Tables 3.9 and 3.10, which report the estimated vote flow coefficients from 2000 to 2004 and 2003 to 2004.

TABLE 3.9. *Flow of Votes from 2000 to 2004*

| To/From | Putin | Zyuganov | Zhirinovkiy | Yavlinski | Nonvoters and Others |
|---|---|---|---|---|---|
| Putin | 0.86 | 0.60 | 0.22 | 0.36 | 0.02 |
| Haritonov | 0.06 | 0.34 | −0.04 | −0.24 | 0.03 |
| Glazyev | −0.02 | 0.04 | 0.22 | 0.21 | 0.04 |
| Khakamada | 0.01 | −0.01 | 0.09 | 0.39 | 0.02 |
| Nonvoters | 0.08 | −0.02 | 0.04 | 0.05 | 0.87 |
| Others | 0.02 | 0.05 | 0.56 | 0.23 | 0.02 |

Table 3.9, as much as anything, reveals Putin's impact on Russia's electoral landscape. First and foremost, his support comes from across the board and speaks to his essential destruction of whatever opposition the Kremlin confronted in the 1990s – 60 percent of Zyuganov's vote, 22 percent of Zhirinovsky's, and 36 percent of Yavlinski's base. Thus, although what little organized opposition to Putin existed derived its support from the obvious sources, there is the further melting away – or at least scattering – of both the traditional right and left of Russia's politics. However, before commenting further on the implications of Table 3.9, let us turn to the flow of votes between 2003 and 2004, keeping in mind that when a party system is weak with an institutionally strong presidency, parliamentary elections often serve merely as primaries for presidential elections. This is especially true in Russia where parliamentary elections are conducted mere months before the presidential contest (recall that it was Otechestvo's poor showing in 1999 that destroyed Luzhkov and Primakov's coalitional bid for the presidency while Edinstvo's strong showing elevated Putin to the status of front runner). Hence, in 2000, the distribution of electoral support for presidential candidates more or less reflected political preferences as they were expressed in the 1999 elections of the State Duma (see Table 3.7). Putin captured all of Edinstvo's vote and much of the vote of the party that was formed to forward the national aspirations of Luzhkov and Primakov; Zyuganov captured essentially all of the vote of the CPRF, Zhirinovsky's support came exclusively from the ranks of his LDPR, and Yavlinski's from his own party, SPS, and those who had voted for Otechstvo but who apparently were not yet enamored of a relatively unknown KGB

apparatchik appointed by Yeltsin as prime minister and rendered heir apparent by Yeltsin's resignation.

The 2004 election occurred under a different set of circumstances, with Putin securing near total control over parliament by merging the two progovernment factions, Edinstvo and Otechstvo, into one large United Russia. The Kremlin consolidated its position vis-à-vis regional elites. Direct election of governors had been eliminated, and Putin now held sole authority to nominate candidates to regional legislatures that were themselves controlled by United Russia, while retaining the authority to fire governors at his discretion. One might even say that Putin had succeeded in resurrecting the form and function of the old Communist Party of the Soviet Union under a different label. Finally, the country's economic situation was also dramatically different from the postcrisis 1999, when economic hardship played a significant role in the population's political orientation. By 2004, Russia had become Europe's gas station and the Kremlin had the financial resources to buy off any opposition (or to at least convince likely opponents that their cause was fruitless and even dangerous). Under these conditions, all major potential opponents of Putin, who was certain to win regardless of who ran against him, chose not to participate in the presidential race. Thus, just as we had good priors that elections would be anything but free and fair in places like Tatarstan, Dagestan, and Bashkortostan throughout the period studied here, the political landscape in place by 2004 should lead us to predict that elections in 2004 would be dramatically different than those preceding them and that our indicators should record this change.

Indeed, the distribution of votes in 2004 is, as Table 3.10 shows, different from patterns observed earlier. Putin's opponents kept the support of the parties they represented. The CPRF candidate, Haritonov, won 98 percent of votes of the by now nearly irrelevant CPRF, Sergei Glazyev brought home 36 percent of Rodina's electorate, and Irina Khakamada "succeeded" in securing 37 and 43 percent, respectively, of what was left of Yabloko and the SPS. More critically, the distribution of votes cast in support of Putin deviates from this seemingly logical pattern and patterns observed earlier. Due to the absence of meaningful electoral competition and the efforts of regional elites, we estimate that Putin attracted not only 114 percent

TABLE 3.10. *Flow of Votes from 2003 to 2004*

| To/From | United Russia | CPRF | LDPR | Rodina | Nonvoters | Other |
|---|---|---|---|---|---|---|
| Putin | **1.14** | 0.08 | 0.02 | −0.06 | **0.24** | **0.63** |
| Haritonov | 0.02 | 0.98 | 0.10 | −0.08 | 0.02 | 0.02 |
| Glazyev | −0.02 | −0.01 | 0.07 | 0.36 | 0.03 | −0.02 |
| Khakamada | −0.01 | −0.01 | −0.03 | 0.07 | 0.01 | 0.13 |
| Nonvoters | −0.15 | −0.04 | 0.60 | 0.69 | 0.67 | 0.16 |
| Other | 0.02 | 0.00 | 0.25 | 0.02 | 0.02 | 0.08 |

(sic!) of United Russia's vote, but 24 percent of those who failed to vote and 63 percent of those voting for minor parties in 2003.

Perhaps the most suspicious coefficient here is that of 1.14 associated with the support Putin derived from United Russia's vote base. Of course, one must always treat with care regression coefficients derived from aggregate data. This estimate, though, must be deemed especially unusual when one considers the fact that throughout the 1990s the Communist party was, at the grass roots, far better organized officially to mobilize its base of support than any other party. Yet the estimated vote flow from a Duma election to its presidential candidate never exceeds 98 percent in any previous election.[5] A second suspicious surprise is Putin's apparent ability to attract 63 percent of those who had scattered their support among otherwise minor parties. By itself this estimate need not be suggestive of anything nefarious, but it is all the more suspicious when one also considers the support ostensibly given to Putin by those who stayed home for the 2003 parliamentary elections. The largest share of nonvoters who previously has supported a presidential candidate was Putin and Zyuganov's joint 10 percent share in 2000. In 2004, in contrast, Putin succeeded in winning an unprecedented 24 percent of

[5] The reader might wonder why there are no suspicious coefficients in Table 3.9 since it too concerns the 2004 election. The explanation is that Putin's 2004 support can be allocated by our econometric techniques across all the candidates who competed in 2000. That is, falsifications were equivalent to taking votes that other candidates received in 2000. However, when trying to account for Putin's vote in 2004 using the 2003 election, there simply aren't enough votes to be had from the other parties that might lead us away from suspicious coefficients.

those who stayed home in 2003 – or approximately 10,669,000 votes from the ranks of those who ignored the fact that the election was a foregone conclusion even before the campaign officially began. Indeed, our analysis suggests that essentially every member of the electorate who failed to vote in 2003 but voted in 2004 marked their ballot for Putin![6]

## 3.5 REPUBLICS VERSUS OBLASTS

Although anything is possible, the appearance of such monolithic preference on the part of new voters is surely suspicious. And it is all the more suspicious in this case given the evidence of the preceding sections – the sudden upsurge of turnout in those ethnic republics not famous for the conduct of free and fair elections as well as the evidence that Putin, at least in the republics, gained more than one vote from every additional voter who marched to the polls. Put simply, the coefficients in Table 3.10 should not be treated in isolation, but are yet another piece of the forensic evidence pointing in the direction of an election marred by substantial falsifications and manipulation. Putin's performance in 2004 would seem to go beyond the manifestation of mere administrative advantage, but instead presents evidence consistent with the hypothesis that votes were manufactured out of thin air in support of his reelection. Keep in mind how, in our discussion of how a coefficient for *T* in its relationship to *V/E* can be pushed above 1.0; specifically via the artificial creation of votes from otherwise low-turnout districts and their assignment to a single candidate. Thus, the estimate that in 2004 Putin won 24 percent of those who failed to vote in 2003 is at least consistent with our interpretation of

[6] The reader might wonder why there are no suspicious coefficients in Table 3.9, which also concerns the 2004 vote. Indeed, were we to look only at Table 3.9, we might not deem anything unusual or suspicious. We can of course only speculate as to the apparent disjuncture between Tables 3.9 and 3.10 in terms of their implications, but the answer we believe lies in the fact that in attempting to account for Putin's 2004 vote on the basis of what occurred in 2000, our methodology could "find" any number of potential sources for his 2004 support. If, on the other hand, we use the 2003 vote as the base from which to derive Putin's support, with the vote for the CPRF, the LDPR, Rodina, Yabloko, and the SPS adding up to a mere 41.35 percent, it simply wasn't there. But since it has to come from somewhere, that support is estimated to have come from nonvoters, others, and, wholly suspiciously, more than all of United Russia.

the coefficients on *T* that we report for the ethnic republics in the previous section. Nevertheless, it is important to understand that the numbers reported thus far in the analysis of vote flows are averages and, therefore, can disguise differences between types of rayons. Here, then, we want to explore one classification that our earlier analysis (as well as a common sense understanding of Russian politics) demonstrates is of profound significance in Russian politics – the distinction between republics (and autonomous regions) on the one hand and oblasts (and krais) on the other – and which our application of our first two forensic indicators suggests is critical to isolating the sources of fraud in Russian elections. Consider, then, Table 3.11, which examines the flow of votes between the 1999 and 2003 parliamentary elections with republics and oblasts analyzed separately.

The first caveat we should add about these estimates is that those for Yabloko and SPS in the republics can be ignored. The support these parties received (generally less than 1 percent) makes any estimate of vote flows for them wholly unstable and statistically meaningless. If we look, then, at the remaining estimates we see a patterns within oblasts that mimic those in the republics and which mimic what we find when we combine all regions into a single sample: United Russia secures a majority of the vote of both Edinstvo and Otechestvo and a not-insignificant share of the CPRF, LDPR, and Yabloko's vote. As before, nonvoters largely remain nonvoters, and both the CPRF and LDPR gain their support from their own past supporters. If there are differences here, they are as follows: (1) United Russia wins a significantly larger share of Otechestvo's vote within republics than among oblasts, which is unsurprising since, believing that the Luzhkov-Primakov coalition would subsequently control the Kremlin, a majority of the regional political bosses that initially supported Otechestvo were from the republics; (2) although United Russia is more successful in the republics at securing the votes of those who had previously supported the CPRF, a greater share of the CPRF's vote defects to the category of nonvoter in the oblasts; and (3) United Russia is far more successful in the republics at attracting the vote of those who previously had voted for minor parties (others). These subtle differences between republics and oblasts do not detract from the conclusion reached when analyzing all rayons taken as a

TABLE 3.11. *Flow of Votes from 1999 to 2003, Republics versus Oblasts*

| To/From | Edinstvo | Otechestvo | CPRF | Yabloko | SPS | LDPR | Nonvoters | Others |
|---|---|---|---|---|---|---|---|---|
| **Republics and Autonomous Regions** | | | | | | | | |
| United Russia | 0.77 | 0.94 | 0.54 | 0.99 | −1.34 | 0.71 | −0.10 | 0.24 |
| CPRF | 0.05 | 0.05 | 0.30 | −0.47 | 0.46 | −0.16 | 0.05 | −0.07 |
| LDPR | 0.01 | 0.02 | 0.02 | 0.31 | 0.37 | 0.93 | 0.01 | −0.11 |
| Rodina | 0.01 | 0.00 | 0.03 | −0.09 | 0.41 | −0.29 | 0.01 | 0.22 |
| Yabloko | 0.02 | 0.01 | −0.01 | 0.31 | 0.19 | −0.05 | 0.01 | −0.04 |
| SPS | 0.04 | −0.01 | 0.01 | −0.51 | 0.59 | −0.63 | 0.00 | 0.30 |
| Nonvoters | 0.03 | −0.17 | 0.04 | 1.15 | −0.50 | 0.51 | 0.93 | 0.08 |
| Others | 0.07 | 0.15 | 0.08 | −0.69 | 0.82 | −0.01 | 0.08 | 0.39 |
| **Oblasts and Krais** | | | | | | | | |
| United Russia | 0.64 | 0.53 | 0.16 | 0.20 | 0.19 | 0.03 | 0.02 | 0.11 |
| CPRF | 0.00 | −0.08 | 0.38 | −0.06 | 0.03 | 0.06 | 0.00 | 0.16 |
| LDPR | 0.10 | −0.08 | 0.06 | 0.65 | 0.11 | 0.00 | 0.03 | 0.07 |
| Rodina | 0.09 | 0.19 | 0.08 | −0.14 | 0.15 | 0.15 | 0.03 | −0.04 |
| Yabloko | 0.01 | 0.08 | −0.01 | 0.00 | 0.24 | 0.17 | 0.01 | −0.02 |
| SPS | 0.00 | 0.06 | −0.03 | −0.05 | 0.01 | 0.35 | 0.00 | 0.02 |
| Nonvoters | 0.06 | 0.09 | 0.23 | 0.30 | 0.27 | 0.15 | 0.94 | −0.01 |
| Others | 0.10 | 0.21 | 0.12 | 0.11 | −0.01 | 0.09 | −0.03 | 0.70 |

TABLE 3.12. *Flow of Votes from 2003 to 2004, Republics versus Oblasts*

| To/From | United Russia | CPRF | LDPR | Rodina | Nonvoters | Others |
|---|---|---|---|---|---|---|
| **Republics and Autonomous Regions** | | | | | | |
| Putin | **1.07** | 0.80 | −0.16 | 0.30 | **0.22** | **0.87** |
| Haritonov | −0.01 | 0.44 | 0.01 | 0.08 | 0.09 | 0.02 |
| Glazyev | 0.00 | −0.01 | 0.06 | 0.26 | 0.02 | −0.01 |
| Khakomada | 0.00 | −0.10 | −0.09 | 0.32 | 0.02 | 0.08 |
| Nonvoters | −0.07 | −0.12 | 0.89 | 0.00 | 0.62 | 0.01 |
| Others | 0.01 | −0.02 | 0.29 | 0.04 | 0.03 | 0.03 |
| **Oblasts and Krais** | | | | | | |
| Putin | **1.16** | −0.07 | 0.05 | −0.13 | **0.25** | **0.60** |
| Haritonov | 0.03 | 1.09 | 0.12 | −0.09 | 0.01 | 0.02 |
| Glazyev | −0.03 | −0.01 | 0.07 | 0.38 | 0.03 | −0.02 |
| Khakomada | −0.02 | 0.00 | −0.03 | 0.03 | 0.01 | 0.14 |
| Nonvoters | −0.17 | −0.02 | 0.55 | 0.80 | 0.68 | 0.17 |
| Others | 0.03 | 0.00 | 0.24 | 0.01 | 0.02 | 0.09 |

whole; namely, that United Russia succeeded in upsetting the alignment of parties and voters that had characterized Russia in the 1990s.

Turning now to the 2004 election, consider Table 3.12, which reveals some interesting similarities as well as differences between republics and oblasts. First, absent a candidate, the LDPR's support flows primarily to minor candidates or stays home. Also, Glazyev's vote comes primarily from Rodina and Haritonov's from the CPRF. Second, Putin wins more than 100 percent of United Russia's vote in *both* subsamples, as well as a remarkable share of those who either failed to vote in 2003 or who voted for minor parties. Third, Putin's "demolition" of the CPRF occurs in the republics and autonomous regions. This fact is unsurprising since it is in precisely those regions where political bosses are well-positioned to direct the votes of an older, established electorate and party organization. That is, if regional political elites are to redirect Soviet-style votes in a Soviet-style way, the most fertile ground for their actions is Russia's ethnic republics. Indeed, although Haritonov wins all of the CPRF's vote in

the oblasts, Putin actually out-polls him among those voters in the republics. There is, moreover, a sinister interpretation that can be given to this fact as well as the fact that Putin also performs substantially better among earlier supporters of Rodina and others in the republics than he does in Russia's oblasts. Despite the Kremlin's consolidation of the primary political forces of the country, regional boss control doubtlessly remains greatest in the republics – especially in places such as Tatarstan, Dagestan, Bashkortostan, Chuvash, Chechnya, and Mordovia. And with Putin the certain winner in 2004, it would be naive to suppose that these bosses did not pull out all the stops in securing votes for him in order to curry favor with the Kremlin. Indeed, one can envision those bosses, as well as those in the oblasts, as playing a type of Prisoners' Dilemma: although from Putin's perspective it may have been unnecessary to exert extraordinary efforts at falsifying the vote, a failure to do so on the part of any head of a region government with the ready means of augmenting the Kremlin's support in their domain only left them vulnerable to an unfavorable comparison with others. Can one imagine, for example, Akhmad Kadyrov, serving as president of the republic at the time because of Moscow's backing, not doing whatever was necessary to curry favor with Putin in order to secure his position in a region where any number of factions sought his overthrow (one of which succeeded in 2005 by blowing Kadyrov up with a bomb planted under his seat at a soccer stadium)? Thus, regardless of what anyone else did and regardless of what signals the Kremlin might have sent out about how much effort ought to be given to fraudulently augmenting the vote, the safe course of action was to do everything possible to ensure as large a vote as possible for Putin. Doing less can cost one one's job or earn a criminal indictment; doing more elicits at worst a knowing smile.

Aside from some variation in the sources of Putin's support, we see here the results of two sets of estimates detailing vote flows that are remarkably similar in terms of their implications. In both subsamples, we see the same coefficient exceed 1.0 and nonvoters moving to Putin and only to Putin. To some extent, of course, if we choose to interpret the highlighted coefficients as signaling fraud, then the coefficients for the republics most likely understate things. As our earlier analysis of distributions of turnout reveals (Section 3.2), fraud already taints the data from 2003 and the coefficients in Table 3.12 only add to that. In

any event, what we have here is evidence of the complete consolidation of Russia's ostensibly "democratic" political apparatus by the Kremlin. No longer is the Kremlin dependent on political bosses in the republics for vote manipulations. Those manipulations, while perhaps not universal, occur with sufficient regularity and magnitude in the oblasts now to be detected by our econometric methods. Moreover, any other candidate who might choose to compete against Putin was mere window dressing in an electoral system that had become more a Potemkin process than a democratic one.

It remains true, of course, that the vote flow estimates in Tables 3.10 and 3.12 do not confirm that all such "extra efforts" constituted outright fraud in the traditional Tammany Hall sense of stuffed ballot boxes and falsified election summaries. Our methodology can only raise suspicions about what actions were actually taken by regional bosses. But given what we already know about Russia and its electoral politics, including the special character of its autonomous republics, and given the forensic evidence we offer in earlier sections, it is naive to think that fraud of an explicit criminal sort did not occur in a substantial way. To believe otherwise in the face of other independent accounts of things is tantamount to being complicit in the fraud committed by others. So at this point it is perhaps interesting to attempt a measure of what we might generously label suspicious votes in 2004. We can begin by noting that our estimates suggest that fully 24 percent of those who failed to vote in 2003 voted for Putin in 2004 or at least are reported to have voted. Since over 40 million abstained in 2003, Putin ostensibly won $44.4 \times 0.24 = 10.6$ million votes from the ranks of nonvoters or from "voters" who were simply created to facilitate his victory. If we add to this the estimate that he also gained an additional 14 percent of United Russia's vote over and above what it actually won in 2003, or 3.2 million additional voters, we arrive at an estimate of $10.6 + 3.2 = 13.8$ million new or previously unaccounted-for voters – an impressive mobilization of support to say the least.

Thirteen million or so votes is indeed a substantial number – nearly 25 percent of Putin's overall total – and it is perhaps unfair to categorize all of it as outright fraud (although note that it excludes as suspicious any votes estimated to have come from others). Surely a share of it was legitimate, since turnout is normally higher in

presidential contests than in parliamentary ones and since Putin was positioned by his overall popularity to gain the lion's share of these additional votes. The ability of a Soviet nomenklatura to mobilize the vote when there is but a single officially sanctioned candidate did not always require the outright falsification of ballots. And those who directed election processes in Russia in 2004, if they were not members of that old establishment, surely bore a strong genetic connection to it. If, then, we take the ten percent of nonvoters that Putin won in 2000 as the natural increase in turnout when moving from a parliamentary to presidential election, the number of suspect votes from this source in 2004 drops to 6.2 million, leaving us with a total of 9.4 million suspect votes – 20 percent of Putin's total. This lower estimate might seem high for some, but if the *Moscow Times* can estimate a half million falsified ballots in only one of Russia's republics (Dagestan), then perhaps a number under ten million might even seem too low. Nevertheless, for those who continue to find this number an unrealistically high estimate, we direct their attention to yet another rayon in Tatarstan – one that officially reported 100 percent turnout in all forty-three of its election precincts and that awarded Putin 100 percent of the vote in all but one precinct. The odd precinct reported 100 percent of the vote for the candidate on the column adjacent to Putin's on the official protocol. The reader is free to decide whether this rayon gave an honest report of the balloting or whether, albeit with a clerical error, it presents itself as an example of the unashamed fraud that occurred in 2004.

There is one final caveat that we cannot resist adding to our analysis and conclusions about 2004. Following that election, Europe's OSCE issued its report on the conduct of the vote, which can be summarized as follows: "the elections were generally well administrated and reflected the consistently high public approval rating of the incumbent president but lacked elements of a genuine democratic contest. . . . While on a technical level the election was organized with professionalism, particularly on the part of the Central Election Commission (CEC), the election process overall did not adequately reflect principles necessary for a healthy democratic election process. The election process failed to meet important commitments concerning treatment of candidates by the State-controlled media on a nondiscriminatory basis, equal opportunities for all candidates and

secrecy of the ballot. . . . Localized instances of election-related abuse of official function, whilst met with an appropriately robust response by the electoral authorities in some instances, reflected a lack of democratic culture, accountability and responsibility, particularly in areas distant from the capital." In some respects this report concurs with our analysis: Even if we subtract the 9.4 million votes we deem suspicious from Putin's total, his popularity was such that his first-round victory would not have been reversed. Nevertheless, if one is looking for an example of "whitewash with deniability" or "diplomatic doublespeak," the OSCE's report fits the bill. One has to ask which is a more valid summary of the contest: that a level of fraud unmatched in any earlier election marred the final vote count in any number of republics and not a few oblasts or, as the OSCE report might lead us to believe, that such "details" are but a bump on the road in Russia's "transition to democracy"?

## 3.6 TRENDS IN RUSSIAN "DEMOCRACY" AND THE 2007 DUMA VOTE

In moving to a consideration of the 2007 parliamentary vote and trends in Russia's electoral processes, the election's context was now most notably marked by Putin's full control of Russia's political economic system. Oligarchs existed largely at the Kremlin's whim and were allowed to do business only if they stayed clear of opposition politics. In the meantime, with regional governors now merely Kremlin-sanctioned figureheads overseen by Putin-appointed "uber-governors," and with regional legislatures controlled by Putin's United Russia, the political system had come to mimic its Soviet form in which power was transferred, in anticipation of the 2008 presidential contest, to the head of the party, Putin. In fact, the 2007 parliamentary vote was wholly unlike its predecessors, which, up through 1999, served largely as primaries for the forthcoming presidential election (Ordeshook 1995, 1996) and in 2003 was but a stage in Putin's solidification of authority. In 2007, in contrast, winning an overwhelming victory for United Russia was critical if Putin was to remain in power while nevertheless adhering to a constitution that limited him to two successive terms. What was of paramount importance was ensuring that United Russia, with Putin at its head, won a

majority sufficient, if need be, to override Yeltsin's constitution and control any succeeding president. In other words, the 2007 election was designed to ensure the resurrection of the CPSU in form and function under a different label.

By way of establishing priors as to the expected level of electoral manipulation, it was pure fiction, then, to suppose that the party's electoral fortunes would be allowed to slip back to 2003 when it won a "mere" 37.57 percent of the vote and a near majority (223) of seats. To ensure that only entities sanctioned by the Kremlin could win seats, the threshold for representation was raised from 5 to 7 percent, thereby locking out any of the liberal gadfly parties such as Yabloko while magnifying the seat count won by United Russia (64.30 percent of the vote, 315 seats). During the campaign itself all explicitly anti-Kremlin opposition was muffled, barred from the ballot, jailed, harassed, and was cowered into submission, while independent election observers were virtually barred from participation by a web of new restrictions and visa requirements. On election day itself, any number of reports of electoral malfeasance were simply humorous, including,[7]

> In the central district [of Moscow] one of the female passengers on bus VE740, region 33, told Yabloko representatives "we came from the small city of Kovrov and were given a free tour around Moscow. In the morning we visited Red Square and now we are going around voting." . . . In Khabarovsk at the polling station situated at a rest home, 24 applications [for ballots] were found allegedly written by the inhabitants. During the inspection, four of them stated they had not written anything, three of them were not able to write as they were blind, and one of the "signers" had died one day before the election. . . . In Primorsky Krai Mrs. S. V. Agafonova turned out – on her arriving at the polling station #881 – that according to the documents she'd already voted (she was suggested to vote in an additional list as a comfort). . . . [In Dagestan] at 10:30 A.M. a group of 50 people accompanied by two guards armed with machine guns came to polling station #1048 in Makhachkala and put about 300 ballot papers into the urns. At half past noon, an armed group appeared at the same polling station, took the ballots from the desk, filled them out and put them in the urns. The chair of the district elective commission did not pay any attention to the incident.

[7] See http://en.novayagazeta.ru/data/2008/14/08.html, July 7, 2008.

And perhaps as proof that Russia has indeed entered the electronic age,

> In Tambov, near School #24 situated on Michurinskaya Street, all those who had voted for United Russia could get 100 rubles – it was necessary to present the photo of the filled ballot paper made with a cell phone.

Unsurprisingly, United Russia won a landslide victory wherein only Kremlin apologists and Putin sycophants had the audacity to argue that the election met the standards of good democratic practice. The immediate question that concerns us here, then, is whether our indicators register this transformation in Russian politics. Do they suggest that the preceding examples of irregularities in 2007 were aberrant cases and that any evidence of fraud in 2004 was merely a manifestation of a flawed political system in which electoral skulduggery is but a mere irritant in a still imperfect transition? Or, in conformity with the hypothesis of "United Russia as the CPSU" has fraud of a more malignant type increased in extent and severity to where the idea of a democratic election in Russia is now an oxymoron? Was the 2004 balloting merely a predecessor to a subsequent parliamentary vote in which the incentives for a rigged election were no less than in 2004?

In asking this question we emphasize that the type of fraud that concerns us is not the sort normally cited by observers or journalists, such as ad hoc barriers to the registration of parties and candidates, voter intimidation, or state-sanctioned limits on access to the media. That such things characterized the 2007 (and 2008) vote is well documented, and while we would hardly downplay their importance, one might reasonably argue that, because they are so visible and subject to external censure, a political system can evolve away from such practices. Given the evidence offered thus far in this chapter of a seemingly increasingly corrupt electoral process, our concern is with official actions of a more explicitly criminal nature – the stuffing of ballot boxes and the manipulation or wholesale fabrication of official vote counts. Here, then, we move to a more qualitative assessment of things and argue that fraud of a purely criminal sort has now infected and metastasized within the Russian polity to such as extent that we must also assume that the powers that be in the Kremlin either have little control of politicians in their competition to please the Kremlin or that the Kremlin no longer cares whether the West or anyone else judges their elections as free and fair or considers Russia to be a transitional democracy at all.

To make this argument let us look back again at the 1996 presidential vote. Recall that the immediate background to this election was Yeltsin's apparent vulnerability, which made it difficult for regional officials to know who to back in the first round if they wished to curry favor with the eventual winner. Yeltsin's competition came not only from Zyuganov but also from the then popular general Alexander Lebed and the proreform Grigori Yavlinski, who at least threatened to siphon off enough votes to raise the possibility that Lebed might enter a runoff against Zyuganov. Nevertheless, reflecting in part the power of the oligarchs who supported him, Yeltsin led the field with 35.3 percent of the vote, followed by Zyuganov with 32 percent, Lebed with 14.5 percent, Yavlinski with 7.3 percent, and the ultra-nationalist Zhirinovsky with 5.7 percent. Despite the vote's closeness, it was thereafter apparent that Yeltsin would prevail in the runoff. With Boris Berezovsky and his media empire leading a cadre of oligarchs strongly opposed to a Zyuganov victory and Lebed no longer on the ballot, not only was Yeltsin likely to win a majority of Lebed's vote and virtually all of Yavlinski's, but the power of the oligarchs to resurrect Yeltsin's viability was now evident to those political bosses who'd sat on the fence or initially backed his opponents. If there was, then, an incentive to commit to and make special efforts for Yeltsin, it came between rounds with the supposition that Zyuganov had hit the "glass ceiling" of support through which no Communist candidate could pass.

We note earlier that the special efforts on Yeltsin's behalf by some regional officials surely took the form of manufacturing official vote counts that bore little relation to ballots actually cast. Recall Table 3.2 and the examples of rayons in Tatarstan and Dagestan that exhibit switches in the vote between rounds that do more than merely strain credulity. Such examples, though, occasion two questions when tracing the progression of electoral fraud into the Putin era. First, how pervasive were such reversals? And second, where did they arise? The answers are straightforward. Although the magnitude of "incredulous switches" is nearly matched in other parts of Tatarstan and Dagestan, of the 2,327 rayons in our 1996 data set, only 194 saw Yeltsin's vote increase between rounds and Zyuganov's decrease. On the flip side, only 30 rayons reported an increase in Zyuganov's support in conjunction with a decrease in Yeltsin's. Thus, even if we ignore the fact

that many of these reversals are insignificant, only 224 rayons, or less than 10 percent of the total, yield a pattern that we might deem suspicious. Moreover, these reversals are concentrated almost exclusively in Russia's ethnic republics. For example, of the 194 rayons reporting reversals that favor Yeltsin, only 23 (12 percent) occur in oblasts. The remaining 171 reversals occur in ethnic republics, and are most heavily concentrated in the usual suspects: Slightly more than half of Bashkortostan's rayons report reversals favoring Yeltsin (53 percent), while fully 85 percent of rayons do so in both Tatarstan and Dagestan. Thus, these three republics account for fully two-thirds of all reversals in the ethnic republics. In contrast, the shift in votes in all other regions seems unexceptional. In Moscow, for instance, Yeltsin won 2,861,258 votes in the first round and 3,629,464 in the second – a 27 percent gain over his initial support – while Zyuganov won 694,862 votes in the first round and 842,092 in the second – a 21 percent gain over his initial vote. That Yeltsin did appreciably better than his opponent in Russia's most urban and reform-minded region in 1996 is no surprise, yet even here Zyuganov captured some votes in the runoff that went to other candidates in the first round.

A review of the data suggests, then, that outright fraud of any significant magnitude was limited in scope in 1996. This is also the lesson conveyed earlier by the distributions of turnout portrayed in Figures 3.4a and 3.4b. Clearly there is nothing of a suspicious nature in either of these figures: All distributions for oblasts are approximately normal without discernable perturbations. Indeed, the distributions for the three presidential ballots (the first and second rounds of 1996, and 2000) are nearly identical and are about as perfect a match to a normal distribution as we are likely to find in empirical data. In contrast, Figures 3.5a and 3.5b reveal a different pattern for the ethnic republics. First, as discussed earlier, the distributions are no longer normal; there is a discernable bump in each. And second, with respect to trends, the bump increases in severity in both figures as we move from 1995 to 2003. This data, then, is consistent with two hypotheses: (1) whatever outright fraud occurred in Russia between 1995 and 2003 occurred for the most part in its ethnic republics; and (2) the severity of that fraud increased incrementally over time.

The graph in Figure 3.5b for the 2003 Duma vote is interesting for another reason. Notice that in addition to becoming bimodal, the

left-most node – corresponding ostensibly to those republic rayons in which there were little or no outright falsifications – diminishes significantly in size. Thus, not only do Figures 3.5a and 3.5b suggest that fraud in the form of stuffed ballot boxes or augmented official election returns grew more severe in specific suspect republics, but its scope expanded to include republics that were previously untouched by such malfeasance. Nevertheless, if we focus on oblasts, we cannot argue against the view that while political elites there may have used various "administrative resources" to support a specific candidate or party between 1995 and 2003, their efforts were not so improper as to wholly discredit the process. At worst, if there was fraud in the oblasts that our method fails to detect, it seems to have remained a constant – neither increasing nor decreasing over time. Thus, while things seemed to move in a different direction in at least a few of Russia's ethnic republics, fraud of a magnitude that might cause us to question an election's overall legitimacy appears to have remained largely isolated. Indeed, an apologist might reasonably argue that Russia compared favorably with voting in the early 1800s in an evolving American republic where counties in, for instance, New Jersey often reported turnout in excess of 100 percent.

However, as our analysis throughout this chapter indicates, the presidential election of 2004 was quite different. Riding a wave of approval over his handling of Chechnya, feeding off the fears of bomb blasts in Moscow of suspect origin, enjoying the resources afforded by rising energy prices, and offering the electorate the image of a resurgent "Great Russia," Putin's reelection was a forgone conclusion from the start – a fact confirmed by his garnering of 71.3 percent of the vote as compared to his closet rival, the Communist Party's nominee, Nikolay Haritonov, with 13.9 percent. The writing on the wall was clear enough that Haritonov sought to withdraw from the race, but he was kept on the ballot by the Central Election Commission, presumably because some opposition was deemed necessary to give the election the semblance of legitimacy. Putin's inevitable victory impacted the strategic imperatives of regional bosses in an unambiguous and logical way: support the incumbent or suffer the consequences. The consequence of the strategic imperatives occasioned by a sure winner is illustrated by recalling Figure 3.6, which shows that despite the overall national decline in turnout (from 69 percent in

2000 to 64 percent), we see a dramatic shift to the right of the distribution for republics. The explanation for that shift lies in the fact that, in addition to habitually suspect Tatarstan, Dagestan, and Bashkortostan, we now have the republics of Ingushetia, Kabardino-Balkaria, North Ossetia, and Chechnya all reporting turnout in excess of 90 percent, with Putin, in Soviet-era style, being officially awarded, 98, 97, 91, and 92 percent of the vote, respectively. One is only left to wonder how many Chechen mujahideen came down from their mountain hideaways disguised as babushkas, circumvented a Russian military with orders to shoot to kill, and cast ballots for their nemesis so as to raise his vote twenty-one points above the national average.

The election of 2004, though, was not a critically important juncture in Russian politics simply because of the unambiguous pervasiveness of fraud in the republics. The change in the turnout distribution among oblasts, although nowhere near as dramatic as among republics, is also important. Recall the overall general shift left in that distribution as reported in Figure 3.6, corresponding to the national decline in participation for an election that was a forgone conclusion. But recall as well the sticky or elongated tail that makes that distribution begin to approximate what we observed for republics in 1995 and 1996. In other words, a number of oblast rayons were not a part of the general decline in turnout and a few even reported increases in participation. And since regional bosses hold the greatest sway over rural regions, Figures 3.7a unsurprisingly reveals the sticky tail identified in Figure 3.6 as being most noticeable among rural oblasts.

Having thus seen when rural oblasts were first infected by artificially augmented turnout (i.e., 2004), it is useful to see precisely when urban republic rayons experienced a similar augmentation. We know that the distortion in the distribution of turnout within republics also occurs most dramatically among rural rayons, but Figure 3.7b also reveals a nearly symmetric bimodal distribution among urban republic rayons, which is consistent with the proposition that approximately half of those districts resisted fraud in some way while the other half fully succumbed in 2004 to what can only generously be labeled as "suspicious rates of participation." Now, though, consider Figure 3.9a, which concerns only presidential elections and which redraws part of Figure 3.7b, while, for contrast, Figure 3.9b uses data from the preceding

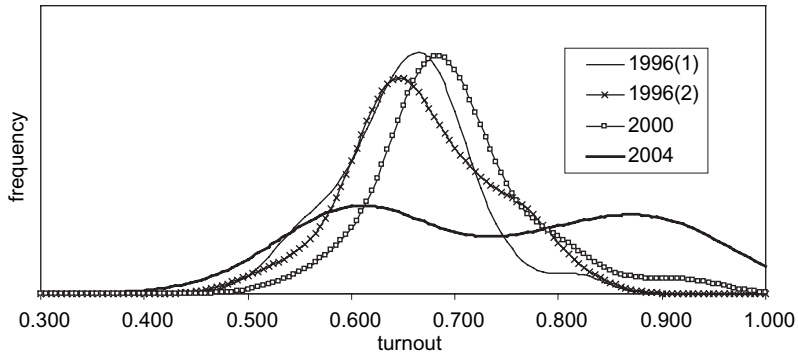


FIGURE 3.9a. Presidential Turnout Distribution, Urban Republic Rayons

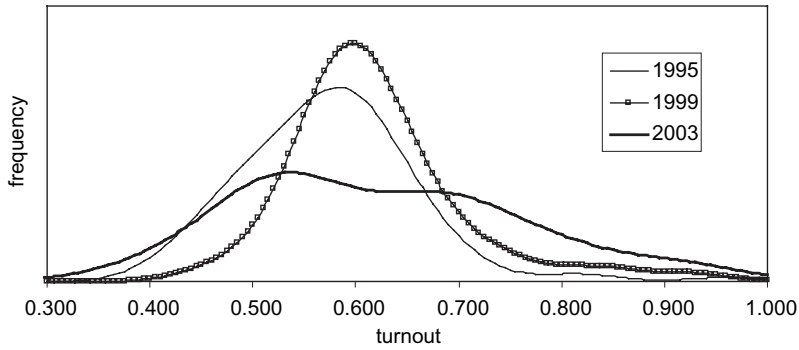


FIGURE 3.9b. Duma Turnout Distribution, Urban Republic Rayons

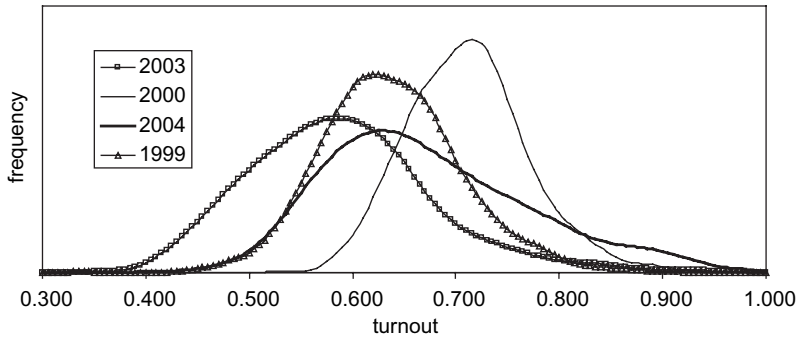


FIGURE 3.9c. Turnout Distribution, Rural Oblasts

parliamentary contests. The critical thing here is that although we can see slight perturbations in the right tail of the distributions in Figure 3.9a for presidential elections prior to 2004, they are far too small to be deemed significant. Figure 3.9b, on the other hand, shows that the 2003 parliamentary election represents the break with the past. Thus, it was in the middle of Putin's first administration, before the 2004 presidential campaign officially began, that fraud's scope expanded to infect not only the republic's rural areas, but their urban centers as well.

Figure 3.9c adds a caveat to this story. Clearly, turnout is greatest overall for the 2000 presidential contest and shifts sharply left-wards in 2003 to a level below that of the competitive parliamentary vote of 1999. However, all three distributions are unexceptional. It is only the distribution for 2004, with its elongated right tail, that looks suspicious. The implication, then, is that although the parliamentary vote in 2003 presaged 2004 in urban republic rayons (Figure 3.9b) with respect to manipulations and falsifications, such effects appeared in rural oblasts only in 2004.

We should hardly be surprised to learn that a discernable level of outright falsification of ballots and official summaries did not wait until 2004 to expand in scope among the republics to include their urban centers. With the 2003 parliamentary election being the first stage of Putin's transformation of Russia's political system, if regional bosses were to demonstrate their loyalty to the Kremlin, they had little incentive to wait until 2004 and every incentive to jump on the bandwagon as soon as possible with the exercise of their "administrative resources" in support of United Russia. However, what is surprising is that the evidence of fraud in the form of artificially augmented turnout is not stronger within rural oblasts in 2003 (as judged by our method). Nevertheless, regardless of the explanation for this differential timing, the fact remains that as we move into 2004 we see the sometimes gradual and sometimes accelerated increase in the apparent scope and magnitude of fraud over time in both republics and oblasts.

We emphasize once again that there is little evidence to prove that anything we might label fraud in 2004 was directed or even explicitly sanctioned by the Kremlin. It may have been that Putin still sought to wear a democratic mask but found himself unable to control the actions of regional bosses and elites who had a clear incentive to ensure a solid victory for him. Suppose, however, that rather than rein

in regional elites and pressure them to avoid the electoral excess of 2004, in 2007 Putin chose a different strategy – one designed to assert Russia's independence from the West, and to demonstrate the West's (specifically, the European Union's) impotence and dependence on Russia. What better way to do that than by reverting back to a Soviet-era electoral style wherein regional elites are allowed to operate as before, election observers from OSCE are in effect denied meaningful access, Putin proclaims himself the world's sole true democrat, and with bluff and bravado, officials are directed to assert that Russia's elections are as free and fair as anyone else's – and then to simply ignore the sarcasm of journalists and the grumblings of Western politicians and bureaucrats who find it convenient to argue that Russia is an ally against international terrorism or who are more concerned with the flow of natural gas than of fraudulent ballots?

That fraud again occurred in 2007 in the form of stuffed ballot boxes and falsified official summaries seems self-evident. We can only conclude on the basis of official returns that the mujahideen of Chechnya once again descended from their mountain hideaways to vote, this time in greater numbers than before, so as to raise turnout to a remarkable 99.2 percent with 99.4 percent going to Putin's United Russia. Thus, of the 580,000 registered voters in Chechnya, only 3,000 are reported to have failed to find their way down winding mountain paths and bomb craters to their polling stations – fewer than the number or people reported "missing" under the brutal regime of the republic's autocratic president, Ramzan Kadyrov. Then there is the republic of Ingushetiya, which replicated its remarkable turnout from the previous election of 98 percent. This time, however, the dissident Web site ingushetiya.ru began a campaign of collecting the signatures and passport numbers of registered voters who certified that they hadn't voted. As of December 23, 2007, fully 57,898 certified signatures had been collected, representing 36 percent of the republic's registered electorate! Apparently Ingushetiya practices a form of democracy in which it isn't necessary to vote to be counted.[8] And while, with the returns from Chechnya

[8] And perhaps we should not also be surprised at the fact that the founder of the website Ingushetiya.ru, Magomed Yevloyev, was shot to death in the head while in police custody August 31, 2008, when returning to Ingushetiya. See http://news.bbc.co.uk/2/hi/europe/7590719.stm.

in mind, the Western media may have chuckled at the assertion of Vladimir Churov, chairman of Russia's Central Election Commission, that he knew of "no serious violations in the course of polling day," there is also the rayon in the republic of Karachaevo-Cherkessia in which all fifteen voting stations reported 100 percent turnout (17,779 voters) with 100 percent of the vote going to United Russia. Not a single cynic or curmudgeon among nearly 18,000 voters!

These Soviet-era type numbers, though, do not tell us about overall trends and magnitude and we can begin by noting that the overall impact of manipulations and falsifications is evident in the gross numbers summarizing the 2007 outcome. Whereas in 2003 United Russia secured 37.57 percent of the vote, in 2007 its share increased to a remarkable 64.30 percent (315 of 450 seats). Only three other parties won parliamentary representation: the Communist vote declined slightly from 12.61 to 11.57 (57 seats), the LDPR's from 11.45 to 8.14 (40 seats) and "A Just Russia," largely deemed a shill party that in fact supported Putin, won 7.74 percent (38 seats). Thus, even without a formal flow of votes analysis, with these four parties accounting for 91.75 percent of all ballots officially recorded, it is clear that while a small share of United Russia's increased vote may have come from the CPRF and LDPR, it "gathered up" the votes of almost every other party that competed in 2003. It follows that when evaluating the 2007 vote relative to previous elections, it is sufficient to look at a single indicator, the distribution of turnout. We begin then with Figure 3.10a, which graphs turnout for 2007 and compares the distributions for republics and oblasts against what we observe for 2003. The differences are striking. Not only is there a virtual explosion of rayons with turnout in excess of 90 percent, we see the overall right-ward shift in that distribution with a not insignificant share of oblast rayons reporting turnout in excess of 80 percent. Indeed, as Figure 3.10b reveals, patterns of turnout in 2007 – essentially an off-year election for which turnout usually declines relative to presidential contests – closely match what we observe for 2004. Specifically, in 2003, 2004, and 2007 the percentage of republic rayons reporting turnout in excess of 90 percent increased from 14 to 33 to 39 percent while the percentages for oblasts went from 0.4 to 3 to 2 percent. Similarly, the percentage reporting turnout in excess of 85 percent went, in republics, from 23 to 44 to 48 percent, and in oblasts from 1

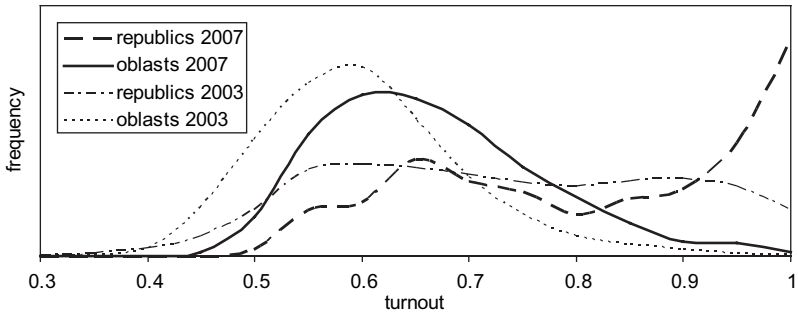


FIGURE 3.10a. Turnout Distributions, 2007 versus 2003

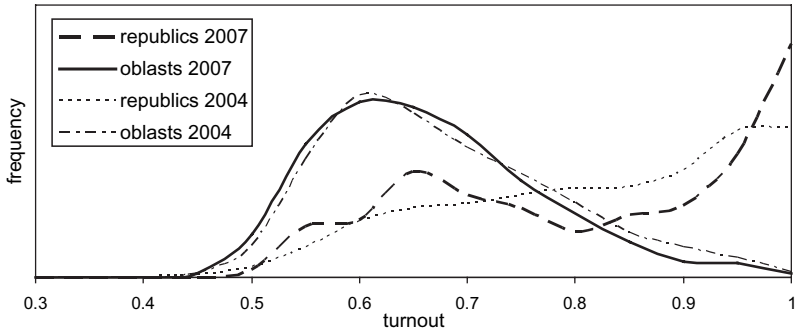


FIGURE 3.10b. Turnout Distributions, 2007 versus 2004

to 6 to 4 percent. Conversely, the percentage of republic rayons reporting turnout less than 65 percent went from 31 to 11 to 12 percent but in oblasts declined from 64 to 37 to 39 percent.

Overall, then, the message conveyed by these numbers is that the 2007 vote bears a closer correspondence to the 2004 presidential contest than it does to the preceding 2003 parliamentary election. The 2003 vote may have presaged the corruption and fraud that permeated voting and vote counting in 2004 – notably, the continued deterioration of democratic standards in the republics and the suspicious increasing turnout in a subset of rural oblast rayons. But if there is a difference between 2004 and 2007, it is only that an even greater number of republic rayons had their turnout augmented in 2007 or had them augmented to a greater degree.

To further underscore the fact that these turnout distributions correspond to artificially generated numbers, let us turn to an augmentation of our method suggested by Sergei Shpilkin in his analysis of the 2008 presidential vote.[9] Specifically, consider Figure 3.11a, which graphs the distribution of turnout across all of Russia's approximately 90,000+ precincts.[10] The thing to note here, aside from the incredibly large number of precincts reporting 100 percent turnout, is the sawtooth nature of this distribution above 0.60 and the fact that its peaks occur precisely at rates ending with the digit 0 or 5 (e.g., 0.65, 0.70, 0.75, and so on). A distribution taken from data untainted by fraud should be smooth, or with peaks, if any, at random points on the horizontal scale. For purposes of comparison, Figure 3.11b presents similar distributions for precincts carried by Yushchenko and Yanukovick in the third round of Ukraine's 2004 presidential contest. Despite the suspicious rise in precincts reporting 100 percent turnout for Yanukovich, neither of these distributions reveal a pattern like the one in Figure 3.11a. The data for Russia here, then, is consistent with the hypothesis that turnout numbers were manufactured artificially, with simple rounded numbers entered into official protocols.

To look further now into the similarities between 2004 and 2007 (as opposed to 2003 versus 2007) with a particularly dramatic example, let us look at one specific Moscow rayon (Presnya) since it reveals how fraud has now infected even Russia's capitol. Figure 3.12 graphs the distribution of turnout by precinct in that rayon for the 2003, 2004, and 2007 elections, and the picture it paints is striking. The distribution for 2003 looks utterly normal, without a hint of malfeasance. In 2004, on the other hand, it is as if we are dealing with two separate elections or two separate countries. There is a massive upsurge of turnout, but only among a subset of precincts whereas the remainder look much like they did in 2003. The net result is that the overall distribution looks as if it were made of two wholly disjointed unimodal densities. Finally, in 2007, there seems to be some backsliding among a subset of previously corrupted precincts, but not so

[9] As reported in *TimesOnline*, April 18, 2008. See also http://freakonomics.blogs.nytimes.com/2008/04/16/russian-election-fraud/. For a similar analysis applied to Nigeria see Bernd and Scacco (2008).

[10] Although the original source of this data is Russia's Central Election Commission, its collation was provided by http://www.swivel.com/data_columns/spreadsheet/7193842.

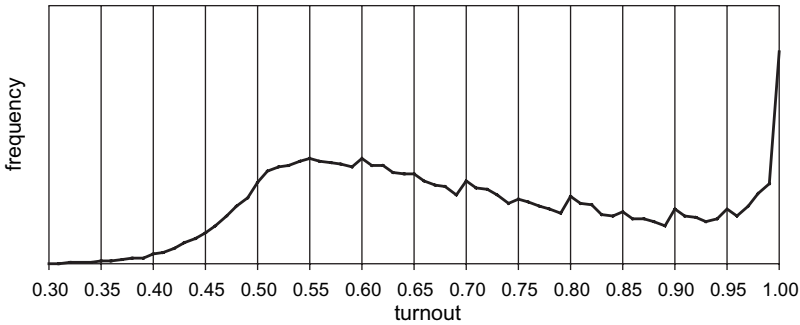


FIGURE 3.11a. Distribution of Precinct Turnout, Russia 2007

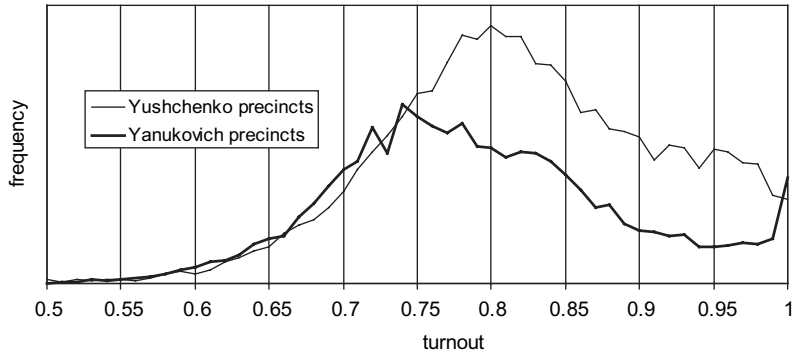


FIGURE 3.11b. Distribution of Precinct Turnout, Ukraine Third Round 2004

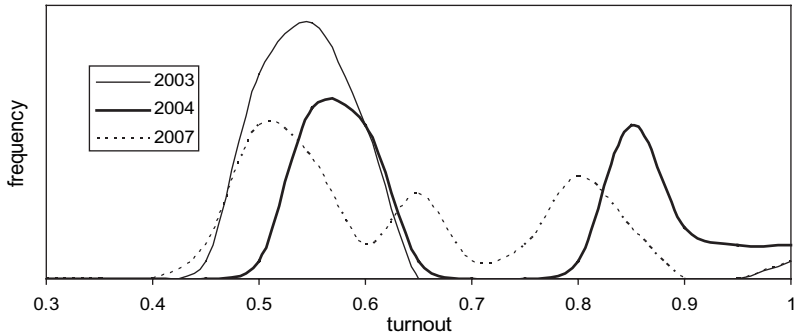


FIGURE 3.12. Turnout Distributions, Presnya Rayon, Moscow

great as to return them to where they had been in 2003. And in the remaining subset, there is virtually no backsliding at all. Overall, whatever fraud we attribute to 2004 in this urban Moscow rayon persisted to a significant extent in 2007.

The inferences we draw from Figure 3.12 are not dependent on looking at turnout distributions alone. If we consider the relationship between turnout and Putin and United Russia's absolute vote in this one rayon we find the following: In 2003, we get

$$V_{UnitedRussia2003}/E = -0.01T + 0.14, R^0 = 0.91$$

In 2004, that regression becomes

$$V_{Putin2004}/E = 1.10T - 0.26, R^2 = 0.96$$

and in 2007 we have

$$V_{UnitedRussia2007}/E = 1.38T - 0.45, R^2 = 0.91$$

That is, for every additional ten people who marched to the polls in 2007, United Russia's support increased by nearly fourteen votes in Presnya! Moreover, if we split precincts in 2004 between those reporting greater than 70 percent turnout and those reporting less, the coefficients for Putin are, respectively, 0.96 and 0.41; and if in 2007 we split precincts into those reporting greater than 55 percent turnout and those reporting less, the coefficients for United Russia are 1.01 and a statistically insignificant –0.03 respectively. Thus, every additional vote in the high-turnout precincts went to Putin or United Russia!

The data needs to be understood in context. If international observers had access to polling stations and the vote counting process, that access almost certainly was greatest in Moscow. Still, in 2004, the distribution of turnout suggests that nearly half the precincts of Presnya rayon saw turnout augmented, all to the benefit of Putin. And while a Putin apologist might argue that all we are seeing is a manifestation of his popularity, we also need to keep in mind that Moscow rayons are demographically homogeneous (nor are we aware of any temporal demographic process that would result in such a change in

distributions over the course of the few months between the 2003 and 2004 elections). So that leaves unexplained why voters at a majority of Presnya's polling stations did not share in this enthusiasm.

We appreciate, of course, that Presnya is but one of Moscow's 105 rayons and that not all of them exhibit turnout distributions like those in Figure 3.12. On the other hand, Presnya is not unique. Of the fifteen rayons with 40 or more voting precincts, at least a third exhibit suspicious distributions in 2007 (or at least require some considerable nonhomogeneity in the data to be otherwise explained).[11] At this point, though, it is perhaps more illuminating to compare Moscow with St. Petersburg. Neither city awarded United Russia a share of the vote comparable to what it won nationally (63.4 percent) and despite Putin's favorite son status in St. Petersburg, United Russia performed better in Moscow than in Putin's hometown (54.9 percent versus 50.8 percent). The rayon-level data in Figure 3.13a suggests that some if not all of this difference can be attributed to Moscow's more suspiciously skewed distribution of turnout. It is important to note here, moreover, that this skewness cannot be attributed to any peculiar ways in which data is aggregated within and across rayons. Figure 3.13b gives the comparable turnout distributions when data is aggregated only up to the level of individual precincts. Here we see a virtually perfect normal density for St. Petersburg as opposed to an extended right tail for Moscow. Of the two cities, then, suspicions of electoral malfeasance fall on Moscow.[12]

[11] The most evident oddities are exhibited by rayons # 92, 93, 94, and 131.

[12] With respect to explaining why the differences between Moscow and St. Petersburg seem more evident in Figure 3.12a as compared to Figure 3.12b, the reader should appreciate how averaging and the law of large numbers operate here. For example, suppose we have two districts with twenty precincts each, and suppose there is no electoral malfeasance in the first district so that turnout in all precincts is precisely 50 percent but that half the precincts in the second have turnout artificially augmented to 70 percent. The overall distribution of turnout across precincts will then have two nodes – thirty precincts at 50 percent and ten at 70 percent (i.e., a distribution that across a great many districts with added noise begins to approach a Gaussian with an elongated tail). On the other hand, if we average turnout across precincts within districts, the distribution of districts will simply have two nodes of equal height, one at 50 percent and the second at 60 percent (i.e., a distribution that begins to approach a uniform density). This effect of aggregation and disaggregation is precisely what we see when comparing Figures 3.12a and 3.12b.

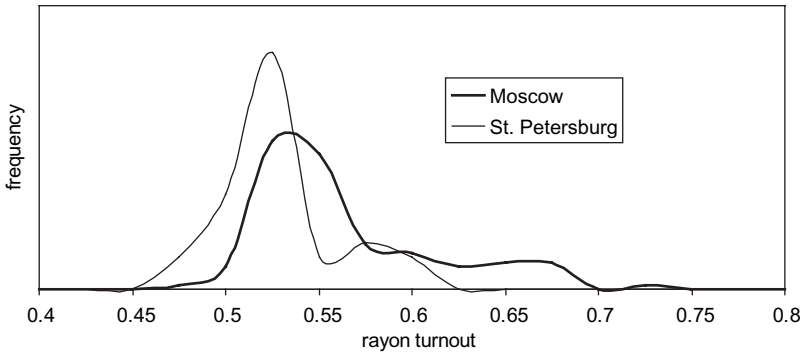


FIGURE 3.13a. Turnout Distributions, Moscow, St. Petersburg Rayons 2007

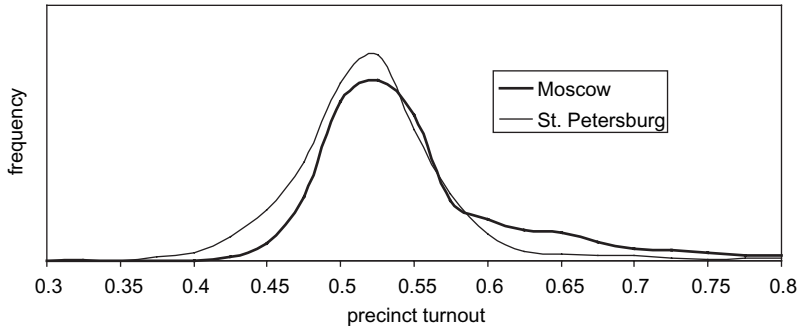


FIGURE 3.13b. Turnout Distributions, Moscow, St. Petersburg Precincts 2007

That this ostensible malfeasance was implemented primarily for the benefit of United Russia is confirmed now if we separate precincts into high and low turnout categories (those with turnout in excess of 55 percent and those with lower officially reported rates of participation),[13] and then regress $V_{UnitedRussia}/E$ against $T$ using both our precinct and rayon-level data. Table 3.13 reports the results of these regressions and shows the following: although neither city approximates what we found for Russia's republics, and although the coefficient on $T$ approximates United Russia's actual share of the vote in

[13] Our data here again excludes precincts with fewer than 100 registered voters.

TABLE 3.13. *T versus V/E for United Russia, Moscow, and St. Petersburg 2007*

| | Precincts | | | | Rayons | | | |
|---|---|---|---|---|---|---|---|---|
| | Coefficient on T | Intercept | $R^2$ | *n* | Coefficient on T | Intercept | $R^2$ | *n* |
| Moscow High | 0.82 | −0.15 | 0.76 | 1065 | 0.96 | −0.22 | 0.56 | 39 |
| Moscow Low | 0.42 | 0.05 | 0.08 | 2172 | 0.48 | 0.02 | 0.07 | 66 |
| St. Petersburg High | 0.85 | −0.19 | 0.81 | 309 | 0.91 | −0.21 | 0.75 | 5 |
| St. Petersburg Low | 0.49 | 0.01 | 0.31 | 1439 | 0.60 | −0.05 | 0.38 | 25 |
| Moscow Overall | 0.79 | −0.13 | 0.77 | 3237 | 1.04 | −0.27 | 0.75 | 105 |
| St. Petersburg Overall | 0.75 | −0.12 | 0.78 | 1748 | 0.78 | −0.14 | 0.76 | 30 |

low-turnout precincts and rayons, anywhere between 82 and 96 percent of any additional vote goes to United Russia in the high-turnout precincts and rayons. Notice, moreover, that although this holds true for both cities, a far greater percentage of Moscow precincts (33 percent) qualify with high turnout than do St. Petersburg precincts (18 percent) – a fact that is reflected in the perturbed distributions of turnout for Moscow portrayed in Figures 3.12a and 3.12b. Clearly, then, votes for United Russia were mobilized in some way in both a part of Moscow and St. Petersburg, but with greater effectiveness in Moscow.

This discussion leads us to speculate about the likely magnitude of fraud in Moscow. Using the estimates from the first column of Table 3.13, we begin by assuming that United Russia's legitimate share in low-turnout (uncontaminated) precincts was 42 percent in Moscow and, owing to Putin's favorite son status, 50 percent in St. Petersburg. We will not speculate about St. Petersburg, but a jump in the a regression coefficient from 0.42 to 0.82 in Moscow among the high-turnout precincts hints at some extraordinary efforts, ostensibly, on Mayor Luzhkov's part, especially when we take into account Moscow's relative demographic homogeneity. With United Russia's eventual vote share equaling nearly 55 percent, we might then speculate that Luzhkov and his minions "contributed" the additional 13 percent, which, with a reported turnout of approximately 4 million for Moscow, equals some 500,000 falsified or "administratively encouraged" votes. If we assume further that fraud occurred on an even greater scale in 2004 (as suggested by the turnout distributions for Presnya in Figure 3.11), it is not unreasonable to speculate that Putin benefited by upwards of a million suspect votes in Moscow alone in his 2004 reelection – enough to blunt any threat to Luzhkov's position. Thus, while our forensic indicators in some ways paint a clearer picture of fraud in Russia's ethnic republics, Moscow's greater population leads us to the reasonable conjecture that the absolute magnitude of its falsified or manipulated vote was, beginning with 2004, not likely to be less than what we might find in any republic.[14]

[14] Moscow's official population approximately equals that of Tatarstan, Dagestan, and Bashkortostan combined.

## 3.7 PLAYERS AND MOTIVES

Surely the Kremlin was well aware of the fraud that permeated Russia in 2004 and that sustained itself in 2007, at least as judged by data such as that summarized in Figures 3.10a, 3.10b, and 3.11. Thus, as in any criminal investigation wherein prosecutors seek to understand the motives of alternative suspects in forming their theory of a crime, we should ask why Putin and his regime discouraged outside observers from monitoring its elections in 2007: after all, monitors, at least in Presnya, seemed to have had little impact in 2004 (or is that why not all precincts reported turnout in excess of 80 percent?). It is almost as if the Kremlin was challenging the West to declare its election illegitimate, knowing that few if any would do so and in this way demonstrate that Gasprom's vote counts more heavily in international affairs than does that of the Russian electorate. Indeed, as Fyodor Lukyanov, editor of the independent *Russia in Global Affairs*, summarized matters, "Russian authorities are making it very clear that they don't care what the world thinks about our elections. . . . In the past we were trying to meet international standards but now, according to the Kremlin, we have created our own Russian model of democracy – and it's none of the West's business."[15]

There are several explanations to be considered here when trying to understand the role of elections in Russia today. The first is that the Kremlin deliberately orchestrates the fraud that permeates its electoral process out of a paranoid fear of losing control. A second is that Putin put in place a process driven by a system of incentives whereby regional elites see no alternative to currying favor with the Kremlin through massive falsifications of the vote. Reality almost certainly involves a mix of these two factors. Although hypothesizing a paranoid Kremlin might seem extreme, keep in mind that we do see officials unapologetically defending an electoral process that yields self-evidently absurd outcomes (e.g., Chechnya). On the other hand, we also need to understand the incentives established by such "reforms" as the appointment rather than the direct election of governors embedded in a political-economic system where property rights

[15] See *The Christian Science Monitor*, November 30, 2007. Specifically, http://www.csmonitor.com/2007/1130/p06s02-woeu.html?page=2.

exist only at the Kremlin's whim. Surely the Kremlin does not fear losing an election, at least in the short run. Events in Ukraine in 2004 and Putin's subsequent humiliation may have ratcheted up the overall level of paranoia a bit, but command-and-control are seen as a vital component of Putin's "managed democracy." Thus, aside from whatever purpose they might serve in international propaganda and the often comical portrayal of Russia as a democracy, the Kremlin almost certainly sees elections as a way of monitoring and controlling regional bosses, elites, and bureaucrats. Absent the usual signals that a true democracy, imbedded in a market economy, provides, the Kremlin needs ways to judge the loyalty and competence of those outside its walls, and elections serve that purpose. A weak showing, relative to the past, on the part of Putin, Medvedev, or United Russia in some oblast, rayon, or precinct signals a governor or local apparatchik who needs replacement if not outright incarceration. Governors and apparatchiks respond in the appropriate ways – as they had responded in their Soviet past.[16]

But even this motive provides an inadequate explanation for things, for surely other ways can be imagined wherein the Kremlin can demand and judge loyalty. One might wonder, then, whether the incentives of the political game established by Putin's "reforms" inadvertently created a Frankenstein monster that Kremlin nomenklatura can only imperfectly control and whether the fraud that permeated the 2007 parliamentary vote was itself an inadvertent consequence of those "reforms." In fact, we suspect otherwise.[17] First, our indicators tell us that electoral malfeasance of the more criminal sort is now widespread and no longer limited to a few ethnic republics. Thus, while we have refrained from offering a quantitative estimate of the overall number of falsified ballots in 2007, we should keep in mind our estimate of upwards of 10 million suspect or fraudulent

[16] See *International Herald Tribune,* "Russian Election Insider Outlines Fraud," November 27, 2007. http://www.iht.com/articles/2007/11/27/europe/27fraud.php?page=1.

[17] On the other hand, arguing that the Kremlin under Putin played no role in facilitating fraud is belied by Putin's attack on the European University of St. Petersburg and the school's ordered closing in February 2008 (under the guise of "fire violations" in its buildings), following its acceptance of a 2007 grant from the European Union to develop a program on how to ensure that elections are not rigged. See http://www.guardian.co.uk/world/2008/feb/12/russia.

votes in 2004 and the fact that Figures 3.10a and 3.10b give us no reason to suppose that fraud was significantly less prevalent in 2007. Almost certainly anywhere between 20 and 25 percent of United Russia's vote was won in a way that would not pass muster in an established or transitional democracy. However, instead of finding actions taken on the part of the Kremlin to rein in this electoral corruption we see instead Kremlin appointees, including Vladimir Churov, chair of its Central Election Commission, proclaiming "there were no serious violations of the rules on election day." On the other hand, if we assume that Putin's objective is to reestablish a power structure once he moves to the office of prime minister equivalent to that which characterized the Soviet Union wherein the party secretary was the critical center of authority (and who, after all, can recall the name of the president of the Soviet Union as opposed to the Chairman of the CPSU?), then it makes perfect sense to see the logic behind winning, by fair means or foul, a vote sufficient to ensure a greater-than-two-thirds parliamentary majority for United Russia. With that majority there is no need for Putin to subvert the constitution by running for a third term or for there to emerge a power struggle between him and any successor. Instead, at least for the next four years, the president can be controlled in the same way the party secretariat of a vertically integrated CPSU controlled Soviet politics.

Regardless of whether one accepts this argument as the motive for the fraud that now permeates Russian elections, it is clear that both the 2004 and 2007 votes were democratic oxymorons.[18] Minimally, Andrei Vyshinky's protégés are alive and well not only in Tatarstan's Nurlatinskii region, but in other parts of Russia as well.

[18] We also feel justified in adding that because the gross numbers generated by its 2008 presidential vote are a little different from those reported for 2004 and because little if anything changed with respect to the dynamics of Russia's domestic politics between 2007 and 2008, there is also little reason to disbelieve reports of over 10 million falsified votes in Medvedev's behalf and, correspondingly, little reason to analyze that "vote" as if it were an election. The assertion that the only limit placed on falsifications and the most extreme applications of "administrative advantage" was the requirement that Medvedev's vote not exceed Putin's seems eminently reasonable.

# 4

# Ukraine 2004

> We cannot accept this result as legitimate because it does not meet international standards and because there has not been an investigation of the numerous and credible reports of fraud and abuse.
>
> Colin Powell, November 24, 2004

> A repeat of the second round would yield nothing. . . . Are you going to conduct it three, four, maybe 25 times?
>
> Vladimir Putin, December 1, 2004

## 4.1 ROUNDS 1 AND 2, 2004

Discussions of election irregularities along with the Copenhagen Document from Organization for Security and Co-operation in Europe/Office for Democratic Institution and Human Rights (OSCE/ODIHR) allow for two general categories of electoral malfeasance. In the first we find the outright stuffing of ballots and the falsification of official protocols wherein the numbers reported by election commissions and the like can have only a spurious relationship to ballots actually cast. The second includes the more amorphous influences of regional and local political elites that we label "administrative advantage" and can encompass decidedly undemocratic actions such as the physical intimidation of voters and biased media coverage, as well as more innocuous things such as administrative actions that make it easy for voters to support one candidate as opposed to another. The following quotation from the *Kyiv Post,* offered in

reference to the election returns of Viktor Yanukovich's Party of Regions in Eastern Ukraine during the 2006 parliamentary contest, is perhaps as good a definition as any of the more insidious side of administrative advantage:

> [T]hey are a product of documented coercion, intimidation and covert operations . . . they are based on machine politics in Ukraine's eastern provinces where [Yanukovich's campaign] is in control of the local administration and manufacturing and can offer people fearing poverty and insecurity short-term material incentives in return for votes . . . they are based on a lingering Soviet-style cradle to grave enterprise-paternalism, still stronger in eastern than western Ukraine, that allows managers and owners to politically blackmail their employees – much as company town owners did in 19th century Western Europe and America. (Stephen Velychenko *Kyiv Post*, Kyiv, Ukraine, Thursday, May 17, 2007)

When applied in such extreme ways and absent videotapes of ballot boxes being stuffed or official protocols falsified, it is often difficult to differentiate between the two categories of electoral malfeasance using the circumstantial evidence available to us through official returns. Nevertheless, we have Ukraine's 2004 presidential contest where there is near universal agreement (except, of course, within Putin's entourage) that the second round was marred by massive irregularities of the first sort, where administrative advantage was not only applied in its most extreme forms, but where ballot boxes were stuffed with the votes of fictitious voters and election summaries filled in without regard to ballots cast. Here, in fact, we have evidence and eyewitness accounts that even Russian spin doctors and those who committed fraud cannot dispute. There is, for instance, the testimony of the precinct committee head in Zaporizhzhia who describes the schemes used to artificially augment Yanukovich's vote through outright ballot stuffing, absentee ballots "cast" by the rayon administration, the preparation of vote tabulations prior to the actual balloting, and the economic incentives given precinct leaders for "adjusting" the vote (*Zaporizhzhia Post*, December 14, 2004). We have the fact that nine of Donetsk's election districts reported turnout in excess of 100 percent. And we have the testimony of Lyudmyla Hrebenyuk, Chief Consultant to the Administration of the President (Kuchma), who testified before the Supreme Court to the addition of more than 1.1 million votes by the

Central Election Commission late in the evening and early morning to totals given Kuchma by regional commissions via a system set up to allow him to independently monitor the election. While regional authorities reported a turnout of 29,291,744 votes, the CEC announced 30,412,994 – a discrepancy that included a difference in Donetsk oblast alone of 511,780 votes (http://www.zerkalo-nedeli.com, #52, Saturday 25–30 December 2004). We have an election here, then, that begs for some objective measure of fraud's overall magnitude.

Before proceeding, it is perhaps useful to present some background to the 2004 balloting. Briefly, despite the presence on the ballot of a number of other candidates, the 2004 vote was primarily as a contest between two antagonists, Viktor Yanukovich and Viktor Yushchenko. Yanukovich was born in Donetsk, in a working class background, and rose ultimately to become governor of the oblast (1997 to 2002) and then, under President Kuchma, prime minister from November 2002 to December 2004. His career, though, was not without controversy or at least a few skeletons, including convictions in 1960 and 1970 for robbery and bodily injury and, later, allegations of connections to organized crime. Yushchenko, in contrast, was born into a family of teachers and rose smoothly to eventually become head of Ukraine's central bank (1993 to 1999), during which time, while visiting Washington. D.C., he met his future (second) wife who, though of Ukrainian descent, had been born and raised in Chicago. Yushchenko's tenure at the central bank, where he was credited with stabilizing the national currency, was followed by a stint as prime minister under Kuchma (1999 to 2001). As a consequence of their policy positions and backgrounds (including Yushchenko's marriage), the 2004 contest between the two Viktors highlighted the political schism between East and West that characterizes Ukraine's political landscape – an industrial Eastern half with strong ties to Russia and the Russian language as opposed to a largely agricultural Western half that had been forced into the Soviet Union following World War II and that sees itself as the defender of Ukrainian culture and a part of Europe.

One additional event served to highlight the salience of this East-West divide – Yushchenko's dioxin poisoning. By itself, this attempt on his life might only have won him sympathy, but many attributed the poisoning to Putin or his KGB fellow travelers at a time when

Putin was anything but subtle in his backing of Yanukovich. Indeed, Putin viewed Yushchenko, with his Western sympathies, as an impediment to Russia's reemergence as a "great power" and the resurrection of its empire, while Yanukovich gave every indication of playing a role subservient to Russian interests.

With the political forces between Eastern and Western Ukraine largely in balance and given the presence of other candidates on the ballot for the first (October) round, it was correctly assumed that no candidate would pass the 50 percent threshold so as to negate the need for a runoff. Thus, whatever manipulations of the vote were planned, they were scheduled for the second (November) runoff. If there was a surprise in the first round it came when Yushchenko pulled off a slim plurality (39.87 percent versus 39.32 percent or approximately 11.18 million votes versus 11.01 million) over Yanukovich. The second round was, at least as reported by Ukraine's Central Election Commission, a victory for Yanukovich – 49.42 percent versus 46.69 percent (14.97 million versus 14.15 million votes) with the remaining ballots cast "against all." It was then, however, that the wheels fell off Yanukovich's cart: with countless on-the-ground observers reporting one instance of vote falsification after another, with usually reliable exit polls giving Yushchenko the victory (as much as 11 percent more of the vote than officially recorded by the CEC), with Western governments in sequence refusing to acknowledge the outcome as legitimate, and with upwards of a half million protestors camped out in Kyiv's central square in an event termed the Orange Revolution (after the color adopted by Yushchenko to denote his campaign), Ukraine's Supreme Court was, much like events following the Florida recount in 2000 in the United States, thrust into the process as referee. Their decision required a second runoff, in December. In the interim Putin's election mechanics slinked back to Moscow, Kuchma effectively withdrew his support of Yanukovich, regional and local election officials who had previously applied their "administrative talents" on Yanukovich's behalf proclaimed neutrality, and countless election observers poured into the country from Europe, Canada, and the United States. The outcome was preordained – a Yushchenko victory, (52 percent versus 44 percent for Yanukovich or 15.12 million versus 12.85 million).

## Distribution of Turnout

Naturally, disagreement with this assessment of a rigged November vote comes from those who orchestrated Yanukovich's campaign or Russian apologists such as Sergi Markov and Gleb Pavlosky who sought to export to Ukraine the methods used to facilitate Putin's recoronation a few months earlier. Fortunately, Ukraine's electoral sequence is about as perfect a social science experiment as we are likely to see outside of a laboratory: two successive elections (a fraud-ridden round 2 in November followed by a rerun of the runoff in December) pitting the same candidates against each other with the same electorate and the same issues, but with far fewer opportunities and incentives for fraud – at least on the part of Yanukovich's team – in the revote. Thus, if such things as aggregation error owing to Ukraine's unforeseen or uncontrolled demographic characteristics distort our analysis and interpretation of the data in November, a similar distortion should exist in December.

To see if we can detect forensic fingerprints in the initial November runoff similar to what we find in Russia, we begin with the distribution of turnout across Ukraine's 225 election districts. However, since there are reasons for supposing that Eastern and Western Ukraine are distinct not only in their preferences for candidates, but also in their overall socio-economic character, we divide districts into those carried by Yanukovich and those carried by Yushchenko in the second round.[1] Figure 4.1a, which considers only the 1999 presidential election and the first round of the 2004 contest, presents no surprises (for 1999 we take official turnout for that year, but divide districts according to who carried them in the first round of 2004): the distributions are nearly normal, and, as expected, show a general increase in turnout between 1999 and the first round of 2004. It is when we look at the second round that the data mimics Russia's ethnic republics in the 1990s. As Figure 4.1b shows, turnout in

[1] Of the ten largest cities, all but Kyiv in the center and Lviv in the West, are in what might be called "Eastern" Ukraine and regions favoring Yanukovich; the West is largely agricultural and rural whereas the East is industrial and urban; 16 percent of registered voters in eastern Donetsk oblast live in villages whereas 56 percent do so in Lviv oblast and fully 71 percent in Ivano-Frankivs'k.

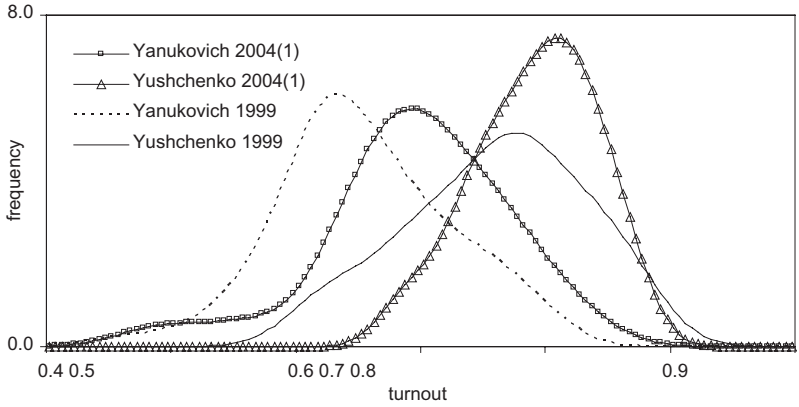


FIGURE 4.1a. Turnout, 1999 and 2004 First Round, Ukraine

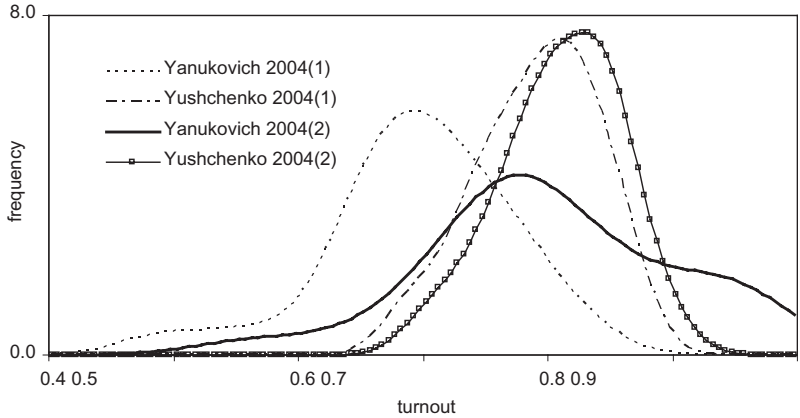


FIGURE 4.1b. Turnout of Rounds 1 and 2 Compared, 2004, Ukraine

Yushchenko's (Western) districts increases slightly, but the overall distribution remains normal. The story told by Yanukovich's regions is different. First, there is the spectacular right shift of the entire distribution that exceeds even what occurred between 1999 and the first round of 2004. But there is also, as in Russia, the emergence of a bump on the right that suggests a distribution composed of two normal densities – one that corresponds to districts in which there was a system-wide increase in turnout and one in which participation was dramatically and suspiciously augmented.

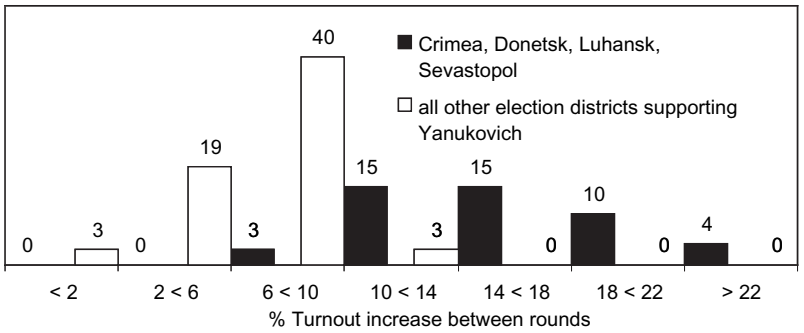


FIGURE 4.2. The "Bump," Ukraine Round 2

We are being generous in using the word "suspicious," since we have a good idea as to the source of this bump. Thirty-two districts reported turnout in excess of 90 percent, twenty-nine of which supported Yanukovich. And of the fifteen districts with the greatest turnout, thirteen are in Donetsk with nine reporting turnout in excess of 100 percent![2] Donetsk, however, is not the only candidate for a suspiciously augmented vote. We know a priori that neighboring Luhansk is Donetsk's virtual twin in terms of demographics and support for Yanukovich and that the dual regions of Crimea and Sevastopol, with their heavy concentration of ethnic Russians who barely if at all acknowledge themselves as part of Ukraine, are hardly sympathetic to Yushchenko's Western orientation. So, after subtracting first from second round turnout, Figure 4.2 separates districts that supported Yanukovich into two groups (Crimea, Donetsk, Luhansk, and Sevastopol versus the rest) and graphs the number of districts with turnout increases in the indicated ranges. Here we see two distinct unimodal distributions, with the forty-seven districts in the suspect regions having a higher, almost disjoint, distribution from the rest. This is not to say that fraud was absent elsewhere (recall the testimony of the election official in Zaporizhzhia which is also one of Yanukovich's regions), but clearly voting in Crimea, Donetsk, Luhansk, and Sevastopol was different than elsewhere. The mean increase in turnout for these four was 17 percent whereas in the

[2] And of the 63 rayons in Donetsk, 24 reported turnout in excess of 100 percent.

remaining base of Yanukovich's support it was a more modest 7 percent. So if the 6,915,031 votes officially recorded as having been cast in these four districts were augmented by 17 – 7 = 10 percent, we obtain approximately 700,000 suspect votes, which, because we ignore all other districts, can be assumed to represent a lower bound on the number of suspicious ballots credited to Yanukovich in the second round.

## Turnout versus Time

Suspicious ballots do not automatically warrant the label "fraud" and it is not unreasonable to suppose that once a favorite son enters the runoff, voters will more eagerly march to the polls to support him. If we choose, for instance, to play the role of devil's advocate, we could argue that although Yanukovich's supporters in the East assumed there would be a second round to the voting, they were nevertheless surprised to see Yushchenko eke out a narrow plurality in the first round. They and the regional bosses running Yanukovich's campaign in the East realized they were in a closer contest than they had previously assumed and thus made extraordinary efforts at supporting their favorite son, thus generating an exceptional increase in turnout in those regions that were overwhelmingly predisposed to vote for Yanukovich.

Our suspicions, though, do not end with Figure 4.2. Because Ukraine's Central Election Commission reports turnout for three separate time periods (11:00 A.M., 3:00 P.M., and 8:00 P.M.), we are afforded an opportunity to explore a piece of forensic evidence suggested by Ms. Hrebenyuk's testimony that is not available in Russia. Specifically, we can compare officially reported turnout in the first and second rounds for these three points in time. We appreciate, of course, that reported numbers need not correspond to the actual rate at which protocols are collected by a central authority. Nevertheless, the data paints a suggestive picture. Looking first at the 11 A.M. time slot and differentiating between districts that supported Yanukovich from those supporting Yushchenko, Figure 4.3a graphs the final percentage of the vote for Yanukovich against turnout in the second round minus turnout in the first and, aside from the fact that Yushchenko's districts seem to report their votes at a slower rate in the second round than in

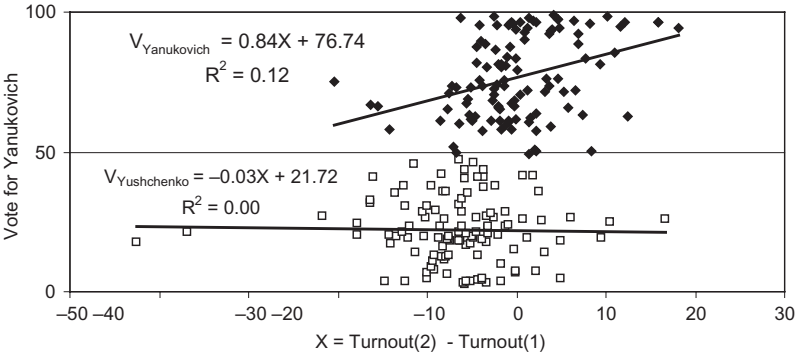


FIGURE 4.3a. Turnout Change between Rounds, 11:00 A.M.

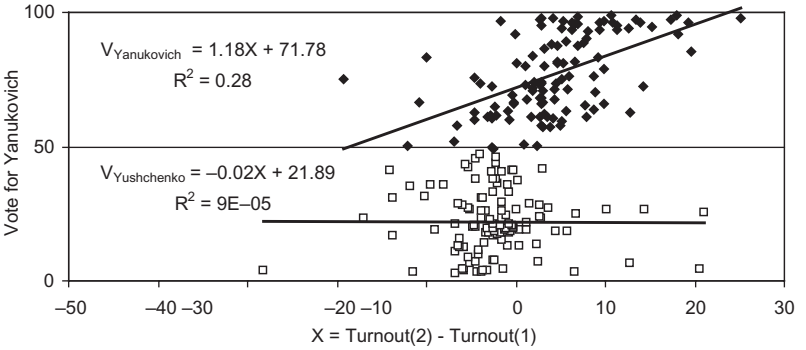


FIGURE 4.3b. Turnout Change between Rounds, 3:00 P.M.

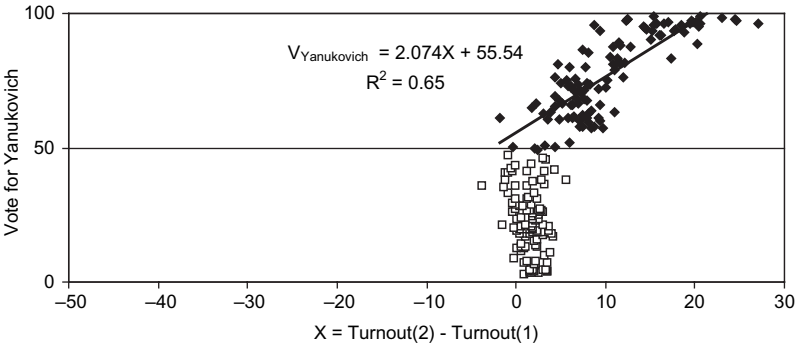


FIGURE 4.3c. Turnout Change between Rounds, 8:00 P.M.

the first, reveals little that appears exceptional – two rather widely dispersed clouds of data. That Yanukovich's districts are reporting a larger increase on average than are Yushchenko's is explained by the fact that Yanukovich's districts reported generally lower turnout (70.7 percent) than Yushchenko's (78.3 percent) in the first round and now, in the second ostensibly critical round, they seem to be catching up. Looking next at Figure 4.3b, which corresponds to the 3 P.M. report, we again do not see much that seems radically different from Figure 4.3a. The gap in turnout between rounds widens as expected for Yanukovich whereas a majority of Yushchenko districts now appear to be catching up to their first round October 31st participation rates. Notice, moreover, that for Figures 4.3a and 4.3b there is no relationship between Yushchenko's vote and relative turnout, whereas one develops early for Yanukovich so that changes among his districts are distributed differently than Yushchenko's – there is a clear stretching out of turnout among the districts reporting exceptionally strong support for Yanukovich. Some of this perhaps can be written off as a manifestation of Yanukovich's favorite son character in the East, but when we look at the numbers claimed by the CEC to have been reported by 8 P.M., we see an unmistakable difference between the candidates (Figure 4.3c). All of Yushchenko's districts have essentially converged to the modest gain in turnout over what they reported on October 31, whereas for Yanukovich there is now a clear relationship between support within his base and how much turnout increased over the previous round. Paralleling Figure 4.2, we can discern two clusters among Yanukovich's districts – those awarding him a "modest" share of the vote (between, say, 50 to 75 percent) and an increased turnout of about 7 percent on average versus those giving him more than 75 percent of the vote with reported turnout increases of 10 to 28 percent.

Figures 4.3b and 4.3c especially warrant comparison in light of Lyudmyla Hrebenyuk's testimony before Ukraine's Supreme Court. If it was not until after 3:00 P.M. that the CEC fraudulently added 1.1 million votes to the totals reported to Kuchma's office, then other exaggerations of turnout occurred earlier at the regional level. Figure 4.3c is simply the culmination of a trend reflected in Figure 4.3b. So if we are to take her testimony at face value, a figure of 1.1 million votes is but a floor on the actual number of suspect ballots cast in Yanukovich's

favor. Of course, in an otherwise normal election we might continue to entertain a benign explanation for the data in Figures 4.3a–4.3c. But imagine a circumstance in which votes are being fraudulently added incrementally to one candidate's total at the very start of the day until, at some point, it is realized that not enough votes are being falsified to ensure victory. It is hardly a stretch of imagination, especially in light of Hrebenyuk's testimony, to now foresee the candidate's minions moving to panic mode as they set about stuffing ballot boxes and falsifying vote counts with little or no regard for the transparency of their actions. Losing was not an option and in this case we should anticipate a pattern that parallels what these figures show.

### Turnout and Share of the Eligible Electorate

The conclusion that turnout was fraudulently augmented to benefit only one candidate (Figure 4.1b) is put on hold somewhat if we consider the relationship between turnout, *T*, and a candidate's share of the eligible electorate, *V/E*. But first we note that Ukraine's Central Election Commission reports its data by election district, which typically consists of several rayons. Fortunately, we also have summary rayon level data for each round of the 2004 election (755 rayons versus 224 election districts) and it is that data that we can rely on as well here. We begin, then, by considering as a group all rayons supporting Yanukovich and all in which Yushchenko won a positive plurality. The results, shown in Figures 4.4a and 4.4b, reveal a pattern for both candidates that is more consistent with Tatarstan and Bashkortostan than with Tver and Samara (see Figures 3.3a–3.3d).

It seems, then, that we have two choices: assume that both candidates were equally adept at falsifying ballots and intimidating their opponent's supporters in places where they were strong, or assume that a more "natural" and benign process of voter mobilization prevailed. Without discarding either hypothesis yet, there is a third alternative. Notice that for both Tatarstan and Bashkortostan, the fit for Putin is greater than for either Ukrainian candidate ($R^2 = 0.94$ versus 0.82 and 0.50). This, and the fact that the data employed in Figures 4.4a and 4.4b concern a more diverse population than any single ethnic Russian republic, should alert us to the possibility that aggregation error is obscuring matters. As a

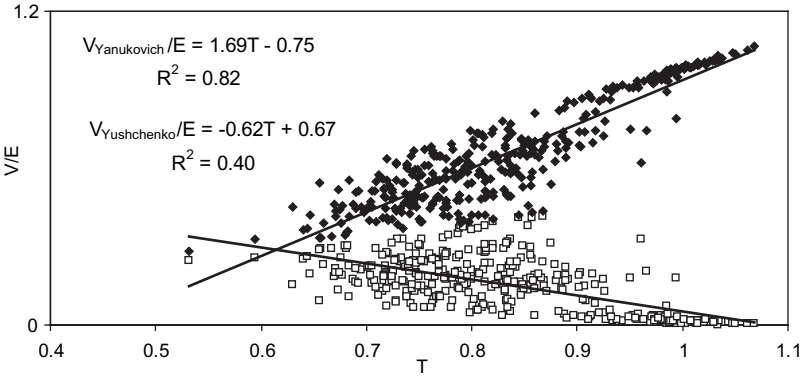


FIGURE 4.4a. *T* versus *V/E*, Yanukovich Rayons, Round 2

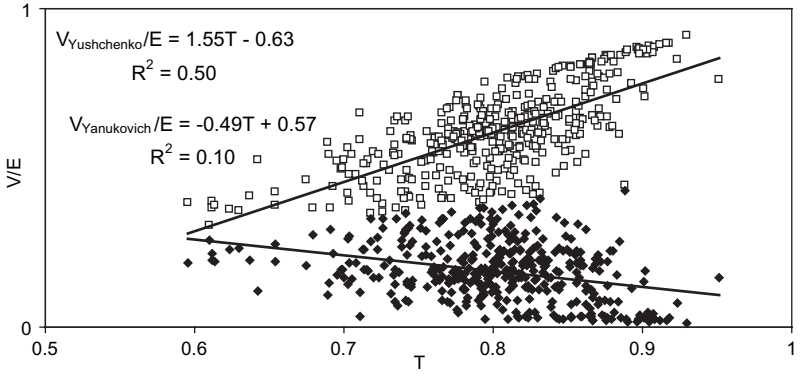


FIGURE 4.4b. *T* versus *V/E*, Yushchenko Rayons, Round 2

partial response to this possibility, Table 4.1 reports the results of separating election districts by the percentage of the vote each candidate won and estimating the leading candidate's return from turnout within each subset. A candidate's advantage is this return minus his average vote within each subset. Thus, when Yanukovich's plurality exceeded 90 percent, his percentage of the eligible electorate increased by 1.11 percent for every 1 percent increase in turnout. Since he received on average 96 percent of the vote in those districts, his advantage is 1.11 – 0.96 = 0.15 percent. What we see from Table 4.1, then, is that Yanukovich held more than a reasonable advantage from turnout in 49

TABLE 4.1. *Comparing the Relative Advantage of Increased Turnout, Round 2*

| | Yanukovich Election Districts | | | | | Yushchenko Election Districts | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *Plurality* | *# Districts* | *b* | $R^2$ | *V/TE* | *Adv.* | *# Districts* | *b* | $R^2$ | *V/TE* | *Adv.* |
| >90 | 32 | 1.11 | 0.98 | 0.96 | 0.15 | 19 | 1.14 | 0.94 | 0.94 | 0.20 |
| 80<90 | 17 | 1.02 | 0.88 | 0.84 | 0.18 | 13 | 0.88 | 0.76 | 0.85 | 0.03 |
| 70<80 | 21 | 0.74 | 0.92 | 0.74 | 0 | 24 | 0.81 | 0.88 | 0.78 | 0.03 |
| (75<80) | | | | | | | | | | |
| (70<75) | | | | | | 19 | 0.67 | 0.81 | 0.73 | 0.06 |
| 60<70 | 28 | 0.69 | 0.93 | 0.64 | 0.05 | 19 | 0.69 | 0.69 | 0.66 | 0.03 |
| 50<60 | 12 | 0.43 | 0.54 | 0.56 | −0.13 | 17 | 0.64 | 0.82 | 0.55 | 0.09 |

districts (those in which his vote share exceeded 80 percent) whereas Yushchenko enjoyed a similar advantage in 19 districts (those in which his share exceeded 90 percent).

Admittedly, the net advantage Table 4.1 reports are of a lesser magnitude than the ones we estimate for Tatarstan and Bashkortostan. But while the type of forensic evidence for fraud found in Russia may be fainter here, it nevertheless exists. And with those fingerprints present in 49 of Yanukovich's districts (those that yield an advantage greater than 15 percent) as opposed to 19 of Yushchenko's, suspicion falls primarily on Yanukovich. We can, in fact, offer an alternative estimate of the net votes gained by Yanukovich in the four oblasts we identify in Figure 4.2 as the source of the bump. Since average turnout in these oblasts is 90.3 percent, suppose, to eliminate the bump, we calculate the votes that must be subtracted from Yanukovich's total to move that mean to, say, 80 percent. The two regressions for the relationship between $V/E$ and $T$ within these four regions are

$$V_{Yanukovich}/E = 1.31T - 0.35\,(R^2 = 0.97)$$

$$V_{Yushchenko}/E = -0.29T + 0.31\,(R^2 = 0.62)$$

Thus, a 10 percent decrease in turnout eliminates 13.1 percent of Yanukovich's share of the eligible electorate and yields an increase of 2.9 percent in eligible voters choosing Yushchenko. Falsified or destroyed ballots, then, would have to encompass $13.1 + 2.9 = 16$ percent of the eligible electorate in those four oblasts, or 1,225,000 ballots. Of course, we can only guess at the level of turnout that might have prevailed without suspect votes and, therefore, our calculation of Yanukovich's overall benefit from turnout must be regarded as "back of the envelope." But to be fair, we should make a similar calculation for the 19 districts that afforded a suspect advantage to Yushchenko. If we assume that these districts require a decrease in turnout of 6.6 percent to get them to the same average rate of participation to which we reduced Yanukovich's bump (86.6 to 80 percent), we get an estimate of 271,000 net suspect votes.[3] By this calculation,

[3] Using Table 8's estimates, a 6.6 percent decrease in turnout requires a decrease in Yushchenko's votes of $6.6 \times 1.14$ percent of eligible votes and an increase in

then, Yanukovich's overall net advantage is approximately 954,000 votes – enough to call into question the legitimacy of an outcome that proclaimed him the winner and enough to elect Yushchenko, albeit with a margin that would leave the outcome in doubt.

One additional comparison in the relationship between turnout and share of the eligible electorate is revealing; namely, a closer look at individual oblasts. Consider Figures 4.5a through 4.5f which compare this relationship for the first and second rounds in six regions that gave one candidate or the other especially strong support (and that consist of a large enough number of rayons to make statistical estimates meaningful): Kharkiv, Dnipropetrovsk, Donetsk, Luhansk, Lviv, and Ivano-Frankivs'k (dark data points correspond to round 2, open ones to round 1). The first four regions supported Yanukovich (74, 68, 98, and 95 percent, respectively, in the second round) whereas Lviv and Ivano-Frankivs'k overwhelmingly backed Yushchenko (93 and 95 percent, respectively). The corresponding figures reveal a variety of patterns. In Dnipropetrovsk and Kharkiv (Figures 4.5a and 4.5b) Yanukovich enjoys a turnout advantage that increases markedly (and, of course, suspiciously) when we move from the first to the second rounds, whereas Yushchenko's gain from turnout is essentially negative in those two oblasts. However, in neither oblast do we see numbers that fully mimic what we found in Tatartstan or Bashkortostan in Russia, and it is only in round 2 that we find coefficients suspiciously greater than 1.0. By themselves, then, we'd be unlikely to reject the hypothesis that we have here anything more than evidence of the impact of the extraordinary efforts of regional elites in supporting Yanukovich when it is understood that Yushchenko might actually win the second round – efforts we prefer to eliminate in a developed democracy, but that are nonetheless expected in a post-Soviet state. Instead, it is Donetsk and Luhansk that yield the far more suspicious pattern. Not only is Yanukovich given a considerable turnout advantage in both oblasts, but with an $R^2$ of 0.95 and 0.97, there is little room for aggregation error of the sort discussed in Chapter 2. However, Yushchenko is also not above suspicion, at least as indicated by the relationship between *T* and *V/E* in Lviv and Ivano-Frankivs'k.

Yanukovich's of $6.6 \times 0.13$. So suspect votes equals $6.6 \times 1.27 = 8.382$ percent of the eligible electorate in these 19 districts.

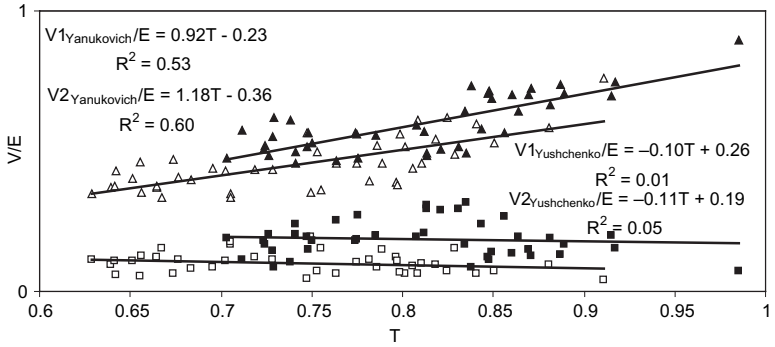


FIGURE 4.5a. *T* versus *V/E*, Kharkiv Rayons

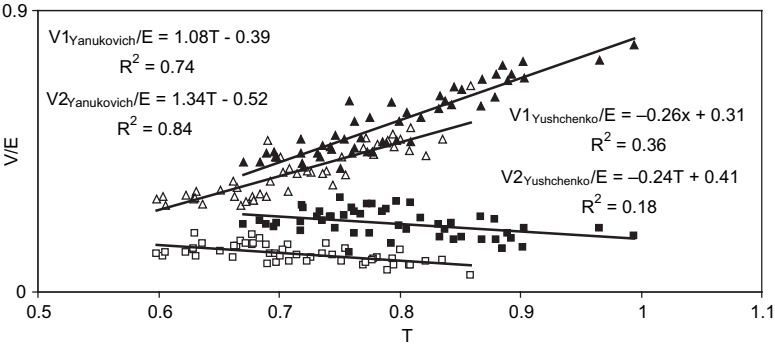


FIGURE 4.5b. *T* versus *V/E*, Dnipropetrovsk Rayons

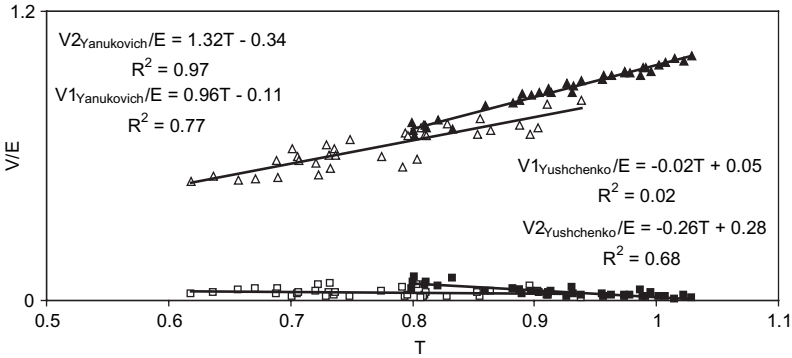


FIGURE 4.5c. *T* versus *V/E*, Luhansk Rayons

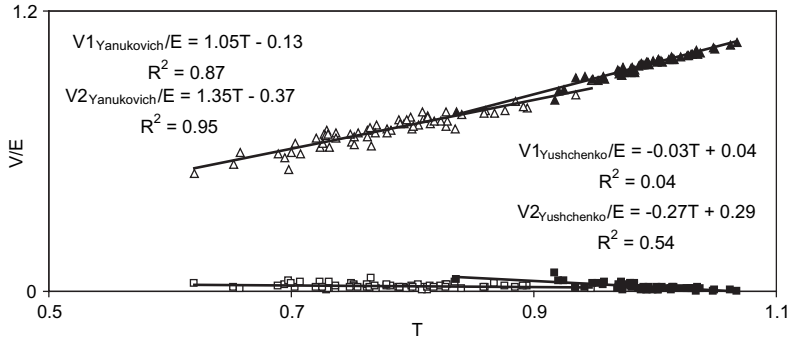


FIGURE 4.5d. *T* versus *V/E*, Donetsk Rayons

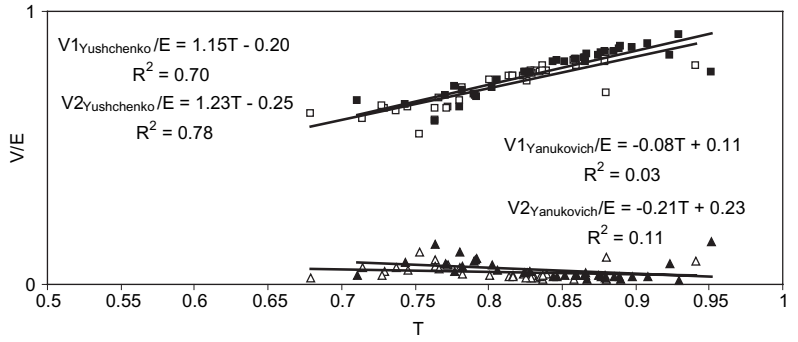


FIGURE 4.5e. *T* versus *V/E*, Lviv Rayons

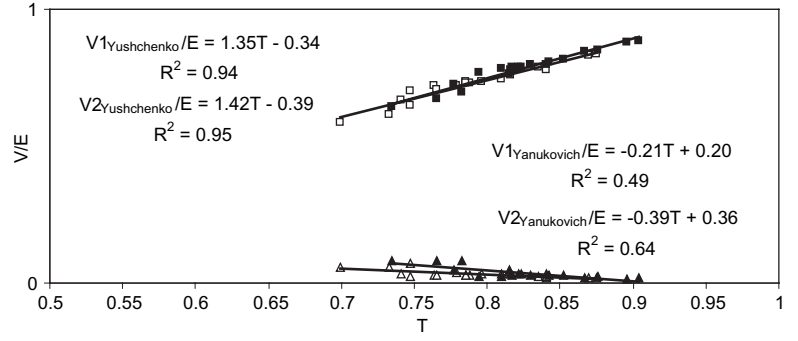


FIGURE 4.5f. *T* versus *V/E*, Ivano-Frankivs'k Rayons

Both regions confer a considerable turnout advantage on him – although unlike what we see in Yanukovich's regions, that advantage exists even in the first round of voting (somewhat surprisingly, Yushchenko's advantage here is greatest in Ivano-Frankivs'k as opposed to Lviv, but more on this later).

We hasten to add that despite the apparent symmetry here between the candidates, the specific advantage that Yanukovich enjoys is that in addition to enjoying a turnout advantage that is no less than Yushchenko's, turnout literally explodes in his home regions of Donetsk and Luhansk – to the point where 25 of Donetsk's 63 rayons report turnout in excess of 100 percent while 5 of Luhansk's rayons do the same. Thus while both Yanukovich and Yushchenko benefited from what we might generously label administrative advantage in their home regions, it was Yanukovich who realized even more than the full benefit of what we might generously label "Soviet-era electoral processes" by having turnout achieve levels that can only be explained by the outright stuffing of ballot boxes and the manufacture of fictitious official vote counts.

In Donetsk in particular we see a pattern that is more consistent with outright fraud than anything else and that leads us to infer that it was more than hard campaigning at play in the region. The more benign exercise of administrative advantage, of course, is simply making the effort at ensuring a high turnout in those areas where you know your candidate will benefit most even though doing so wins some votes for the opponent. Thus, of the 69,317 new voters who marched to the polls in Lviv in the second round, Yanukovich gained 16,545 of them (as well as 6,771 of the 36,495 additional voters in Ivano-Frankivs'k). In Donetsk, in contrast, Yushchenko actually lost 9,313 votes despite an increased turnout of 847,182 votes! Thus, as we note earlier, we should not assume that the term administrative advantage refers simply to benign campaign tactics. To see things differently, suppose ballots are fraudulently added to only one candidate in the second round in order to increase that candidate's vote total nationally and, rather than target areas where the candidate is strong or turnout is otherwise low, that by fair and foul means this increase occurs across all rayons. In the corresponding *V/E* versus *T* diagrams, this would move the second ranked candidate's share horizontally (since only turnout but neither his vote nor the number of eligible voters is increased). Data for the candidate

enjoying this fraud, on the other hand, would slide up in a northeast direction as if they were beads on a string so as to leave the coefficient for *T* largely unchanged. And this is precisely what we see in Figures 4.5c (Luhansk) and 4.5d (Donetsk) and to a nearly equivalent extent in Figure 4.5b (Dnipropetrovsk).

Of course, the specific advantage a candidate enjoys in the regions where their support is strongest is the absence of effective oversight by opponents. But if anything drives out corruption in elections it is, as in markets, competition – the competition that precludes monopoly control of the administrative apparatus for running an election. To see, then, if our indicator performs as suggested by this argument, it is useful to look at more competitive regions where one candidate or the other gains at least a significant share of the vote. Figures 4.6a–4.6e, then, portray the second round relationship between *T* and *V/E* for five additional regions. Briefly, the combination of Crimea and Sevastopol (Figure 4.6a), which was carried by Yanukovich with 84 percent of the vote displays some of the characteristics of Figures 4.5c and 4.5d for Luhansk and Donetsk but with the important exception that Yanukovich's turnout advantage here approximately matches his vote (interestingly, however, the coefficient on *T* in ethnically diverse Crimea without Sevastopol is only 0.68 with $R^2 = 0.39$, whereas in the Russian-dominated city of Sevestopol it is 1.04 with an $R^2$ of 0.91). It is difficult, then, to argue that falsified ballots on the order of magnitude given to Yanukovich in Donetsk characterized voting uniformly throughout this stronghold of pro-Russian sentiment. Figure 4.6b, in turn, offers an example of a region carried by Yushchenko, but not with a vote (73 to 27 percent) equal to what he enjoyed in Lviv or Ivano-Frankivs'k, and this much is clear: Khmel'nitskyi bears a closer correspondence to the Russian oblasts of Samara and Tver than it does to Tatarstan or Bashkortostan. Figures 4.6c and 4.6d portray the two relatively competitive regions of Zakarps'ka (which Yushchenko carried 57 to 43 percent) and Zhytomyr (which Yanukovich carried 62 to 38 percent), and in both cases the regression coefficients on *T* closely approximate the actual percentages won by the candidates. Thus, when allocating resources toward the discovery of fraud or the unfair application of administrative advantage, it seems that our priorities should lay in other regions. An equivalent inference can be drawn from Figure 4.6e,

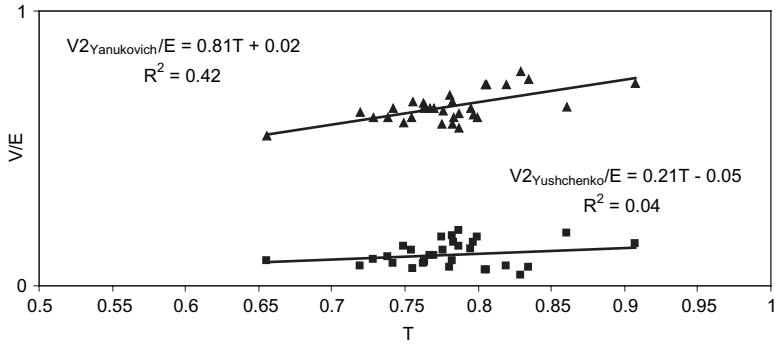


FIGURE 4.6a. *T* versus *V/E*, Crimea and Sevastopol Rayons

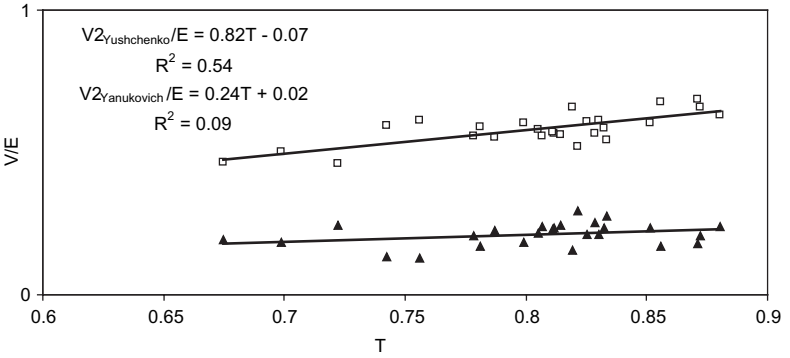


FIGURE 4.6b. *T* versus *V/E*, Khmel'nitskyi Rayons

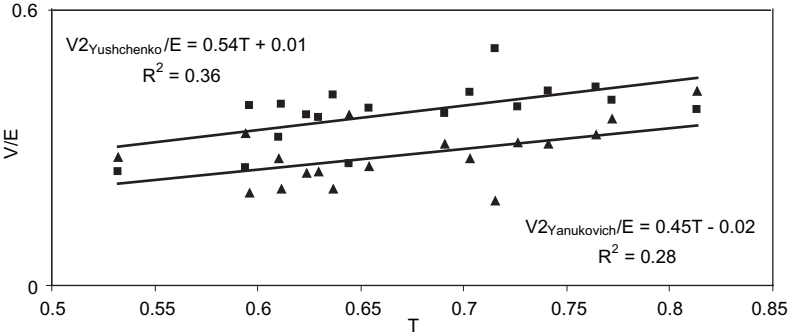


FIGURE 4.6c. *T* versus *V/E*, Zakarpas'ka Rayons

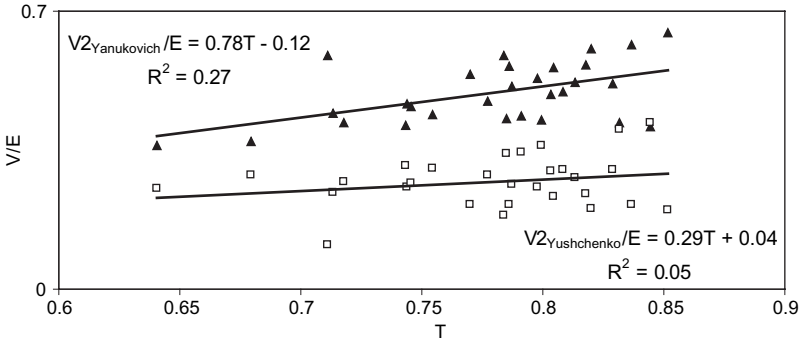


FIGURE 4.6d. *T* versus *V/E*, Zhytomyr Rayons

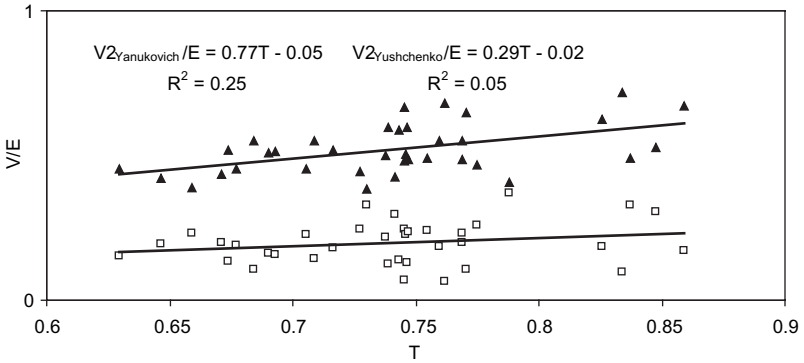


FIGURE 4.6e. *T* versus *V/E*, Odessa Rayons

which corresponds to Odessa and which Yanukovich carried in the second round 69 to 31 percent. What is interesting here, however, is to compare this figure to Figure 4.5b for Dnipropetrovs'k, which awarded Yanukovich virtually the same margin of victory (68 to 32 percent). Dnipropetrovs'k, though, lies at the heart of Ukraine's coal and rust belt, neighbors Donetsk and lies firmly within Yanukovich's base of support. It is unlikely, then, that whatever fraud permeated Donetsk would stop at the border between these two regions. Odessa appears to be a different story and the relationship there between *T* and *V/E* should occasion no suspicions (although the low $R^2$ suggests that a more comprehensive study should look more closely within the

oblast to see if aggregation error is hiding evidence of malfeasance, preferably with less aggregated data that allows us to differentiate between the city and outlying areas).

Nothing here should be interpreted to mean that we cannot cast a suspicious glance at some of Yushchenko's regions, especially regions such as Ivano-Frankivs'k. But in making an assessment of who benefited the most from fraud we need to keep in mind differences in population and the size of eligible electorates. The number of eligible voters in Ivano-Frankivs'k is less than 1.1 million as compared to Zaporizhzhia at 1.5 million. Lviv, which illustrates a turnout advantage in Yushchenko's favor of smaller magnitude than what Yanukovich enjoyed in Donetsk and Dnipropetrovsk in the second round, has an eligible electorate of approximately 2 million as compared to Donetsk's 3.7+ million and Dnipropetrovsk's 2.8 million. The region giving Yushchenko seemingly the greatest advantage in turnout, Poltava with a coefficient for turnout of 1.55, has 300,000 fewer eligible voters than Zaporizhzhia. One populous region that fell into Yushchenko's camp was the city of Kyiv with an electorate of approximately 2.1 million. Here, however, the coefficient on *T* for Yushchenko is only 0.54 (and 0.40 for Yanukovich) despite the fact that Yushchenko carried Kyiv with 80 percent of the vote. Thus, while we might suppose that both sides enjoyed some administrative advantage in their home regions, Yanukovich's opportunities far exceeded those of his opponent.

## The Flow of Votes

Thus far two of our forensic indicators, as well as the time series of returns during the second round, strongly implicate Yanukovich and provide mixed but nevertheless suspicious signals for Yushchenko. Although the relationship between turnout and *V/E* suggests, if not fraud, then exceptional "administrative efforts" on Yushchenko's behalf in several Western regions, there is no discernable distortion of the distribution of turnout in his base of support while the data for Yanukovich paints a different and far more suspicious picture. However, before we offer any definitive conclusions by way of what might correspond in a criminal indictment, we need to examine our third indicator. Not only do we require consistency of indicators, but

TABLE 4.2. *Flow of Votes, Ukraine 2004, Round 1 to Round 2*

| From/To | Yanukovich | Yushchenko | Nonvoters, Against All |
|---|---|---|---|
| Yanukovich | **1.20** | −0.05 | −0.15 |
| Yushchenko | −0.08 | **1.06** | 0.02 |
| Moroz | −0.02 | 0.99 | 0.03 |
| Symonenko | 0.90 | 0.05 | 0.06 |
| Nonvoters | 0.17 | −0.06 | 0.89 |
| Against All and Other | −0.03 | 0.69 | 0.34 |

we also want to focus on measuring the extent of fraud. The difficulty with using estimates from Table 4.1 (our first indicator) or a region-by-region analysis of the relationship between turnout and *V/E* is that in regions with but a few rayons or election districts, our regional estimates are not likely to be sufficiently statistically precise. However, the picture of fraud and its overall magnitude is clarified if we now consider the flow of votes from round 1 of the election to round 2. Using percentage urban and percentage Russian speakers as our proxy variables, Table 4.2 reports the share of the vote Yushchenko and Yanukovich received in the second round from each source in the first round as estimated using the econometric procedures outlined in Chapter 2.

In accord with their endorsements, virtually all (99 percent) of Moroz's vote went to Yushchenko and the overwhelming majority of Symonenenko's (90 percent), the Communist Party's candidate, goes to Yanukovich. Three numbers, though, stand out. First, there is the estimate that Yanukovich won 120 percent of those who voted for him in the first round and that Yushchenko won 106 percent of those who voted for him in that round. So by this estimate Yanukovich benefited from an inflated vote count in the amount of 0.20 × 10,969,579 votes = 2,193,916 votes whereas Yushchenko benefited in the amount of 6 percent of 11,125,395 votes = 667,523 votes – or a fraud premium for Yanukovich of one and a half million votes. This again is a number in line with our earlier estimates of fraud's net impact. There remains, though, a third suspicious number in Table 4.2 – that which assigns 17 percent of nonvoters to Yanukovich. We might not deem this suspicious

TABLE 4.3. *Suspect Votes by Different Methods*

| | Yanukovich's Suspect Votes | Yushchenko's Suspect Votes | Net Gain to Yanukovich |
|---|---|---|---|
| The Bump | 700,000 | – | 700,000 |
| #*V*/*E* versus *T* for The Bump | 1.23 million to 1.4 million | 271,000 | 954,000 to 1.13 million |
| Flow of Votes | 2.2 million to 3.8 million | 670,000 | 1.5 million to 3.1 million |

in other circumstances in light of the fact that Yanukovich's districts, on average, reported lower turnout than Yushchenko's in the first round. But with numerous election districts in Donetsk reporting turnout in excess of 100 percent and several rayons in Luhansk doing the same, we have little choice but to assume that some share of this 17 percent is outright fraud. It is also suspicious that, like Putin in 2004, Yanukovich is the only candidate who gains a significant share of nonvoters and an excessive share of his own support. In this respect Yanukovich is more than simply Putin's favored candidate – he is Putin's clone.

Of course, we have no idea how much of this increased turnout was legitimate. If we assume that it is all fraudulent, we need to add 17 percent of 9,716,126 = 1,651,741 to Yanukovich's suspect votes. But when analyzing the bump we note that turnout increased a reasonable 7 percent among Yanukovich's regions if we exclude Crimea, Sevastopol, Luhansk, and Donetsk. So suppose that instead of the 11 percent increase reported by the CEC, a 7 percent increase was legitimate and 4 percent illegitimate, in which case we should subtract 4/11ths of 17 percent of 9,716,126 votes = 600,633 additional votes from Yanukovich's total.

Table 4.3, now, summarizes our estimates of fraud's second round magnitude. And although it offers a considerable range as to how much Yanukovich benefited from the "peculiarities" identified by our three forensic indicators, there are several things to keep in mind with respect to these numbers. First, the number 700,000 looks only at four oblasts (Crimea, Sevastopol, Donetsk, and Luhantz) and employs a calculation that merely lowers participation rates there to render the

overall distribution of turnout in Yanukovich's districts normal. Thus, since this calculation assumes in effect that there was no fraud elsewhere, 700,000 is a lower bound on the suspect votes we would credit to him. The second set of estimates takes into account the possibility that votes were also subtracted from candidates. But even here our estimate of suspect votes is probably low since we calculate the extent of fraud in only 49 of Yanukovich's 112 election districts, albeit the most suspicious ones, and because we accept the possibility that support for a candidate correlates with turnout for wholly innocuous reasons. The "flow of votes" estimate, on the other hand, yields a range of possibilities, depending on what we assume about the support Yanukovich won from first round nonvoters. But even if 75 percent of that increased vote was legitimate, Yanukovich's net gain reaches 1,890,000 suspect votes. There is, then, little reason to shirk from the supposition that, in the form of outright ballot stuffing and "administrative control," Yanukovich's net gains from suspect votes readily exceeded one and a half million votes – surely enough to meet the Kremlin's demand for victory.

## 4.2 DECEMBER 26, 2004

### Turnout

What is notable about the numbers in Table 4.3 is that they are in accord with Lyudmyla Hrebenyuk's report of the mysterious and clearly fraudulent appearance of 1.1 million votes at Ukraine's Central Election Commission that were wholly absent from the reports sent to the President's office by regional authorities. Thus, even if we assume that our indicators are registering as suspect votes gained by the marginally legal application of administrative advantage, it also seems evident that those indicators are registering outright fraudulent votes as well. It is reasonable to suppose, moreover, that those 1.1 million votes were not the only falsifications, in which case a reasonable estimate of fraud's overall magnitude lies somewhere between 1.1 million and the higher estimates that Table 4.3 offers. However, if we now believe the testimony of the thousands of Western observers who descended on Ukraine for the December 26 round of voting – the rerunoff ordered by Ukraine's Supreme Court – we must also assume

that explicit rigging of the election in the form of stuffed ballot boxes and manipulated tabulations, while perhaps not wholly absent, was far less extensive than in November. Indeed, in addition to the attention paid internationally to this third round by Western governments, journalists, and the Ukrainian diaspora, Yanukovich was deeply wounded domestically. As we note earlier, the powers that be in Kyiv had essentially signaled *no mas*, Putin's spin doctors returned to Moscow so they could explain how he ended up an international joke for having proclaimed Yanukovich the winner of a "free and fair" vote in November, and even some of Yanukovich's financial backers claimed that it might not be a bad thing if Ukraine had an administration with better relations with the West. Thus, the patterns we take as evidence of fraud should mute or wholly disappear in the third round – unless, of course, our indicators are not as robust as we might hope.

Retracing our steps, Figure 4.7a compares turnout distributions for the second and third rounds. The first thing of note is the return to normality of Yanukovich's distribution: the bump mimicking Russian republics disappears and his distribution now looks like the one that characterizes turnout in the first round. Dispirited, discouraged, or simply chastened, it is apparent that the powers that be in the regions of Yanukovich's strongest support no longer put out the effort to get him the vote that they did in November. However, notice that we now have a hint of a bump for Yushchenko. Admittedly, this perturbation is slight – smaller than in any Russian election, smaller than the one associated with Yanukovich in the second round, and not so great that we would reject the statistical hypothesis of normality. Nevertheless, the perturbation is there and, more important from the perspective of occasioning suspicions, we can identify the districts that are its source: five in Volyn, six in Ivano-Frankivs'k, five in Ternopil, and eight of twelve election districts in Lviv. All four regions supported Yushchenko heavily and all are, no doubt, fertile territory for extra "administrative effort" on his behalf. As Figure 4.7b shows, this potential indictment of Yushchenko is muted somewhat if we use our third round precinct data to calculate distributions of turnout whereas, owing to the unusual number of precincts reporting 100 percent turnout for Yanukovich, we cast a bit of a shadow on the sources of his support. Nevertheless, if we

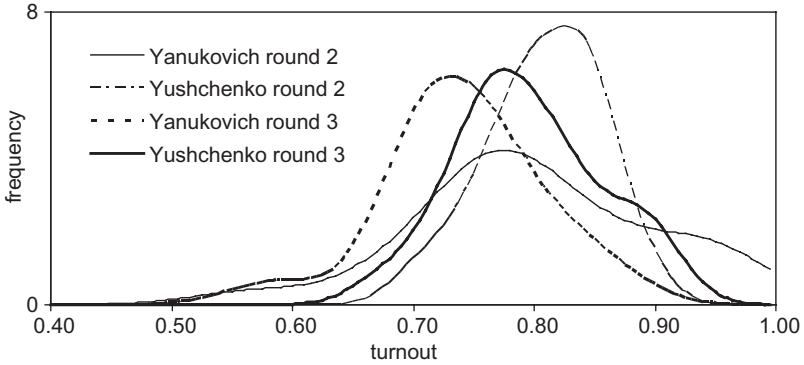


FIGURE 4.7a. Turnout Distributions, 2004, Rounds 2 and 3

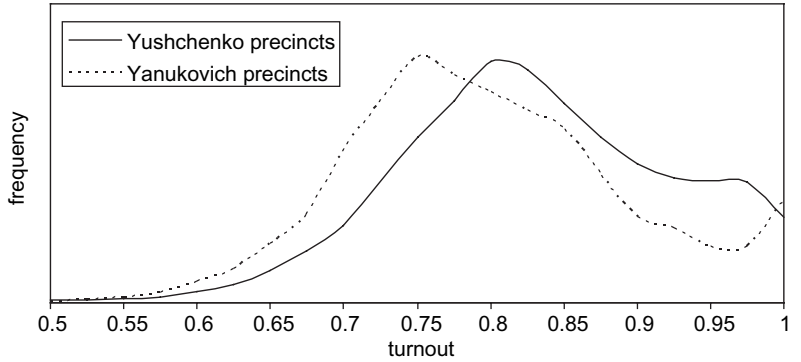


FIGURE 4.7b. Turnout Distributions, 2004, Third Round Precincts

look back at Figure 3.11a, we see that neither distribution compares to what we find for Russia in 2007.

## Flow of Votes

Taking districts that are the source of Yushchenko's bump in Figure 4.7a and taking all new votes from them along with all others that registered an increase in turnout on Yushchenko's behalf as suspect, we find that no more than 128,000 votes are involved – far fewer than the 700,000 votes we calculated to account for Yanukovich's

TABLE 4.4. *Flow of Votes from Round 2 to Round 3*

| | | Round 3 | | |
|---|---|---|---|---|
| | | *Yanukovich* | *Yushchenko* | *Nonvoters and Against All* |
| Round 2 | Yanukovich | 0.82 | 0.00 | 0.18 |
| | Yushchenko | −0.08 | 1.05 | 0.03 |
| | Nonvoters and Against All | 0.21 | 0.01 | 0.79 |

second round perturbation in Figure 4.1b. The number 128,000, though, is likely to be a minimum count of suspect votes favoring Yushchenko in the third round. Consider the flow of votes between rounds two to three. As Table 4.4 shows, there is now little about the flow to Yanukovich that looks suspicious: he retains 82 percent of his original vote while 18 percent of his second round support returns to the category of "nonvoters and against all." Presumably, a good share of this 18 percent – which amounts to 2.72 million votes or just shy of the upper range of our earlier estimate of suspect votes reported in Table 4.3 – consists of votes that were fraudulently cast in the second round. But what we do see is Yushchenko winning 105 percent of his second round vote – or approximately 711,000 more than actually voted for him in that round. Were this coefficient to stand on its own we might be tempted to treat it as statistically insignificant and the product of the essential uncertainties associated with ecological regression. But it does not stand alone. It is accompanied by that suspicious perturbation in the distribution of turnout in Figures 4.7a and 4.7b and so we must conclude, if only tentatively, that with observers and poll watchers focused on those districts likely to give Yanukovich strong support, additional efforts could be applied on Yushchenko's behalf to the amount of between 128,000 and 711,000 votes.

### Turnout and Share of Eligible Electorate

Before offering any definitive conclusions, the third fingerprint to be considered concerns the relationship between a candidate's share of

the eligible electorate, *V/E*, and turnout, *T*. Again, if we regress *V/E* against *T* for all districts, the picture we get is not much different from what Figures 4.4a and 4.4b show, with the actual regression equations being as follows:

$$\text{Yanukovich rayons: } V_{Yanukovich}/E = 1.89T - 0.84\,(R^2 = 0.78)$$

$$V_{Yushchenko}/E = -0.81T + 0.76\,(R^2 = 0.43)$$

$$\text{Yushchenko rayons: } V_{Yushchenko}/E = 1.87T - 0.81\,(R^2 = 0.81)$$

$$V_{Yanukovich}/E = -0.81T + 0.75\,(R^2 = 0.48)$$

These estimates suggest that both candidates continued to enjoy a considerable measure of administrative control and Soviet-style voting into the third round. However, as we have already seen, combining all our data into but two regressions yields a level of aggregation error that inflates the coefficient on *T* considerably. So first consider Figures 4.8a and 4.8b, which show the relationship between *V/E* and *T* for the two regions that were most supportive of Yanukovich and gained the most notoriety in round 2: Donetsk and Luhansk. Notice that although the estimated coefficients still exceed 1.0 – due no doubt to Yushchenko's supreme unpopularity in these two regions – the data from the third round pulls back in the direction of what occurred in the initial first round vote in October. This shift in Donetsk is perhaps best seen in Figure 4.8c, which graphs the distribution of *V/E* across rayons for each round (notice the values of *V/E* greater than 1.0 in round 2) and which mimics what we would see in Luhansk. The shift Figures 4.8a and 4.8c document is clearly consistent with the hypothesis that turnout was fraudulently augmented in the second round by across-the-board ballot stuffing, but that half or more of those votes were eliminated in the third.

As a further check on this third indicator and the inference that fraud diminished considerably in the second (December) runoff round, consider Figures 4.9a and 4.9b, which, instead of employing data aggregated up to the level of election districts, aggregates the data in Donetsk and Luhansk respectively only up to the level of individual voting

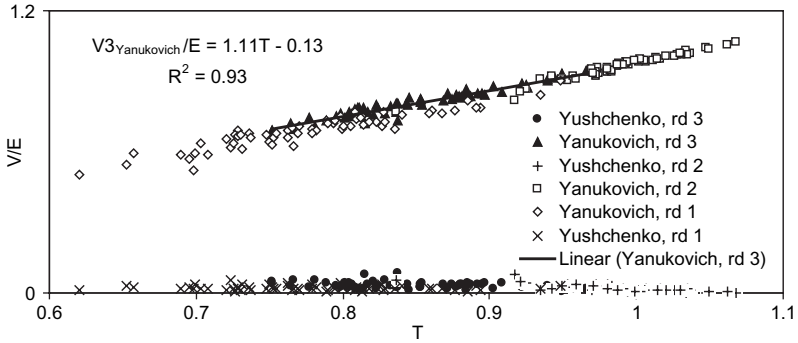


FIGURE 4.8a. *T* versus *V/E*, Donetsk Rounds 1–3

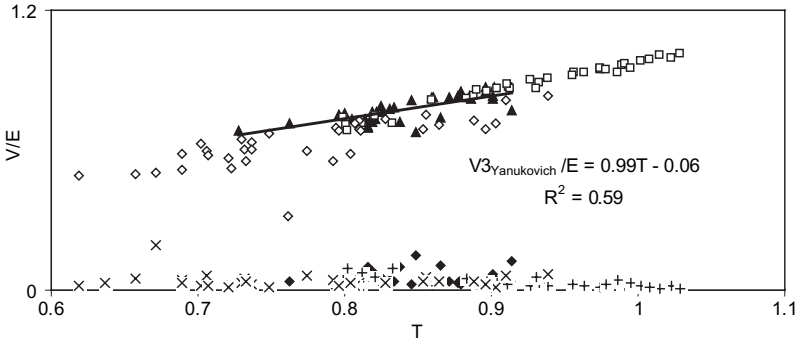


FIGURE 4.8b. *T* versus *V/E*, Luhansk Rounds 1–3

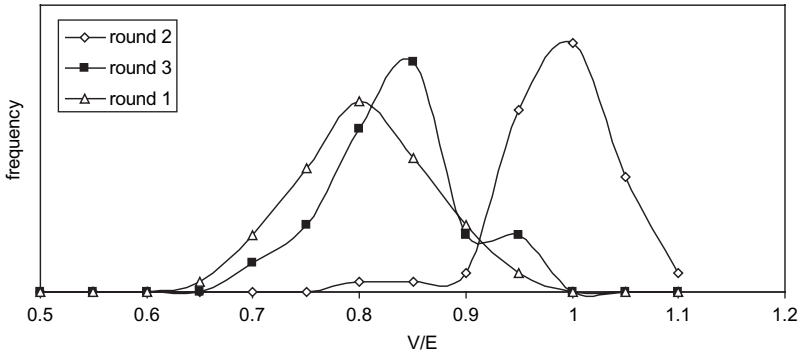


FIGURE 4.8c. Distribution of *V/E* for Yanukovich, Donetsk 2004

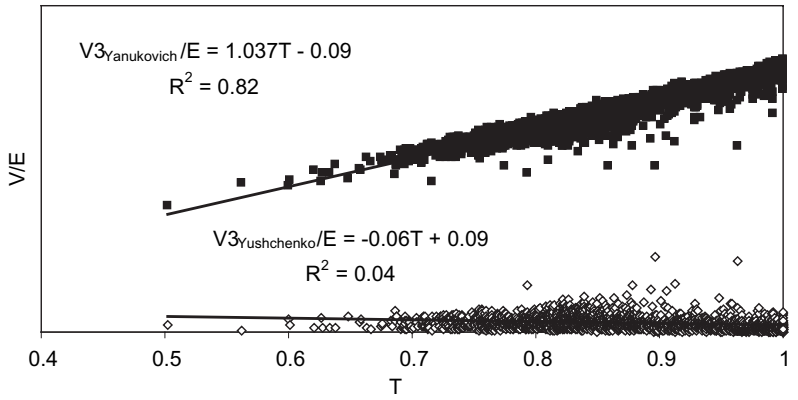


FIGURE 4.9a. *T* versus *V/E*, Donetsk Round 3, Precincts

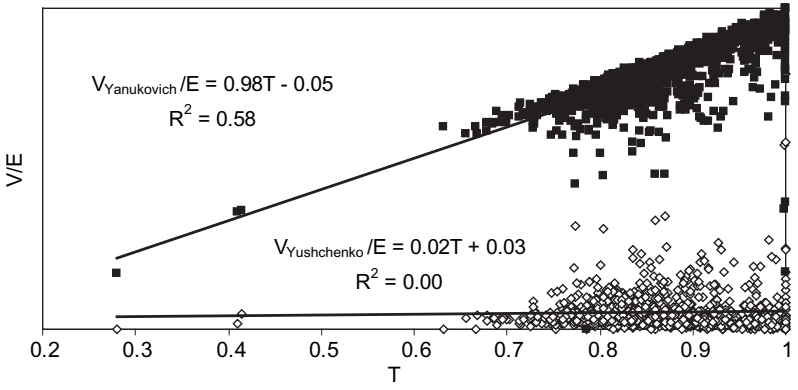


FIGURE 4.9b. *T* versus *V/E*, Luhansk Round 3, Precincts

stations (precincts).[4] And as this data shows, although it is evident that Yanukovich remained the overwhelming favorite in both regions, there is little in either figure to warrant the charge of fraud (including the

[4] Throughout this volume, when analyzing data at the level of individual precincts, we delete precincts with fewer than 100 registered voters since, in general, they correspond to special districts such as hospitals, prisons, etc. In addition, four precincts in Donetsk and one each in Luhansk and Lviv were eliminated since they were clear outliers and doubtlessly clerical errors. These eliminations, though, did not impact coefficients but merely the graphical presentation of the data.

absence of polling stations that report turnout in excess of 100 percent). Only Yanukovich gains from any increase in turnout across precincts, and although this might seem an instance of extreme unpopularity on Yushchenko's behalf, the politics of Ukraine – and of Donetsk and Luhansk in particular – tell us that it is not an unreasonable possibility.

Now let us consider Lviv. Unlike in Donetsk and Luhansk, Yushchenko's share of the eligible electorate increases here in the third round in direct proportion to the small increase in turnout, but without a comparable increase in Yanukovich's share. This increase is too small to argue that Yushchenko benefited much from outright ballot stuffing, but if we take Figure 4.10 and the coefficient for *T* of 1.52 that it reports – an increase over *T*'s coefficient in the second round (1.23, see Figure 4.5e) – in combination with the perturbation in Yushchenko's turnout distribution and the estimate reported in Table 4.4 that he secured 105 percent of his second round vote in the third round, we must continue to allow for between 128,000 and 711,000 suspect votes for Yushchenko that most likely derive from what we have called administrative control.

The hypothesis of suspect votes for Yushchenko in round three is also supported by an examination of precinct level data. Figure 4.11 gives the relationship between turnout and *V/E* in Lviv oblast and shows that although we no longer estimate a coefficient as large as in Figure 4.10 for Yushchenko, we nevertheless maintain a coefficient greater than one (along with a significantly negative coefficient for Yanukovich).

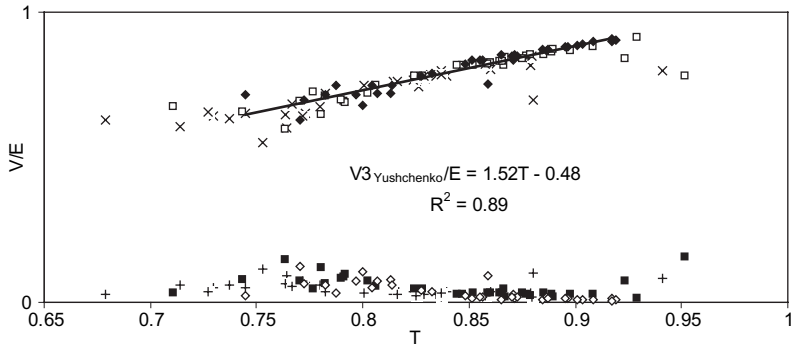


FIGURE 4.10. *T* versus *V/E*, Lviv Rounds 1–3

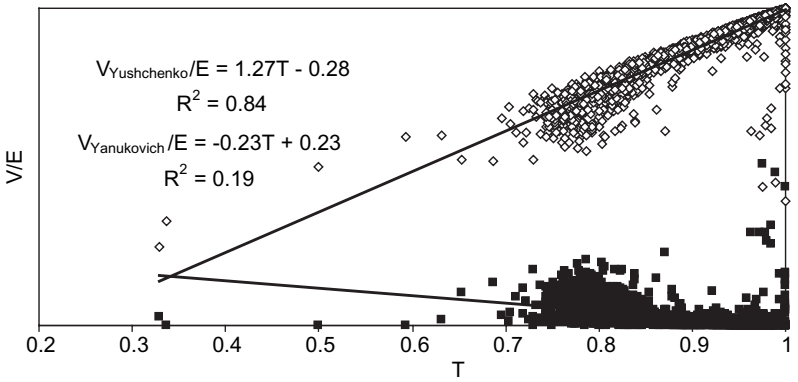


FIGURE 4.11. *T* versus *V/E*, Lviv Round 3, Precincts

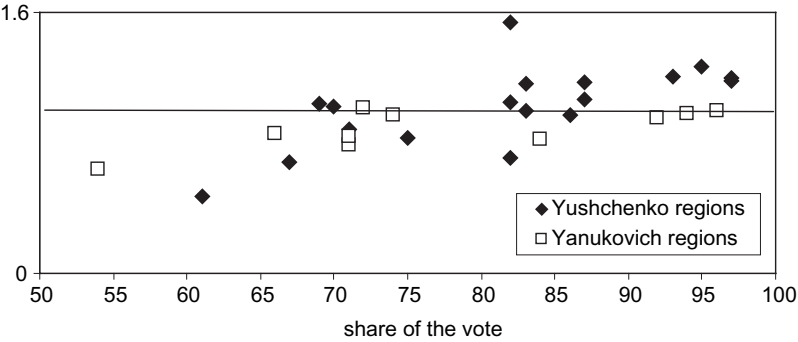


FIGURE 4.12. Regression Coefficient on Turnout, Round 3, 2004

In fact, as Figure 4.12 shows, the coefficients on turnout, when calculated for each oblast using our precinct level data for round 3, exceed 1.0 for Yanukovich in only one oblast (Donetsk) whereas of the eighteen regions carried by Yushchenko, that coefficient exceeds 1.0 (actually 1.05) in eight (Lviv, Vinnytsya, Ivano-Frankivs'k, Ternopil, Chernivtsi, Sumy, and Rivne).

Needless to say, the data raises questions about how much Yushchenko benefited in the third round from suspect ballots versus a more benign form of administrative effort on the part of his supporters in Western Ukraine – an effort energized by the euphoria of the Orange

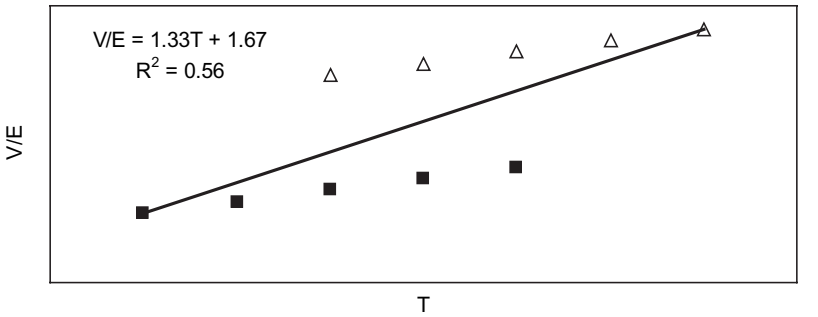


FIGURE 4.13. Example of Aggregation Error

Revolution. However, and without wholly exonerating Yushchenko, Lviv presents us with an opportunity to explore the dangers of aggregation error. First, though, to see precisely the sort of error that ought to concern us here, consider Figure 4.13, which graphs ten fictitious data points for turnout against *V/E*. If we simply regress *V/E* against *T* for all ten observations, the estimated coefficient for *T* is 1.33. However, if there is a legitimate reason to separate the two distinctly marked sets of observations and regress *V/E* against *T* within each of them, the estimated coefficient for each is 1.0.

With this example in mind, we note that Lviv oblast is relatively diverse (especially when compared to Donetsk and Luhansk). There are 34 rayons there with slightly less than half (14) classified as "city" or urban (essentially the city of Lviv), with the rest classified as "village" (rural). In contrast, more than 70 percent of the rayons in Donetsk report urbanization rates above 90 percent. Moreover, we know a priori that city turnout in Lviv is generally lower than in rural areas and that rural areas in both preelection polls and the actual vote exhibited the strongest support for Yushchenko (indeed, as we see later, Yushchenko's Our Ukraine in 2006 does well in rural districts whereas his chief rival in the West, Timoshenko's BYuT, does best in urban ones). Figure 4.14a, in fact, suggests a problem that might arise if we combine urban and rural data in Lviv. Specifically, notice that when we graph the frequency distribution for proportion urban, we get in effect two disjoint densities – those with urbanization rates of 100 percent versus those below 50 percent. So suppose we separate rayons in Lviv according to the classification of city versus village

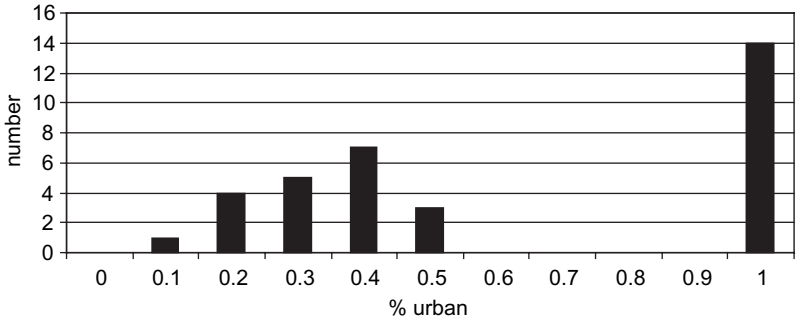


FIGURE 4.14a. Distribution of Proportion Urban, Lviv Rayons

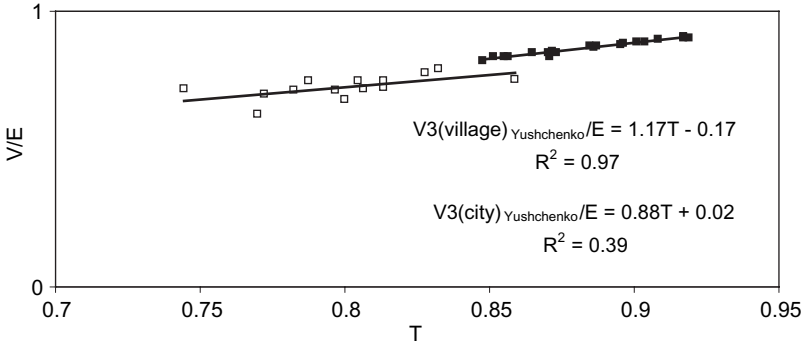


FIGURE 4.14b. *T* versus *V/E*, Lviv Round 3, City versus Village Rayons

and estimate the relationship between *T* and *V/E* within each group. Figure 4.14b portrays the results and, remarkably, offers us nothing less than a textbook example of the sort of aggregation error illustrated by Figure 4.13.

We can only speculate as to why turnout and Yushchenko's relative support is greater in villages than in the cities (specifically, Lviv itself). Almost certainly age is a factor. More than likely young members of the electorate gravitate to the city while their older counterparts remain in Lviv's largely agricultural villages. If, as is true in other democracies, turnout rates correlate positively with age, then we have part of the explanation we seek. The missing piece is to suppose that rural voters were (marginally) more likely to support Yushchenko and

his pro-Western positions than were urban voters. One might speculate here that older rural voters are more likely to remember Western Ukraine's forced absorption into the Soviet Union (one merely has to travel through the Ukraine to see the countless village monuments to Ukraine's vanquished "freedom fighters") and, thus, are less likely to be sympathetic to a candidate that sports a Russian president's blessing (especially when that president deems the dissolution of the USSR as the twentieth century's greatest catastrophe). On the other hand, a second and more cynical hypothesis is that Yushchenko continues to enjoy an administrative advantage in villages much like the advantage the Kremlin enjoys in rural regions in Russia. Thus, we might conjecture that turnout and Yushchenko's support has been padded in Lviv's villages (and with an $R^2$ of 0.97 there is no longer room for supposing that aggregation error accounts for a coefficient of $T$ that exceeds 1.0). This advantage, although relatively small given the population of villages relative to cities, doubtlessly becomes significant when added across all oblasts that supported Yushchenko – and almost surely accounts for the subtle bump in his turnout distribution that Figure 4.7 portrays.

We leave it to others to determine which of these two explanations for Figure 4.14b is more reasonable. However, in the spirit of giving Yanukovich the benefit of the doubt, we can conjecture that the advantage to Yushchenko here of any administrative advantage is not inconsequential even for Lviv oblast. If we multiply 0.17 times the number of eligible voters living in its village rayons (approximately 1.1 million), we arrive at a total of approximately 190,000 votes. Lviv of course is the most populous oblast that both supported Yushchenko and that gave him such an advantage, but this number suggests that the 700,000 or so suspect votes we calculated on the basis of a flow of votes (see Table 4.3) is more than likely a good ballpark number with which to work in estimating Yushchenko's absolute gain from any "special efforts" made on his behalf throughout rural Western Ukraine. We cannot say whether these efforts constitute fraud or are merely manifestations of Western Ukraine's antipathy to any candidate that even hints at pro-Russian policies. Lviv, then, is perhaps a good example of where our methods merely point fingers and direct others to investigate further.

We hasten to add, however, that once we divide rayons between villages and cities, we can bring into question any wholly unblemished bill of health we might be tempted to confer on Yanukovich in round 3. Although neither the distribution of turnout nor our vote flow estimates suggest explicit fraud, notice in Figures 4.8a and 4.8c that the data from that round merely pulls back in the direction of round 1. However, the coefficient on $T$ remains above one and $R^2$ remains high. In fact, if we separate rayons in Donetsk and Luhansk as we do for Lviv, we obtain the following estimates of the relationship between $T$ and $V/E$:

$$V3\,(village,\ Donetsk)_{Yanukovich}/E = 1.04T - 0.08, R^2 = 0.96$$

$$V3\,(city,\ Donetsk)_{Yanukovich}/E = 1.12T - 0.15, R^2 = 0.92$$

$$V3\,(village,\ Luhansk)_{Yanukovich}/E = 0.93T - 0.01, R^2 = 0.50$$

$$V3\,(city,\ Luhansk)_{Yanukovich}/E = 1.18T - 0.20, R^2 = 0.80$$

Thus, while our other two forensic indicators do not suggest outright ballot stuffing and the excesses to which Yanukovich's campaign resorted in November's second round, the relationship between turnout and Yanukovich's share of the eligible electorate suggest that the "administrative efforts" of political bosses in at least Donetsk and Luhansk continued somewhat into the third round. However, unlike Yushchenko, who seemed better equipped to "get out the vote" in Lviv's villages, Yanukovich's advantage lay in the urban parts of Donetsk and Luhansk (where factory managers can more readily organize their work forces to vote as directed).

None of this should surprise us. Although our analysis confirms that outright and excessive fraud in the form of stuffed ballot boxes and wholly fictitious numbers was largely purged from the December re-runoff election, it would be akin to believing that a pot of gold truly lies at the end of a rainbow to expect the total disappearance of some holdover processes from the Soviet era. Doubtlessly factory as well as collective farm managers continued to exhort those under them to vote in their self interest and almost certainly the local

TABLE 4.5. *Total Votes for a Candidate versus Total Cast*

| | Round 2 | | | | | |
|---|---|---|---|---|---|---|
| | *Yanukovich* | | | *Yushchenko* | | |
| | $\alpha$ | $\beta$ | $R^2$ | $\alpha$ | $\beta$ | $R^2$ |
| Yanukovich > 80% | 30,478 | 1.13 | 0.96 | 25,127 | −0.12 | 0.26 |
| Yushchenko > 80% | 4,132 | 0.05 | 0.03 | −3,403 | 0.93 | 0.87 |
| | Round 3 | | | | | |
| Yanukovich > 80% | 14,753 | 1.02 | 0.92 | 13,483 | −0.02 | 0.01 |
| Yushchenko > 80% | 14,008 | −0.00 | 0.00 | 13,994 | 0.99 | 0.89 |

media did not abandon the favorable coverage given to the candidates their editors preferred. The tradition, moreover, of heads of households casting ballots for the entire family as a bloc surely persisted. However, what is perhaps more important here in terms of assessing Ukraine's transition to a viable democracy, is that whatever "special administrative efforts" occurred on behalf of the candidates seemed to be balanced, with no candidate enjoying an advantage over the other to such an extent that it would render the outcome illegitimate.

To see this third-round symmetry between Yanukovich and Yushchenko, suppose we estimate the following regression for those election districts that gave each candidate 80 percent or more of the vote:

$$\text{Total votes won by a candidate} = \alpha + \beta \times \text{Total votes cast}$$

Table 4.5 gives the results of these regressions for both the second and third rounds, and the first thing to notice is the dissimilarity in relationships in round 2. Whereas Yushchenko gets 0.93 votes and Yanukovich 0.05 for every additional vote cast in districts that afford Yushchenko more than 80 percent of the vote, Yanukovich enjoys 1.13 votes for every additional vote cast in his domain,

whereas Yushchenko loses 0.12 votes on average. However, when we move to round 3, the candidates' positions in their respective regions are almost mirror images of each other. Indeed, it is essentially impossible to distinguish the relationship between total votes cast and votes cast for Yanukovich in his regions from the parallel relationship for Yushchenko in his base of support. This data, then, suggests complementarity between the candidates in the election's final round. This conclusion, moreover, is not at odds with our earlier argument about Yushchenko's suspect votes in the third round. Notice that Yushchenko's numbers between rounds continue to improve: instead of 93 percent of any incremental vote, he wins 99 percent in the third round in his regions, and instead of Yanukovich winning 5 percent of any increment in those regions, his share drops to 0 percent. Complementarity emerges, however, only because Yanukovich's advantage in his own regions declines precipitously: his advantage declines from 113 percent to a more reasonable 102 percent whereas Yushchenko's disadvantage in terms of votes lost drops from 12 to 2 percent.

One final comparison reveals the dissimilarity in voting patterns between second and third rounds and the complementarity that emerges in December between the candidates. Recall Figures 4.3a–4.3c, which show a correlation between Yanukovich's support and the change in turnout between first and second rounds that accelerates after 3:00 P.M. – a correlation that is consistent with the hypothesis that a substantial share of votes was fraudulently added to Yanukovich's total after 3:00 P.M. Now consider Figures 4.15a–4.15c, which compares the third and first rounds for the same three points in time. The contrast with Figures 4.3a–4.3c is clear: convergence is gradual and without a strong relationship between Yanukovich's support and change across rounds. On November 21, the final relationship between turnout change and Yanukovich's support (Figure 4.3c) is described by $V = 2.07X + 55.54$ so for every unit increase in turnout in the second round over the first, Yanukovich's vote in the second increased 2 percentage points. In Figure 4.15c, in contrast, the relationship becomes a more reasonable $V = 0.93X + 68.49$. Indeed, the data in Figure 4.15c for Yanukovich and for Yushchenko are now essentially indistinguishable.

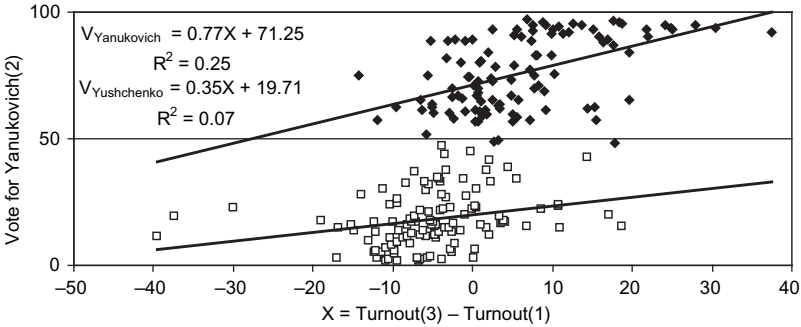


FIGURE 4.15a. Turnout Change between Rounds 1 and 3, 11:00 A.M.

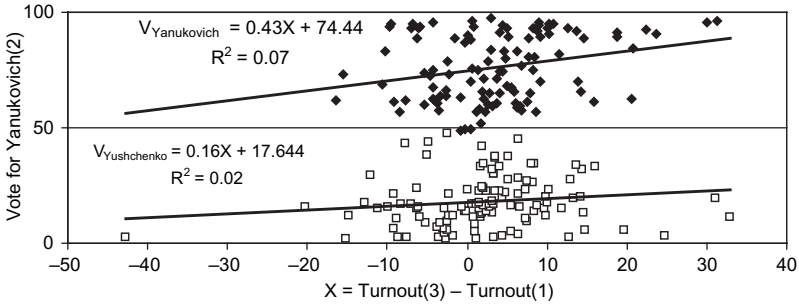


FIGURE 4.15b. Turnout Change between Rounds 1 and 3, 3:00 P.M.

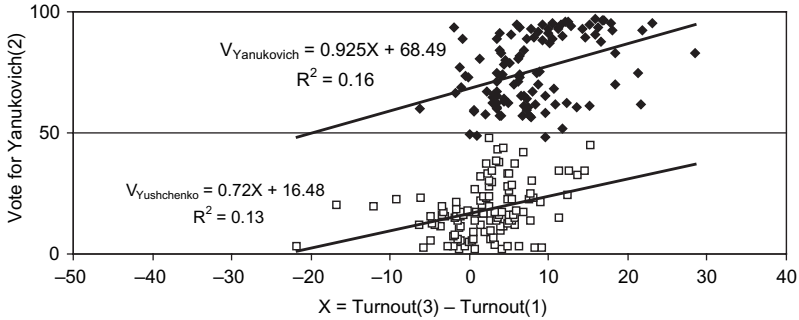


FIGURE 4.15c. Turnout Change between Rounds 1 and 3, 8:00 P.M.

## 4.3 MOTIVES

The symmetry Table 4.5 describes for December's round 3 suggests the relative normalcy of the final phase of Ukraine's 2004 presidential contest (or at least the competitive nature of any suspicious "augmentations"). Even with a sinister interpretation given to the perturbation in Yushchenko's turnout distribution and a coefficient of 1.05 in the flow of votes to him from round 2, the third round closely matches what we expect from an election that can be deemed legitimate, at least for a post-Soviet state that regards many of the electoral traditions of its Soviet past as legitimate. More generally, then, from the perspective of developing methods for detecting fraud, if we take at face value the judgments of Western observers, the third and decisive round of balloting confirms that the peculiarities we have taken as forensic evidence of fraud in the second round are in fact evidence of falsified results in terms of explicitly manufactured ballots aided and abetted by more classic Soviet-style forms of administrative control. The bump in turnout for Yanukovich that verges on generating a bimodal distribution disappears in this final round. The change in the relationship between *V/E* and *T* in Donetsk alone is consistent with the hypothesis that upwards of 500,000 ballots were fraudulently cast in that oblast in the second round for Yanukovich but that half or more of those ballots were eliminated in the third. And estimates in the trail of votes suggesting that one candidate or another "won" upwards of 120 percent of the vote from some source disappear as well.

To the extent, then, that Ukraine's third round confirms our methods, we conclude that among the several elections considered thus far, the most explicitly rigged contest is Putin's 2004 reelection. Although Putin surely would have easily won the 2004 vote without fraud, it verges on science fiction to call that contest (or the subsequent 2007 parliamentary vote) free and fair. However, regardless of whether Russia or Ukraine in 2004 is deemed the notable example of a corrupted election, there remains one critical piece of the puzzle when setting forth circumstantial evidence in the prosecution of a crime – motive. What motive was there for implementing falsifications of the magnitude we estimate in Ukraine's November 21 runoff?

In the Russian case, of course, we've cited the Prisoners' Dilemma regional bosses likely found themselves playing as they curried favor with Putin and the Kremlin. Motives were most likely different in Ukraine, where a second round was deemed inevitable even before the first round of balloting. Naturally, as in Russia, elites have an incentive to back the winner, and surely with the Kremlin's support so unashamedly evident, a Yanukovich victory seemed likely. Indeed, independent public opinion polls gave him the edge so that even members of the shill entity, the Russian Club, organized by Putin's fellow travelers Gleb Pavlosky and Vyachselav Nikonov to give Yanukovich the gloss of respectability, were confident of ultimate victory weeks before any vote was taken. And no doubt a good part of the political and economic establishment in Eastern Ukraine, as well as the vast majority of voters there, strongly preferred Yanukovich. But there are two other factors to be considered. First, unlike Russia in 2004, the Ukrainian election of that year was destined to be competitive. Even Putin's spin doctors knew beforehand that they might have to fudge the numbers to assure victory ("three percent is no problem, ten percent would be more difficult," according to a private communication from a member of the Russian Club). Thus, regional bosses and political operatives in competitive districts, with some uncertainty as to the eventual winner, might have acted with more restraint than their Russian counterparts.

However, offsetting this consideration is another fact that explains why steps were taken beforehand to organize for fraud. Put simply, Yanukovich wasn't an attractive alternative even in the regions that supported him. Refusing to talk about his youthful criminal past, Yanukovich's campaign allowed opponents to portray him as little more than another corrupt puffy-faced Soviet-era apparatchik. His relative popularity in the East wasn't due to a warm personality or the confidence he gave that he could lead Ukraine to unbridled prosperity. Rather, it was Yushchenko's pro-Western orientation and American-born wife that moved many voters to Yanukovich's side. That there might have been others capable of defeating Yushchenko in an honest vote, consider Figures 4.16a and 4.16b, which portray the percentage voting "against all" in October's first round. What Figure 4.16a reveals is that "against all" never garnered more than 4 percent of the vote in those regions in which Yushchenko received more than 38

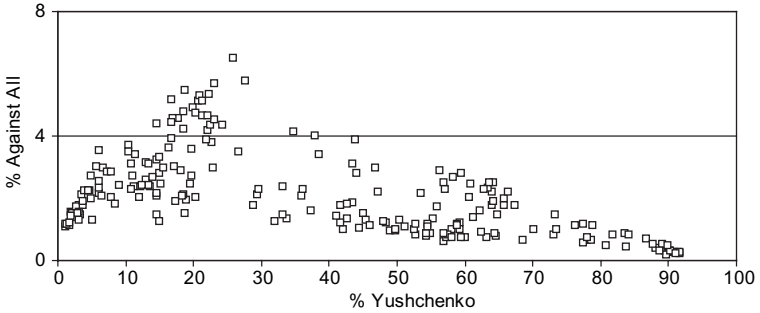


FIGURE 4.16a. Against All, First Round, Yushchenko Rayons

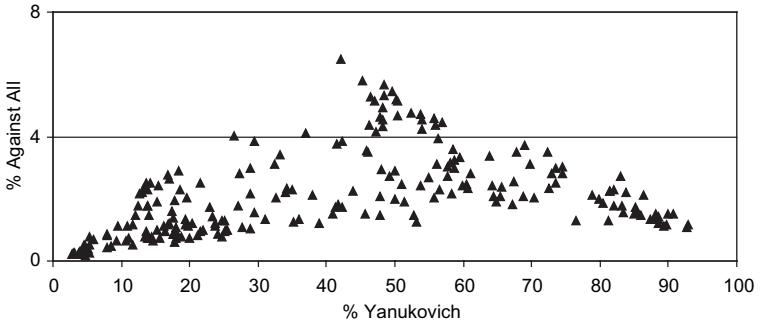


FIGURE 4.16b. Against All, First Round, Yanukovich Rayons

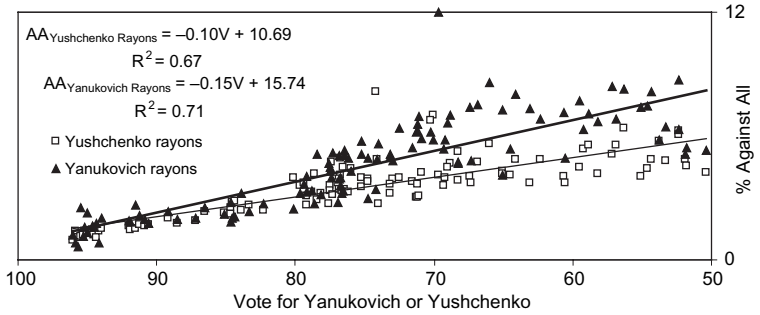


FIGURE 4.16c. Against All, Second Round

percent of the vote. But as Figure 4.16b shows, Yanukovich's support must exceed 57 percent before voters consistently chose "against all" less than 4 percent of the time. If we take the percentage voting "against all" when a candidate fares well as a measure of his unattractiveness, Yanukovich is the weaker alternative: although few people in Yanukovich's strongholds deemed Yushchenko acceptable, it appears that not everyone there was enamored with a candidate who did not object to being viewed as a Kremlin toady. And Figure 4.16c shows that this pattern persisted through the second round. Even with stuffed ballot boxes, the percentage voting "against all" rises on average at a faster rate as Yanukovich's vote share declines in the districts he carried than it does in the districts supporting Yushchenko. Thus, except in those districts giving exceptional (and, presumably, artificial) support, Yanukovich's popularity, as measured by people's propensity to reject both candidates, was not as great as Yushchenko's.

The motive to rig the election follows directly from the assumption that the sycophants and spin doctors dispatched to ensure a victory for Putin and Kuchma's candidate were well aware of the weaknesses of the person they were directed to serve. They were, in effect, managing damaged goods whose relative attractiveness derived principally from the perception that his opponent, Yushchenko, was pro-Western, pro-NATO, and anti-Russian. This fact, in turn, helps explain the source of Lyudmyla Hrebenyuk's testimony about the sudden appearance of a million plus falsified votes in mid-afternoon. Under-appreciating Yanukovich's "negatives" and confronted with the unexpected prospect of defeat, the powers that be in Ukraine's Central Election Commission simply tossed caution to the wind and added votes without a concern for how readily their actions could be detected. At the very least they knew, as did the political bosses in Russia, that the discovery of any such malfeasance would not be prosecuted by either the incumbent regime or by the regime they thought they could install through fraud. Perhaps they also assumed that events would unfold as they had in Russia wherein election observers and the inevitable allegations of fraud could be ignored as discordant noise. Their miscalculation, in part, was the failure to understand the implications of Ukraine not possessing the reserves of natural gas or oil with which to bribe or coerce Western governments, as well as the failure to

appreciate fully Ukraine's role in the geopolitical game between Russia and the West. Almost certainly it caught both the Kremlin and Yankovich's allies by surprise to learn, when the first international objections arose to the fraudulent November outcome, that unlike in Russia, the governments and citizens of places like Sweden, Norway, the Netherlands, and Denmark really do believe in the sanctity of the vote. And perhaps someone should have informed Putin and Yanukovich that while 3 percent might seem a small number, it is not when it comes to dictating the foreign policy of a competitive democracy such as Canada, where that 3 percent corresponds to the Ukrainian diaspora's share of the electorate. Motive, then, was coupled with the mistaken assumption that there would be no sanctions for the discovery of electoral crimes.

# 5

# Ukraine 2006 and 2007

> The natural cure for an ill administration, in a popular or representative constitution, is a change of men.
>
> Alexander Hamilton, *The Federalist*, No. 21

## 5.1 THE PARLIAMENTARY ELECTION OF 2006

Ukraine's 2006 and 2007 parliamentary elections stand in sharp contrast to its November 2004 presidential runoff vote. Although the November 2004 round witnessed readily substantiated charges of fraud, allegations of voting irregularities were, with few exceptions, virtually nowhere to be found in 2006 or 2007, with international observers proclaiming both elections free and fair without the usual diplomatic double-speak that often frames their assessments.[1] In this chapter, then, we ask whether the statistical evidence for fraud found in the 2004 election is absent in these two contests. Just as our forensic indicators signaled substantial fraud in Putin's reelection, in Russia's subsequent parliamentary vote and in the second round of Ukraine's presidential election, along with its virtual disappearance in Ukraine's December 2004 revote, if the accounts of observers and

[1] The People's Opposition Bloc of Natalia Vitrenko with 2.93 percent of the vote and the Opposition Bloc "Ne Tak" both cried foul in 2006. However, Vitrenko's objection to the final outcome was based largely on her misreading of Ukraine's election law, which in establishing a 3 percent threshold for representation, dictated the counting of all ballots cast (including invalid ballots and ballots cast against all).

journalists are accurate, we should expect few suspicious patterns in 2006 or 2007.

As background, we note that Ukraine's political landscape changed considerably between Yushchenko's December 2004 victory and the 2006 parliamentary contest. Yushchenko's Orange Revolution partner, Yulia Timoshenko, was fired as prime minister less than a year after the presidential contest. Thus, each entered the 2006 party list proportional representation contest with separate lists and in direct competition throughout most of Central and Western Ukraine. Yanukovich, in the meantime, cast off his ineffectual Russian spin doctors and, with the assistance of a new cadre of election mechanics from the West, skillfully resurrected himself as head the Party of Regions, which the polls early on indicated was stronger overall than either of the lists sponsored or headed by Yushchenko (Our Ukraine) or Timoshenko (Bloc Yulia Timoshenko, denoted BYuT). To this mix was added the Socialist Party of Ukraine (SPU), headed by Oskar Moroz (who in the December 2004 runoff had thrown his lot in with Yushchenko and Timoshenko), a considerably weakened Communist Party of Ukraine (CPU), and several other lists with little or no chance of meeting the 3 percent threshold for parliamentary representation.

The election's outcome was seen as a defeat for Yushchenko, whose Our Ukraine polled a weak third with 13.95 percent of the vote (81 seats). Timoshenko's BYuT came in a respectable second (22.29 percent, 129 seats) and Yanukovich's list a strong first (32.16 percent, 186 seats). However, neither Our Ukraine plus BYuT nor the Party of Regions in coalition with the CPU (with 4 percent of the vote and 21 seats) could form a governing majority coalition. The pivotal player was Moroz, whose SPU won 5.69 percent of the vote and 33 seats in the 450 seat parliament. In what can only be regarded as a political blunder of failing to award Moroz the parliamentary speakership he demanded and to accede to his position that Ukraine postpone any decision about petitioning for NATO membership (which required little compromise since not only is a majority of the population opposed to membership, but Ukraine's military is hardly prepared to meet the alliance's standards), Moroz instead won what he sought in coalition with Yanukovich's Regions and the Communists. The result was the political resurrection of a

previously humiliated and defeated Yanukovich, who then confronted Yushchenko as prime minister armed with a revised constitution that strengthened the powers of his office at the expense of the presidency. The question then is whether the stage for this turn of events was set by any suspicious election maneuvers, local or otherwise, that elevated Yanukovich's party to first place in the balloting or whether Regions won a largely free and fair contest on the basis of an election appeal that took advantage of the disarray in the President's administration, the fracturing of the Orange coalition, and the steadfast support of voters in Eastern Ukraine who felt betrayed by the reversal of results in the December 2004 revote.

In fact, our indicators suggest that Ukraine joined the Baltic States as the only parts of the former USSR to hold a free, fair, and competitive vote with no significant fraud. To see this, we begin with Table 5.1, which, using the same proxy variables as in the previous chapter (percentage urban and percentage Russian speakers), offers a flow of votes analysis between the 2002 and 2006 parliamentary elections. In interpreting this table it is important to keep Ukraine's political geography in mind.[2] BYuT and Our Ukraine did best, of course, in the West, while the support for Regions was concentrated in the East and Crimea. Nevertheless, BYuT often ran a respectable second in the East due in part to Timoshenko's populist positions and close ties to many of that region's economic elites. Thus, we should not be surprised that BYuT and Regions shared in the SPDU's (Socialist Democratic Party of Ukraine) 2002 vote as well as those who voted for other minor parties. Regions, on the other hand, cut deeply into the CPU's old support, which, like its Russian counterpart, continued to shrink while putting forth the same shop-worn candidates, including its head, Petro Symonenko. Indeed, with that party no longer the force it had been in the 1990s, Regions even outpolled the CPU among those who previously voted for it. Unsurprisingly, the core of BYuT support came from those who voted for it in 2002; but having split from Yushchenko in 2005 (or perhaps more accurately, after having been jettisoned by him), Timoshenko's BYuT won a respectable share (20 percent) of Our Ukraine's 2002 vote. We are also not surprised that United Ukraine's

[2] Our proxy variables here are: percent Russian-speaking and percent urban.

TABLE 5.1. *Flow of Votes from 2002 to 2006*

| From/To | Regions | BYuT | Our Ukraine | SPU | CPU | Others | Nonvoters |
|---|---|---|---|---|---|---|---|
| Our Ukraine | −0.02 | 0.20 | 0.42 | 0.05 | 0.02 | 0.22 | 0.11 |
| CPU | 0.44 | 0.06 | −0.04 | 0.03 | 0.17 | 0.05 | 0.29 |
| United Ukraine | 0.13 | 0.19 | 0.09 | 0.13 | 0.01 | 0.20 | 0.24 |
| BYuT | 0.09 | 0.70 | −0.09 | 0.04 | −0.00 | 0.16 | 0.12 |
| SPU | 0.04 | 0.09 | 0.14 | 0.45 | 0.04 | 0.14 | 0.12 |
| SDPU | 0.50 | 0.35 | 0.10 | −0.10 | −0.05 | 0.03 | 0.18 |
| Others | 0.36 | 0.34 | −0.06 | −0.02 | 0.01 | 0.32 | 0.07 |
| Nonvoters | 0.22 | −0.03 | 0.08 | 0.00 | −0.01 | 0.06 | 0.68 |

support is spread across a number of parties since that "party" was little more than a coalition cobbled together in support of Ukraine's president at the time, Leonid Kuchma.[3] Only one coefficient offers a potential surprise – the 22 percent Regions won from those who failed to vote in 2002. But we should keep the altered landscape of Ukrainian politics in mind. In Russia we treated Putin's ability to mobilize nonvoters with suspicion since, in an election that was a foregone conclusion, there was no apparent reason, aside from fraud and Soviet-style "administrative efforts," for otherwise habitual nonvoters to suddenly march to the polls. Things were different in Ukraine. Although an East-West divide had long characterized its tempestuous politics, the relevance of geography was no doubt raised to preeminence following the 2004 vote. Almost certainly those who sincerely supported Yanukovich in 2004 felt betrayed by the political system so that those who may have taken a back seat to the dance of elites in 2002 went to the polls with a sense of revenge in 2006.[4] This simple bit of history, plus the fact that no other coefficient in Table 5.1 warrants suspicion, yields a wholly benign view of Yanukovich's success at mobilizing support among a subset of those who failed to vote in the previous parliamentary contest. So aside from arguing that the numbers in Table 5.1 make sense, we note that no estimate gives rise to any hint of manipulation: no coefficient exceeds 1.0 (indeed, none exceeds 0.70) and of those that are negative, their magnitude suggests statistical insignificance.

Turning now to the flow of votes from 2004 to 2006, Table 5.2 reports our estimates for each of the three rounds of the 2004 vote,

[3] The dispersion of United Ukraine's vote across several parties follows its constituent parts. In 2002, it was an alliance consisting of five entities: Regions, the Agrarian Party, the Party of Industrialists and Entrepreneurs, People's Democratic Party, and Labor Ukraine. Regions and Labor Ukraine merged into Regions in 2006. The Party of Industrialists joined Our Ukraine in 2006, then switched to Regions in 2007. The PDP joined the ranks of "others" in 2006 while the Agrarians, insofar as Table 5.1 is concerned, did the same by joining Litvyn's bloc in 2006 and 2007.

[4] Turnout between 2002 and 2006 declined somewhat from 69.4 to 67.1 percent, which helps explain why nonvoters in 2006 come from the ranks of nearly every other party in 2002 listed in Table 5.1. However, we are, to some extent, comparing apples and oranges here. In 2002 only half of Ukraine's Verkovna Rada was elected by party list PR (the other half elected in single mandate constituencies) and the threshold for representation was 4 percent. In 2006, in contrast, single mandate constituencies were eliminated and all seats filled by PR, with the threshold lowered to 3 percent.

TABLE 5.2. *Flow of Votes from 2004 to 2006*

| From/To | Regions | BYuT | Our Ukraine | SPU | CPU | Other | Nonvoters |
|---|---|---|---|---|---|---|---|
| | 2004, First Round | | | | | | |
| Yushchenko | 0.06 | 0.36 | 0.29 | 0.03 | 0.01 | 0.23 | 0.03 |
| Yanukovich | 0.37 | 0.05 | 0.09 | 0.07 | 0.02 | 0.16 | 0.26 |
| Moroz | 0.19 | 0.11 | −0.10 | 0.63 | 0.06 | 0.10 | 0.01 |
| Symonenko | 0.46 | 0.17 | −0.25 | 0.01 | 0.61 | −0.02 | 0.05 |
| Nonvoters and Others | 0.22 | 0.05 | −0.01 | −0.05 | −0.02 | 0.07 | 0.75 |
| | 2004, Second Round | | | | | | |
| Yushchenko | 0.02 | 0.34 | 0.18 | 0.09 | 0.05 | 0.19 | 0.03 |
| Yanukovich | 0.35 | 0.01 | 0.03 | 0.12 | 0.04 | 0.14 | 0.31 |
| Nonvoters | 0.18 | 0.05 | 0.06 | −0.17 | −0.04 | 0.04 | 0.89 |
| | 2004, Third Round | | | | | | |
| Yushchenko | −0.01 | 0.33 | 0.26 | 0.14 | 0.03 | 0.20 | 0.04 |
| Yanukovich | 0.64 | 0.06 | −0.08 | −0.04 | 0.07 | 0.12 | 0.22 |
| Nonvoters | 0.03 | −0.02 | 0.06 | 0.00 | −0.04 | 0.06 | 0.91 |

and the numbers offer no surprises.[5] BYuT and Our Ukraine get their votes from a single source, Yushchenko, and, with respect to the first round, the CPU and SPU get their votes from Symonenko and Moroz respectively. Interestingly, when looking at the second round of 2004, the SPU's vote comes from Yanukovich whereas, after Moroz had thrown in his lot with the Orange coalition, its vote comes from Yushchenko's third round support. For all three rounds, moreover, the overwhelming majority of nonvoters in 2004 remain nonvoters in 2006. Regions wins a considerable share of 2004's first round nonvoters, but this is consistent with the numbers reported in Table 5.1. Perhaps the most interesting set of estimates, though, pertain to the flow of Yanukovich's vote.[6] First, Regions appears to win an unusually small share of Yanukovich's vote from the first and second rounds, whereas its 64 percent share of his vote from the third round makes sense. Yanukovich's vote in the third round was 44 percent while Regions secured 32 percent overall in 2006, the equivalent of 73 percent of Yanukovich's share. Second, if the ranks of nonvoters in 2006 were filled by any source other than those who failed to vote in 2004, it came from Yanukovich's support. However, consistent with the supposition that the third round of 2004 was relatively free and fair compared to the previous round and that previous rounds, especially the second, saw Yanukovich's vote padded with nonexistent or forged ballots, the share of his support that reverts to nonvoting in 2006 is smallest for this round and Regions's support from nonvoters becomes nonexistent. Indeed, looking simply at the vote flow from 2004's third round to 2006, we find nothing that is unanticipated or that might serve as probable cause for suspecting fraud. Taking the estimates in Tables 5.1 and 5.2 together, then, yields the conclusion that the 2006 vote, at least by this indicator, was free and fair.

[5] The proxy variables that give the best fit here are: for the first and second rounds of the 2004 vote to 2006, Yanukovich's third round vote; and for the third round to 2006, Yanukovich's first round vote.

[6] Interestingly, our method's diagnostic statistics, which we do not report in this volume, suggest that the vote flow from the second round of 2004 offers the least reliable set of estimates, which is consistent with the supposition that the numbers from that round are distorted significantly by fraud and that our methodology is struggling to allocate votes that simply do not exist.

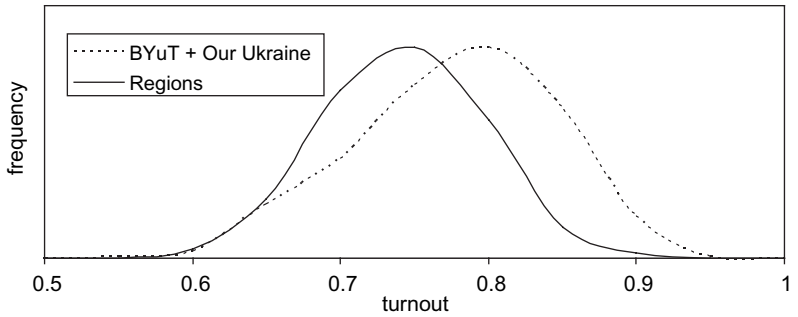


FIGURE 5.1. Turnout Distributions, Ukraine 2006

Our next indicator, the distribution of turnout across Ukraine's 755 rayons, tells much the same story. Figure 5.1 graphs that distribution after separating those regions in which Regions polled first and those in which either Our Ukraine or BYuT secured a positive plurality. Once again there is nothing here to raise suspicions: both distributions approximate as normal a density as we are likely to see in anything but artificial data.

Finally, turning to Figures 5.2a and 5.2b, let us consider the relationship between turnout, *T*, and a party's share of the eligible electorate, *V/E*. As we see, the coefficients we recover for the dominant party exceed 1.0 only for Regions and then only modestly (although, if we combine BYuT with Our Ukraine, the coefficient on *T* becomes 1.07). The only suspicious coefficients are the negative ones for Regions in rayons carried by Our Ukraine or BYuT, and the combination of BYuT with Our Ukraine in rayons supporting Regions. These numbers, though, can be explained simply by noting that the respective parties are likely to be especially unpopular in those "alien" rayons reporting the highest turnout – where voters are most strongly motivated to affirm or negate the results of the 2004 Orange Revolution (e.g., the rural parts of Lviv or the urban parts of Donetsk). What is important is that the estimated coefficients nowhere near approximate what we found for 2004 within the regions carried by Yanukovich or Yushchenko.

However, some caution is in order here since we saw in Chapter 2 how aggregation error can give a false reading wherein, even if the estimated relationship between *T* and *V/E* seems reasonable, it can change markedly within subsets of the data. Moreover, we should

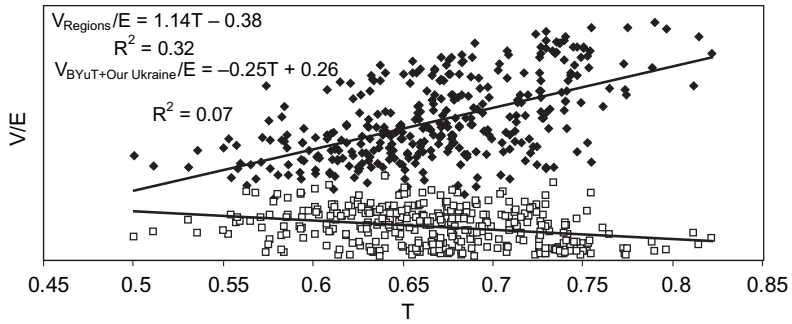


FIGURE 5.2a. *T* versus *V/E*, Party of Regions Rayons, 2006

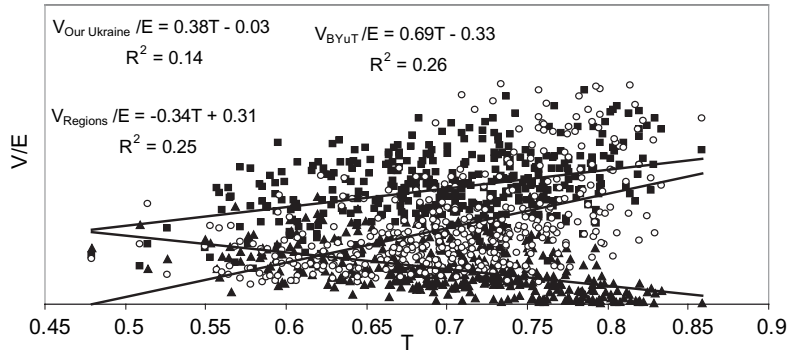


FIGURE 5.2b. *T* versus *V/E*, BYuT and Our Ukraine Rayons, 2006

not wholly sweep under the rug the negative coefficients that Figures 5.2a and 5.2b report. In fact, disaggregating further and taking a closer look at the data and the relationship between turnout and *V/E* reveals even more about the differences between 2006 and 2004. Consider again the three regions of Donetsk, Luhansk and Lviv. The first two, of course, are Yanukovich strongholds, whereas Lviv remained staunchly loyal to Yushchenko, even in 2006. Recall that in Donetsk, in 2004, the relationship between turnout and share of the eligible electorate for Yanukovich in rounds 2 and 3 is given by the equations (see Figures 4.5d, 4.8a, 4.5c and 4.8b, respectively):

$$V2(Donetsk)_{Yanukovich}/E = 1.35T - 0.37, R^2 = 0.95$$

$$V3(Donetsk)_{Yanukovich}/E = 1.11T - 0.13, R^2 = 0.93$$

Whereas for Luhansk we get,

$$V2(Luhansk)_{Yanukovich}/E = 1.32T - 0.34, R^2 = 0.97$$

$$V3(Luhansk)_{Yanukovich}/E = 0.99T - 0.06, R^2 = 0.59$$

Keep in mind, moreover, that no other measure suggests fraud in either oblast in round 3 and thus we must conclude that a coefficient of 1.11 in Donetsk (down to 1.037 if we use our third round precinct level data rather than rayon level data; see Figure 4.9a) does not signal outright fraud in the form of stuffed ballots but, more likely, the more benign application of what we have called "administrative resources" – control of the media and limited opportunities to mobilize for Yushchenko.

Now, looking at Figures 5.3a and 5.3b for Donetsk and Luhansk in 2006, we find nothing whatsoever that is remarkable or suspicious. The coefficients in these figures look wholly regular and suggest anything but a manipulated outcome. The sharp decline in $R^2$ here as compared to 2004 suggests, moreover, that it is not aggregation error that is producing the low coefficient for turnout when all of Yanukovich's regions are considered as a whole, but simply that local elites failed to confer on Yanukovich and his party the same uniform advantages they gave him in 2004. Indeed, some may have even directed their efforts at assisting Timoshenko's BYuT who had strong personal connections in Eastern Ukraine and who accounts, no doubt, for the positive coefficient for this block plus Our Ukraine.

Turning now to Lviv, recall that the parallel regression equations for the second and third rounds of 2004 are as follows (see Figures 4.5e and 4.8b, respectively):

$$V2(Lviv)_{Yanukovich}/E = 1.23T - 0.25, R^2 = 0.77$$

$$V3(Lviv)_{Yanukovich}/E = 1.52T - 0.47, R^2 = 0.87$$

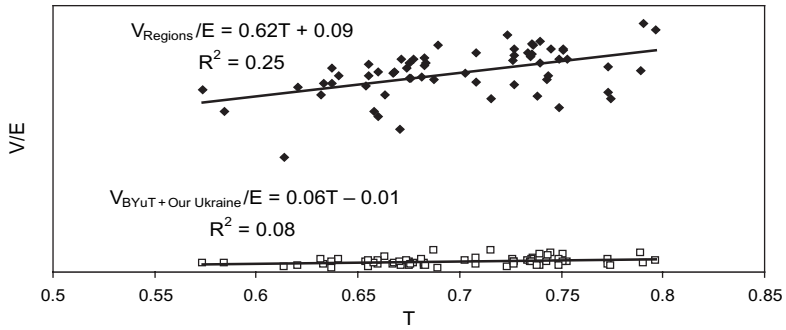


FIGURE 5.3a. *T* versus *V/E*, Donetsk Rayons 2006

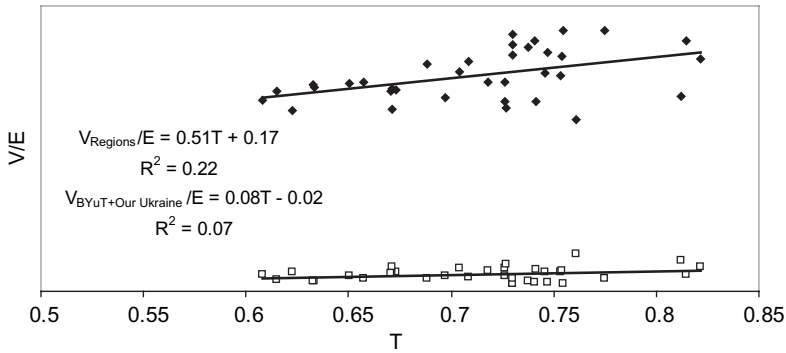


FIGURE 5.3b. *T* versus *V/E*, Luhansk Rayons 2006

No less than in Donetsk, then, the coefficients here look suspicious (although the round 3 coefficient becomes 1.27 if we disaggregate further to the level of individual polling stations: see Figure 4.11). Now consider 2006 and Figure 5.3c.

Thus, Our Ukraine, while benefiting from increased turnout, did not appear to benefit in any overtly suspicious way. However, before we assert that this forensic indicator's application in Lviv yields a clean bill of health, there are two things to consider. First, the significant negative coefficient for Regions, and, second, the fact that the sum of coefficients for Our Ukraine and Timoshenko's BYuT exceeds

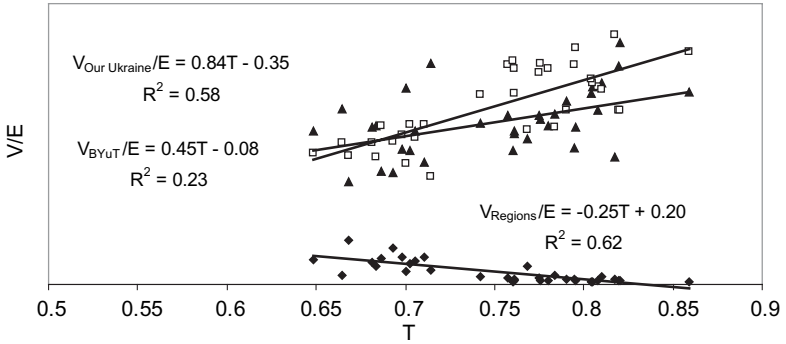


FIGURE 5.3c. *T* versus *V/E*, Lviv Rayons 2006

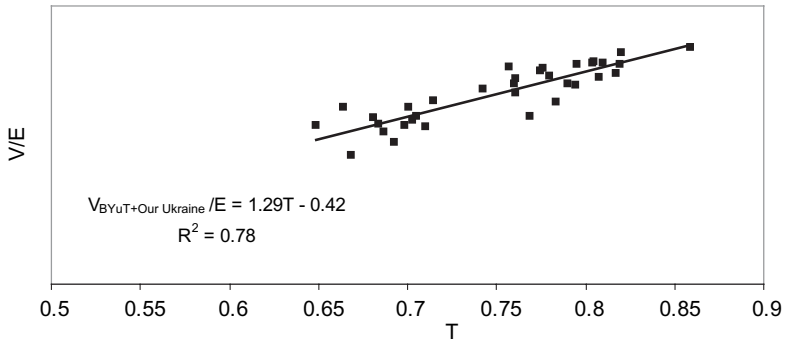


FIGURE 5.3d. *T* versus *V/E*, Lviv Rayons 2006, BYuT and Our Ukraine

1.0. Figure 5.3d sums the votes won by BYuT and Our Ukraine prior to estimating the relationship between *T* and *V/E* and reveals a coefficient for *T* significantly greater than 1.0.

Figures 5.3c and 5.3d, though, reveal another pattern – a gap in turnout between 0.7 and 0.75. It is as if there are two clusters of data here, which leaves us with two alternatives. The first is to conjecture that BYuT and/or Our Ukraine's vote was artificially augmented in the high-turnout rayons (as in Moscow's Presnya rayon). The second is that there is a benign socio-economic or demographic basis for the apparent clustering. Of course, when pursuing this second alternative, we cannot merely divide our data so as to secure a specific result. But recall how, in Figure 4.14b, the coefficient for turnout was reduced considerably if we separated city from village rayons in

Lviv oblast – a separation that could be justified by the supposition that young voters, with lower overall average rates of participation, tended to migrate to the city while their older, more conservative counterparts remained in Ukraine's rural agricultural villages. In fact, the effect in 2006 is the same as 2004. Specifically, for rayons classified as "city" we get

$$V/E(Lviv, city)_{BYuT+Our\ Ukraine} = 0.43T + 0.16, R^2 = 0.09$$
$$V/E(Lviv, city)_{Our\ Ukraine} = 0.20T + 0.10, R^2 = 0.01$$
$$\mathrm{V/E}(Lviv, city)_{BYuT} = 0.24T + 0.06, R^2 = 0.07$$
$$\mathrm{V/E}(Lviv, city)_{Regions} = -0.11T + 0.11, R^2 = 0.05$$

And for village (rural) rayons we have

$$V/E(Lviv, village)_{BYuT + Our\ Ukraine} = 0.94T - 0.13, R^2 = 0.44$$
$$V/E(Lviv, village)_{Our\ Ukraine} = 0.85T - 0.40, R^2 = 0.27$$
$$V/E(Lviv, village)_{BYuT} = 0.08T + 0.26, R^2 = 0.00$$
$$V/E(Lviv, village)_{Regions} = -0.05T + 0.04, R^2 = 0.17$$

Our precinct level data tells essentially the same story. After deleting all precincts with fewer than 100 registered voters, we get for all of Lviv oblast

$$V/E(Lviv\ oblast)_{BYuT + Our\ Ukraine} = 1.02T - 0.23, R^2 = 0.61$$
$$V/E(Lviv\ oblast)_{Our\ Ukraine} = 0.65T - 0.20, R^2 = 0.26$$
$$V/E(Lviv\ oblast)_{BYuT} = 0.37T - 0.03, R^2 = 0.12$$
$$V/E(Lviv\ oblast)_{Regions} = -0.11T + 0.10, R^2 = 0.21$$

In contrast to a coefficient of 1.02 when we combine the city of Lviv with the more rural precincts of the oblast, we get for the two election districts of the city of Lviv alone

$$V/E(city\ of\ Lviv)_{BYuT + Our\ Ukraine} = 0.75T - 0.09, R^2 = 0.55$$
$$V/E(city\ of\ Lviv)_{Our\ Ukraine} = 0.35T - 0.01, R^2 = 0.24$$
$$V/E(city\ of\ Lviv)_{BYuT} = 0.40T - 0.09, R^2 = 0.34$$
$$V/E(city\ of\ Lviv)_{Regions} = -0.03T + 0.07, R^2 = 0.01$$

And for all precincts in the remaining fourteen election districts, we have

$$V/E(Oblast - city\ of\ Lviv)_{BYuT+Our\ Ukraine} = 0.92T - 0.14, R^2 = 0.54$$
$$V/E(Oblast - city\ of\ Lviv)_{Our\ Ukraine} = 0.64T - 0.18, R^2 = 0.21$$
$$V/E(Oblast - city\ of\ Lviv)_{BYuT} = 0.28T - + 0.05, R^2 = 0.06$$
$$V/E(Oblast - city\ of\ Lviv)_{Regions} = -0.06T + 0.06, R^2 = 0.12$$

There is little here now to warrant suspicion. Our Ukraine does appreciably better in village rayons and precincts outside of the city of Lviv whereas the other half of the Orange coalition, BYuT, does best in the city of Lviv and urban rayons. But in neither village nor city does the sum of coefficients exceed 1.0. The coefficient for Regions, on the other hand, while uniformly negative, is not significantly different from 0, and only reflects the East-West divide that characterizes Ukrainian politics and the difficulty Yanukovich or his party experience finding supporters in Lviv, regardless of turnout.[7]

Moreover, these numbers have a bearing on our interpretation of the data from Lviv in the third round of the 2004 vote. Recall Yushchenko's especially strong showing in the rural parts of the oblast, which helps explain an overall coefficient for *T* in excess of 1.0 (see Figure 4.14b). Even still, the door remained open to the hypothesis that Yushchenko's rural strength may have been due to some classic Soviet-style application of administrative advantage. But keep in mind that in 2006, Yushchenko's Our Ukraine went head to

[7] We should note, however, that a graph of *V/E* versus *T* does yield suspicious coefficients in three oblasts, one favoring Yanukovich's Regions and the other two favoring BYuT + Our Ukraine. In Zaporizhzhia the coefficient on *T* for Regions is 1.24 (intercept = –0.46, $R^2 = 0.47$) whereas for BYuT + Our Ukraine it is –0.32 (intercept = 0.31, $R^2 = 0.19$). Conversely in the Western oblast of Ivano-Frankivs'k the coefficient on *T* for BYuT + Our Ukraine equals 1.29 (intercept = –0.38, $R^2 = 0.88$) and Regions it is –0.14 (intercept 0.11, $R^2 = 0.50$) and in Ternopil we get, respectively, 1.29 (intercept = –0.44, $R^2 = .70$) and –0.13 (intercept = 0.12, $R^2 = 0.30$). These, however, are the sole instances of oblasts that yield coefficients greater than 1.0. While certainly they should be examined more closely, the fact that they are the sole exceptions to nonsuspicious coefficients leads us to give each the benefit of the doubt. We suspect, in fact, that if we considered precinct level data here, all coefficients greater than 1.0 would decrease considerably. In the third round of 2004, for example, the coefficient on *T* for Yanukovich in Zaporizhzhia is 1.67 when using rayon level data, but drops to 0.97 with precinct data, for Ivano-Frankivs'k that third round coefficient for Yushchenko drops from 1.39 to 1.20 and for Ternopil it drops from 1.40 to 1.18. Equivalent declines in 2006 would render all coefficients insignificantly different from 1.0.

head against Timoshenko's BYuT in the West, and we can be reasonably certain that this competition precluded any serious fraud or excessive Soviet-style election tactics on either party's part. This fact, along with the preceding coefficients, which again register Yushchenko's strength in rural Lviv, give greater credence to a more benign interpretation of his strengths in 2004.

The comparison of 2006 to 2004 warrants one final comment. One might think that multiparty parliamentary elections are inherently different than two candidate presidential ones and that this difference accounts for the difference in the performance of our indicators across elections. However, the experience of Russia, surveyed in an earlier chapter, serves as a counterexample to this argument. Russian parliamentary and presidential elections prior to 2004 look little different from each other. And if one takes the five elections beginning with the initial emergence of Putin on Russia's political stage – 1999, 2000, 2003, 2004, and 2007 – it is not that the two presidential contests, 2000 and 2004, resemble each other by our indicators and that the three parliamentary elections, 1999, 2003, and 2007, look similar. Rather, it is 1999, 2000 and 2003 that look alike but radically different from 2004 and 2007. In contrast, by almost any standard and any indicator, Ukraine's 2006 parliamentary votes seems a paragon of virtue – perhaps even more so than the third round of its 2004 presidential election.

## 5.2 THE 2007 CONTEST

Ukraine's political process following its 2006 parliamentary vote can be characterized either as a disaster for President Yushchenko or simply an embarrassment. His ostensibly vanquished 2004 election opponent, Victor Yanukovich, as head of the party that won a clear plurality in 2006 over the forces of the Orange Revolution, was anointed prime minister by drawing Moroz and his voting bloc to his side in a governing coalition that posed a severe threat to Yushchenko's authority. Indeed, Yanukovich and his allies proceeded to chip away at what was left of Yushchenko's parliamentary support until the threat emerged of a coalition sufficient to override any presidential veto and force through any number of constitutional changes. Reacting to the threat, Yushchenko dissolved parliament and called for new elections, which, after lengthy and murky negotiations,

took place September 30, 2007. In the interim and throughout the shortened campaign, Timoshenko – the other half (or should we say two-thirds?) of the Orange coalition – chose to do more than merely campaign in Western Ukraine and settle for going head-to-head against Yushchenko's Our Ukraine. Instead, she directed a considerable effort at campaigning in Yanukovich's Eastern regions, with her BYuT drawing nearly even with Regions overall in the national total as a result.[8] The impact of her campaign is evident in the final tally of seats as shown in Table 5.3. Not only did BYuT increase its vote by more than 8 percent nationally, Yanukovich's 2006 majority coalition of Regions, Communists, and Socialists (240 seats) lost the SPU as a partner and shrank to 202 seats while that of BYuT-Our Ukraine increased from 210 seats to a bare majority of 228. Table 5.3 also reveals the increased share of the vote won by parties that passed the 3 percent threshold for representation and won seats. The 2007 election, then, saw considerable consolidation of parties and blocs.

The data in Table 5.3 lends itself several inferences. First, it is reasonable to suppose that a good share of Our Ukraine's lost votes went to nonvoters or BYuT. Second, the disappearance of Vitrenko's bloc from the list in 2007 surely accounts for a share of the CPU's increased support. Finally, a significant share of Moroz's 2006 vote, dissatisfied with his defection from the Orange coalition, doubtlessly went to BYuT. However, as logical as these inferences are, consistency requires examining the data more carefully before proclaiming a free and fair contest. Our difficulty, however, is twofold. First, although we have precinct level data for each oblast, we cannot link that data to previous elections and establish a time series. Instead, we must rely on the more highly aggregated election district data to assess the flow of votes. But here we encounter a second problem, the absence of demographic data that adequately serve as proxy variables in accordance with the methodology outlined in Chapter 2. For an intermediary expedient, then, we turn to Goodman regression with the intercept set to 0, while acknowledging that such a procedure opens the door wide to ecological

[8] For example, in Odessa, BYuT increased its vote from 9.84 to 13.7 percent, in Kharkiv from 12.7 to 16.4 percent, in Dnipropetrovsk from 15.0 to 20.8 percent, and in Zaporizhzhia from 10.9 to 14.7 percent. Even in Donetsk its share nearly doubled from 2.5 to 4.5 percent.

TABLE 5.3. *Outcomes of 2006 and 2007 Compared*

| | 2006 | | | 2007 | | | |
|---|---|---|---|---|---|---|---|
| | 67.13% Turnout | | | 62.02% Turnout | | | |
| | Vote % | Vote/1000 | Seats | Vote % | Vote/1000 | Seats | Votes Gained (lost) |
| Regions | 32.14 | 8,142 | 186 | 34.37 | 8,007 | 175 | (135,000) |
| BYuT | 22.29 | 5,647 | 129 | 30.71 | 7,154 | 156 | 1,507,000 |
| Our Ukraine | 13.95 | 3,526 | 81 | 14.15 | 3,295 | 72 | (231,000) |
| SDP | 5.69 | 1,443 | 33 | 2.86 | 668 | – | (775,000) |
| CPU | 3.66 | 929 | 21 | 5.39 | 1,257 | 27 | 328,000 |
| Vitrenko Bloc | 2.93 | 743 | – | – | | – | (743,000) |
| Litvyn Bloc | 2.44 | 619 | – | 3.96 | 924 | 20 | 305,000 |
| Share of Vote for Parties with Seats | 77.73 | | | 88.58 | | | |

TABLE 5.4. *Flow of Votes from 2006 to 2007*

| From/To | Regions | BYuT | Our Ukraine | CPU | SPU |
|---|---|---|---|---|---|
| Regions | 0.93 | 0.06 | 0.03* | 0.03 | 0.06 |
| BYuT | 0.05 | 1.02 | 0.07 | 0.01 | −0.10 |
| SPU | 0.04* | 0.34 | 0.11 | 0.01* | 0.57 |
| Vitrenko Bloc | 0.50 | 0.00* | −0.14* | 0.26 | 0.00* |
| CPU | −0.01* | −0.13* | −0.18* | 0.89 | 0.00* |
| Our Ukraine | 0.03* | 0.52 | 0.83 | 0.00* | 0.07 |
| Others | 0.07* | 0.06* | 0.07* | 0.00* | −0.02* |
| Nonvoters | −0.03* | −0.01* | −0.03* | −0.01* | 0.00* |

error. Those regressions are summarized in Table 5.4, with the understanding that the estimates are likely to be the least reliable of any reported in this volume. (Coefficients not significantly different from zero at the 0.01 level are denoted by a "*").

For the most part, Table 5.4 presents us with wholly unexceptional coefficients that match the inferences drawn from Table 5.3. In their analysis of the 2006 and 2007 elections using data from a national preelection poll, Hinich et al. (2008) estimate that Regions and the CPU are the spatially closest parties to Vitrenko's bloc in 2006. Thus, as Table 5.4 shows, Regions retains 93 percent of its original vote and captures half of Vitrenko's, while Symonenko's CPU retains most of its original vote, and wins, quite logically, 26 percent of Vitrenko's support. If we apply these numbers to the data in Table 5.3 we get only slight underestimates of Regions's vote (7,943,000 versus 8,007,000) and slightly more of an underestimate of the CPU's final tally (1,020,000 versus 1,257,000). Doubtless, the colinearity of support among Vitrenko, Yanukovich, and Symonenko accounts for some of this misestimation.[9] More interesting, but still wholly expected, the 2006 vote of Moroz's SPU that he failed to retain and which he won when ostensibly still a member of the Orange coalition, goes predominantly to BYuT (491,000 additional votes) and Our Ukraine (158,000 votes). The

[9] Notice that if we add the 7 percent of "others" to Regions's total, or approximately 440,000 votes, we arrive at an overestimate of Regions' actual vote. More than likely a part of this vote actually went to the CPU, but because of the colinearity in the support for Regions and the CPU, Goodman regression may allocate too large a share of these 440,000 voters to Regions and too little to the CPU.

flow of votes to Our Ukraine, moreover, also matches a substantively plausible and not in the least bit suspicious pattern: whatever votes it might have lost among its early support (600,000 votes) is partially made up by votes from BYuT (395,000 votes), Moroz's SDP (158,000 votes), and others.[10] The final regression to consider is the flow of votes to Timoshenko's BYuT, and again we see a logical pattern – with one exception! That exception is the coefficient of 0.52 for the vote flow from Our Ukraine, where it simply isn't possible for Timoshenko to have won half of Our Ukraine's vote with Our Ukraine maintaining an 83 percent share of its original support. And although BYuT's support did increase by approximately 1.5 million votes, it is difficult to see how all of that plus some came from a party whose support decreased by only slightly more than 200,000 votes nationally.

Rather than suppose that a coefficient of 0.52 suggests fraud, the more reasonable hypothesis at this point is to suppose that we have here an error of ecological regression or collinear variables. At least in Western Ukraine, Timoshenko and Yuschenko competed for essentially the same constituencies, which increases the likelihood of correlated errors or at least of an error structure that does not match the assumptions of Goodman regression. That BYuT made impressive gains in, for example, Yushchenko's stronghold of Lviv is evident. In 2006, Our Ukraine won 39 percent of the vote there, while BYuT won 34 percent, whereas in 2007, Our Ukraine's support slipped to 36 percent, while BYuT soared to 51 percent overall. The effectiveness of Timoshenko's campaign in Lviv is revealed moreover by noting that although in 2004, it was the rural regions that gave Yushchenko the strongest support against Yanukovich, in 2007 BYuT outpolled Our Ukraine in both rural (53 percent versus 37 percent) and urban (44 percent versus 34 percent) precincts. In explaining the overestimate of support BYuT garnered from Our Ukraine, then, it is reasonable to suppose that some part of it came from minor parties whose support correlates with Our Ukraine's. In addition, we also need to take into account the fact that Timoshenko ran the most

[10] The two negative coefficients here for Our Ukraine with respect to Vitrenko's bloc and the CPU suggest that its share of the vote from other parties is overestimated by the remaining coefficients. And just as we suspect colinearity between Regions and the CPU, the same is true to some extent for BYuT and Our Ukraine.

national campaign among all of Ukraine's political personalities, securing a substantial vote not only in her Western strongholds, but in parts of the East as well. If, as is likely, her support in the East came from different sources than in the West, then the assumption of uniform coefficients across the data – a core assumption of simple Goodman regressions – is not satisfied. Indeed, if we add Our Ukraine's votes across the Yanukovich strongholds of Donetsk, Luhansk, Odessa, Kharkiv, Dnipropetrovsk, and Zaporizhzhia, we see that its support changed by fewer than 10,000 votes between 2006 and 2007, whereas BYuT gained nearly 200,000 votes in those oblasts. Perhaps, then, we should not be surprised that it is BYuT that exhibits the sole peculiar coefficient in Table 5.4.

Nevertheless, consistency requires that we consider our other forensic indicators before we write off one peculiar coefficient to specification error. However, before we turn to those two indicators, recall Figure 3.2b, which shows the absence of a coherent relationship between Putin's vote in 2000 and his vote in 2004. With that example in mind, consider Figures 5.4a and 5.4b, which graph Regions's and BYuT's 2007 vote percentages against their 2006 percentages by election district. Clearly, what we see here are relationships that look much like what we see in the United States and in all other established democratic systems. The regression coefficients also make sense: Regions's coefficient is slightly less than 1.0 owing to a slight decline in its vote whereas BYuT's is significantly greater than 1.0 owing to Timoshenko's success at adding to her party's support base, especially in those districts that gave her between 20 and 40 percent in 2006. Figure 5.4b, moreover, lends credence to our earlier argument that ecological error is most likely to rear its head for estimates pertaining to BYuT – the dashed 45-degree line in that figure shows that BYuT gained votes across the spectrum, in which case it had to come from different sources in the Eastern versus Western parts of the country. Indeed, Timoshenko's ability to attract votes in Eastern Ukraine while also increasing her party's edge in the West is attested to by the following regressions: namely, if we consider only those election districts in which BYuT won less than 10 percent of the vote in 2006, we get

$$V_{BYuT,2007} = 1.33V_{BYuT,2006} + 0.42, R^2 = 0.83$$

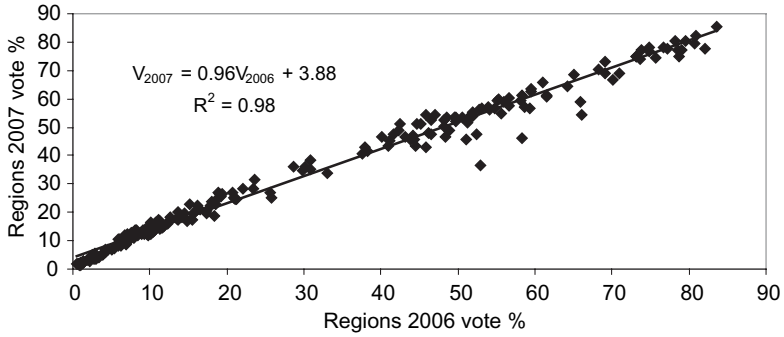


FIGURE 5.4a. Vote for Regions, 2006 versus 2007

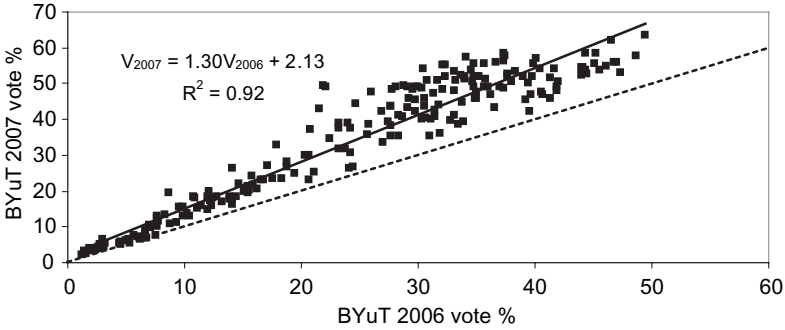


FIGURE 5.4b. Vote for BYuT, 2006 versus 2007

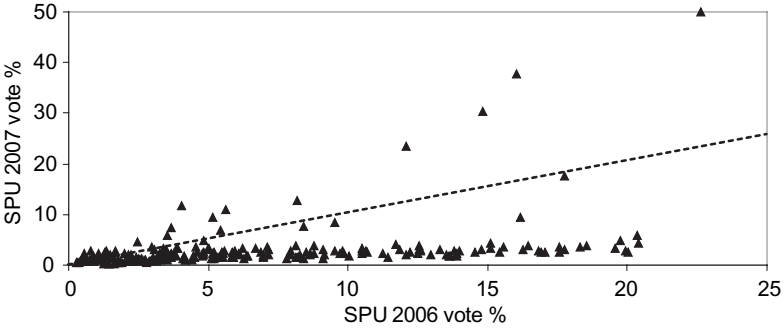


FIGURE 5.4c. Vote for SPU, 2006 versus 2007

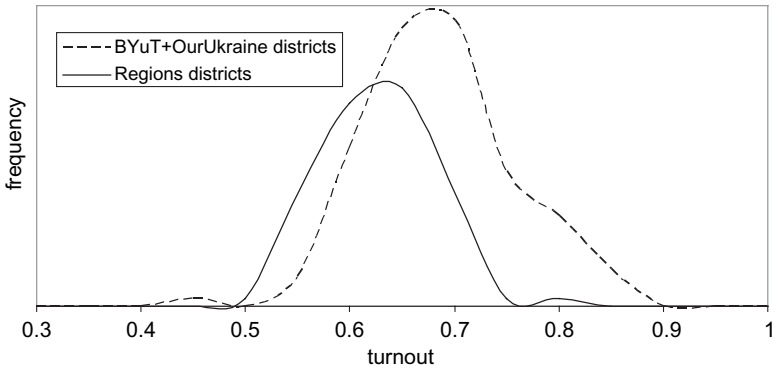


FIGURE 5.5. Turnout Distribution, 2007

If we consider those districts in which BYuT won less than 20 percent in 2006, we get

$$V_{BYuT,2007} = 1.33V_{BYuT,2006} + 0.17, R^2 = 0.93$$

Finally, expanding our data to all districts in which BYuT won less than 25 percent,

$$V_{BYuT,2007} = 1.51V_{BYuT,2006} + 0.70, R^2 = 0.89$$

To the extent, then, that we deemed the 2006 contest free and fair, Figures 5.4a and 5.4b along with the preceding regressions suggest that we are unlikely to find much in the way of suspect votes in 2007 impacting the totals reported for Regions and BYuT.

In contrast, Figure 5.4c, which graphs the SPU's 2007 election district vote against its 2006 support, does raise suspicions. Specifically, although the 45-degree line in this graph shows the SPU's significantly decreased support throughout most of Ukraine, a number of districts deviate markedly from this pattern, giving the SPU far greater support in 2007 than it enjoyed anywhere in 2006. These deviations clearly warrant an explanation and are the first hint that something illegitimate may have occurred in 2007.

Turning, then, to our remaining two forensic indicators, we next look at the distribution of turnout among Ukraine's 225 election districts, separating, as we did in 2006, those that supported Regions versus those in which BYuT and Our Ukraine won a plurality together. Figure 5.5 presents that distribution and we can see that, aside from a

small and relatively insignificant bump at the right tail of the distribution for Regions, there is little here to raise any suspicions.

Unfortunately, aggregating up to the level of election districts as opposed to rayons or precincts can disguise evidence of suspect behavior. To that end, then, let us first consider Lviv, Yushchenko's stronghold and one of the most pro-Western and anti-Yanukovich oblasts. Lviv, especially its rural areas, is, as we note earlier, as subject to a classic form of Soviet-type voting as any other part of Ukraine, if not more so. With a considerable part of its population migrating to neighboring countries for employment (e.g. Poland), it is not unreasonable to suppose that some votes were cast by proxy. For instance, a relative could bring the family passports to the voting booth and vote for everyone in uniform fashion. With the cost of voting thus reduced, turnout should increase. And indeed, if we use our precinct level data, then as Figures 5.6a and 5.6b show, this is precisely what appears to happen in Lviv.[11] Figure 5.6a gives both the overall distribution of turnout across the approximately 2,300 precincts in the oblast for both 2007 and the third round of 2004, and then separates the data from 2007 into both urban (the city of Lviv) and rural parts. Figure 5.6b, in turn, compares the overall distribution in 2007 against that for 2006. There are several things of note here. First, in Figure 5.6a, we see the evident and understandable decline in turnout in 2007 as compared to 2004. But second, with two discernable nodes in 2004 and three in 2007, neither the distribution for 2007 nor for 2004 correspond to a normal density. Nor, as Figure 5.6b shows, are things much different in 2006, although there is a partial explanation for these multiple nodes in both years. Notice that when, in 2007, we separate off the city of Lviv from the rest, not only is the urban distribution utterly normal, but one node of the overall distribution nearly disappears. The same is true if we separate off the city of Lviv in 2006.

The question remains, however, as to whether we have a suspicious pattern here among voters outside the city of Lviv. To address

[11] The relatively small distribution for urban in this figure relative to what we label rural is somewhat deceptive in that we make no adjustment for the number of registered voters in precincts and the number of precincts. In the city of Lviv that average across 291 precincts is nearly 2,100 per precinct, whereas elsewhere in the oblast the average is 740 across 2,043 precincts.

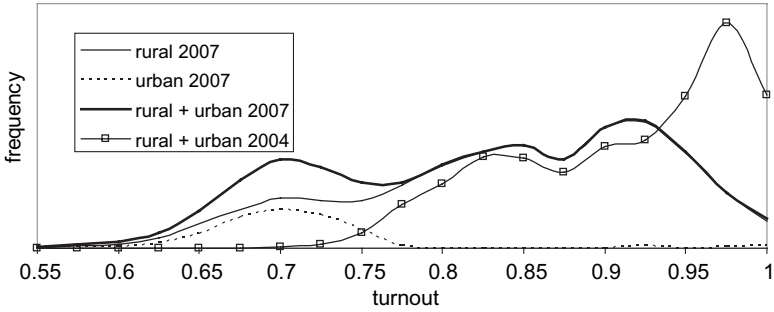


FIGURE 5.6a. Lviv Turnout 2004 versus 2007 Precincts

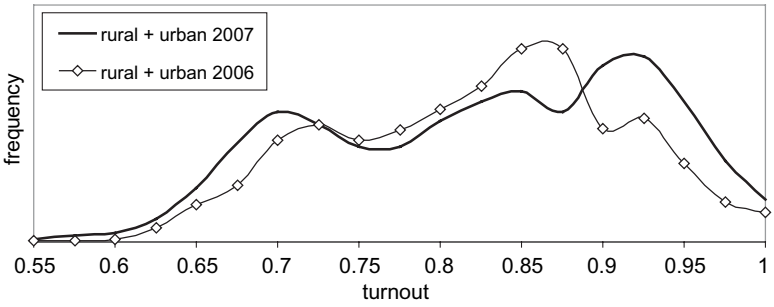


FIGURE 5.6b. Lviv Turnout 2006 versus 2007 Precincts

this question we turn to our third indicator, the relationship between turnout and a party's share of the eligible electorate. That relationship, for both urban (the city of Lviv) and rural precincts, is presented in Figures 5.7a and 5.7b. Briefly, what we see here parallels what we observe for 2006 and can be summarized as follows. First, with coefficients essentially at 0.0, Yanukovich's Party of Regions gains virtually no votes from any increase in turnout. This is hardly surprising for Lviv since Regions' support hovers around 3 percent overall. Second and as in earlier elections, BYuT benefits most from any increase in turnout in Lviv city whereas Our Ukraine benefits most in rural precincts. It is true that BYuT plus Our Ukraine wins 103 votes by our estimates when 100 additional voters march to the polls, but this is not significantly different from 100 (especially given the evident heteroskedasticity of the data in the rural subsample). Thus, while we might still suspect that voting in Lviv's rural areas might not match the highest standards of contemporary democratic

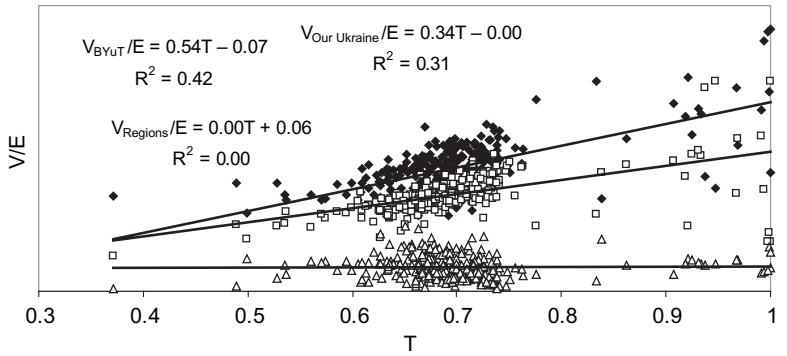


FIGURE 5.7a. *T* versus *V/E*, Lviv Oblast City Precincts 2007

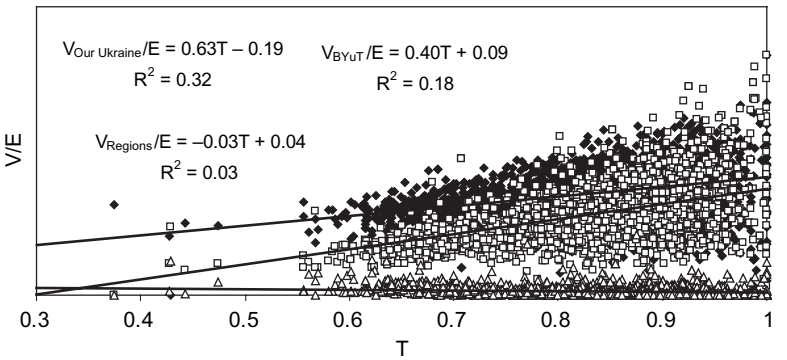


FIGURE 5.7b. *T* versus *V/E*, Lviv Oblast Rural (Village) Precincts 2007

practice, there is little here to suggest massive fraud of the sort that rendered the November 2004 illegitimate.[12]

Of course, even if we still wanted to treat with suspicion the coefficient of 0.52 in our regression estimates of the source of BYuT's vote in Table 5.3, a single oblast such as Lviv cannot account for such a significant share of Our Ukraine's prior support. So as a partial check on our conclusions about Lviv, let us consider two other Western oblasts that gave BYuT and Our Ukraine significant support, Volynsk and Ivano-Frankivs'k. In Volynsk in 2006, BYuT captured 44 percent of the vote as compared to 5 percent for Regions and 21 percent for Our Ukraine, whereas in 2007, BYuT increased its share to 57 percent with

[12] When analyzing precinct level data, we exclude those precincts with fewer than 50 voters since they tend to be special districts – hospitals, prisons, and so on.

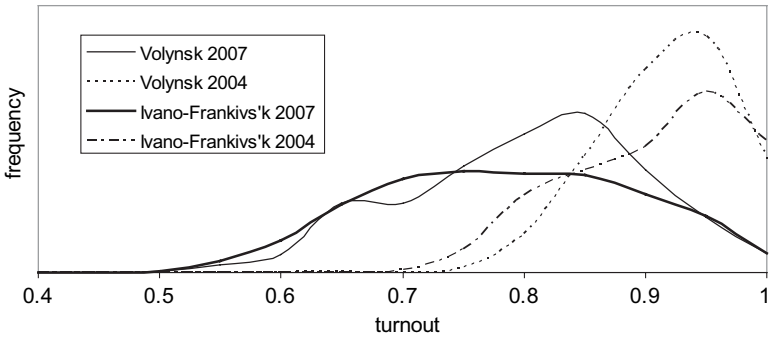


FIGURE 5.8a. Volynsk and Ivano-Frankivs'k Turnout, 2004 and 2007

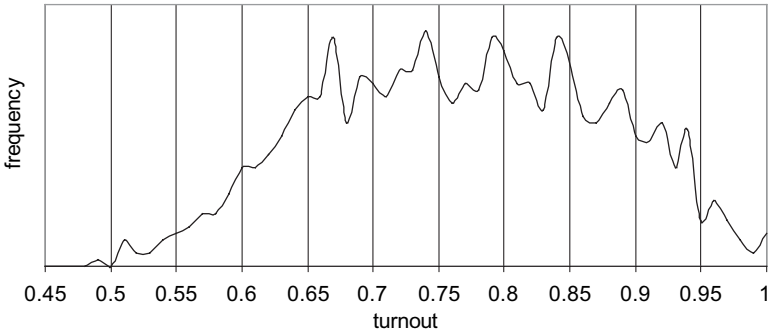


FIGURE 5.8b. Ivano-Frankivs'k Turnout 2007

Regions winning 6 percent and Our Ukraine's share declining slightly to 20 percent. In Ivano-Frankivs'k BYuT and Our Ukraine seemed to switch positions. In 2006, BYuT won 30.9 percent of the vote while Our Ukraine won 45.8 percent, whereas in 2007, BYuT won 50.7 percent against Our Ukraine's 36.8 percent – a gain of more than 150,000 votes for BYuT and a loss of nearly 72,000 for Our Ukraine. In neither oblast, then can we use Our Ukraine's losses to account fully for BYuT's gains. Now consider Figure 5.8a, which, using precinct level data, compares the distributions of turnout for 2007 against 2004 for both oblasts. Here we see nothing exceptional except perhaps the hint of a bump to the left of the distribution for 2007 in Volynsk. More than likely, however, such a wiggle corresponds, as in Lviv oblast, to precincts in the city of Luts'k. More interesting perhaps is Figure 5.8b, which charts the distribution of turnout in Ivano-Frankivs'k using a finer grid (0.01 versus 0.025) so that we can see precisely the hills and valleys of the distribution in the event

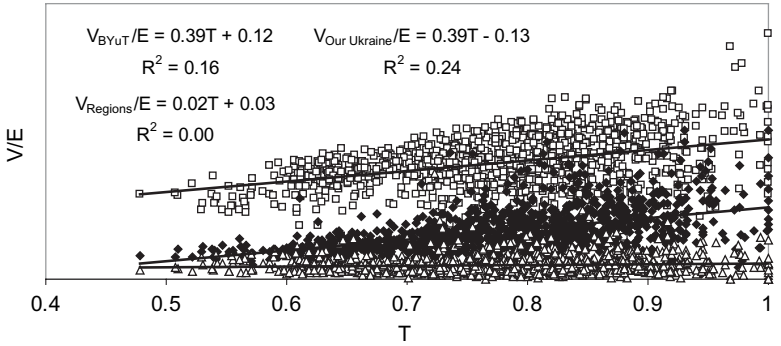


FIGURE 5.9a. *T* versus *V/E*, Volynsk Oblast Precincts 2007

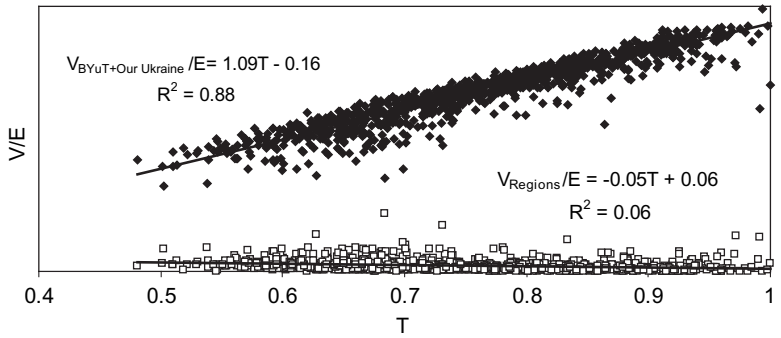


FIGURE 5.9b. *T* versus *V/E*, Ivano-Frankivs'k Oblast Precincts 2007

that fraudulently entered turnout statistics yield peaks at numbers ending in digits of 0 or 5. Clearly, though, we see no pattern that resembles what we find in Russia in 2007 (see Figure 3.11a).

To be certain, now, that there is nothing suspicious in either oblast, Figure 5.9a gives the relationship between turnout, *T*, and each of the main competitor's absolute vote as a share of the eligible electorate in Volynsk while Figure 5.9b gives that relationship for BYuT + Our Ukraine and Regions in Ivano-Frankivs'k. And to guard against the possibility that something suspicious characterizes voting within one or two of Volynsk's seven election districts (a similar analysis for Ivano-Frankivs'k reveals the same), Table 5.5 reports the results of regressing *V/E* for each of the three competitors against *T* in each of those districts. Clearly, there is nothing suspicious here, either in Figure 5.9a, Figure 5.9b, or Table 5.5. Indeed, as the coefficients in

TABLE 5.5. *Volynsk Oblast, Coefficient on T by Election District (Intercept, $R^2$)*

| | BYuT | Our Ukraine | Regions | BYuT and Our Ukraine |
|---|---|---|---|---|
| District 1 | 0.45 (0.09, 0.23) | 0.39 (–0.12, 0.23) | –0.01 (0.05, 0.00) | 0.84 (–0.04, 0.74) |
| District 2 | 0.33 (0.14, 0.08) | 0.41 (–0.14, 0.22) | 0.08 (0.00, 0.03) | 0.74 (0.01, 0.41) |
| District 3 | 0.20 (0.25, 0.03) | 0.46 (0.18, 0.19) | 0.03 (0.02, 0.01) | 0.67 (0.07, 0.27) |
| District 4 | 0.40 (0.11, 0.34) | 0.38 (0.12, 0.35) | 0.04 (0.02, 0.03) | 0.79 (–0.01, 0.75) |
| District 5 | 0.24 (0.25, 0.08) | 0.48 (0.22, 0.31) | 0.08 (–0.01, 0.11) | 0.72 (0.04, 0.65) |
| District 6 | 0.63 (–0.01, 0.36) | 0.21 (0.00, 0.09) | 0.04 (0.01, 0.02) | 0.83 (–0.01, 0.76) |
| District 7 | 0.38 (0.07, 0.13) | 0.38 (0.13, 0.20) | 0.02 (0.05, 0.00) | 0.77 (–0.06, 0.35) |

Table 5.5 show, when we sum BYuT and Our Ukraine in Volynsk, the coefficient on $T$ never exceeds 0.84 and the sole negative coefficient for Regions is statistically equivalent to 0.0 (when we consider all precincts combined, the coefficient on $T$ for BYuT + Our Ukraine equals 0.78, with an intercept of –0.01 and an $R^2$ of 0.53). That $R^2$ is significantly higher when we regress the combined share of the vote for BYuT and Our Ukraine as compared to when we consider these parties separately is explained by the fact that within each election district there are precincts that give strong support to one party or the other, but not any appreciably different support to anyone else. In any event, both oblasts seem utterly normal and above any suspicion.

Turning to the potentially more interesting case of Donetsk, Yanukovich's home district, if there were suspicions of malfeasance in 2007, they focused on the returns from various election districts there that reported late to the Central Election Commission. This led to the speculation that votes were being added to the SPU's total in order to push it past the 3 percent threshold for representation and forestall Timoshenko and Yushchenko from forming a majority coalition in the new parliament. Consider, though, the distribution

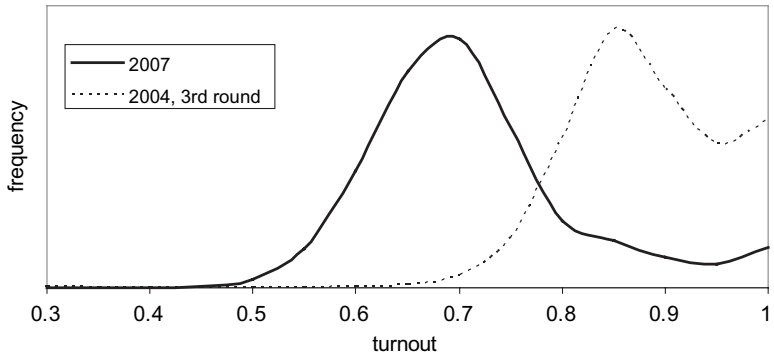


FIGURE 5.10. Donetsk Oblast Turnout 2007

of turnout in Figure 5.10 based on precinct level returns for Donetsk. What we see here is a distribution that, with it elevated right tail, does raise a few suspicions. However, when compared to the corresponding distribution for the third round of the 2004 presidential contest, 2007 seems like a paragon of propriety. This fact (along with Lviv's distribution in mind) leads us to give Yanukovich the benefit of the doubt since we are dealing with his home district and have little experience with judging the impact of favorite sons in Ukrainian elections. In any event, it is surely the case that the inferences we might draw about artificially created turnout on the basis of Figure 5.10 are not the sort likely to convince a skeptical audience of significant malfeasance.

Now, however, consider Figure 5.11, which graphs the absolute vote of Regions and BYuT against turnout. Once again, if we look solely at the coefficient for $T$ and assume that only coefficients outside of the interval [0, 1] are suspicious, we have no cause to suspect fraud (not graphed is the relationship for the CPU, which is $0.03T + 0.02$, $R^2 = 0.02$). There is, nevertheless, a peculiar pattern here. First, recall that previously, in 2004 and 2006, the coefficient for Yanukovich and Regions hovered around 1.0. Thus, a coefficient of 0.44 seems too low and requires an explanation. But, recalling our discussion in section 2.4 (see Figures 2.4a and 2.4b) of the pattern that emerges when votes are fraudulently transferred from one candidate or party to another, notice the distribution of observations here. It is as if there were a heavy cigar-shaped cloud of data similar to what we saw in earlier elections, but now we also see any number of precincts falling down

from that cloud like "snowflakes."[13] There are, in short, too many precincts, given what we know about the politics of the oblast, in which Regions wins too little of the eligible electorate.

The question Figure 5.11 raises then is: why is Regions faring so poorly in so many precincts? The answer lies in Figures 5.12 and 5.13. Figure 5.12 presents a similar graph of *V/E* versus *T*, but only for Moroz's SPU. Now it looks as if the "snowflakes" are falling up. Figure 5.13 graphs *V/E* against *T* after we add the votes of Regions and the SPU, treating the two parties as one, and looks almost identical to what we saw in Donetsk in the third round of the 2004 vote (see Figure 4.9a) and with a regression coefficient not much different from what we found for 2006 using rayon level data (0.62).[14]

Our discussion here should not be interpreted to mean that efforts were not made on SPU's behalf in 2006 (since the party did exceptionally well in election districts 48 and 49, capturing 18 percent of the vote as opposed to less than 4 percent across the oblast).[15] Nevertheless, the regressions for *V/E* against *T* using precinct level

[13] We note that the data points clustering at 100 percent turnout tend, on average, to be relatively small precincts. Recall that our data excludes all precincts with fewer than 50 or 100 registered voters. A more severe threshold would eliminate many of these 100 percent turnout rate data points. In Donetsk the average size of precincts reporting 100 percent turnout (26 precincts) is 270 whereas the overall oblast average is 1,460 (2,477 precincts). In Luhansk, the averages are 542 (17 precincts) and 1,287 (1,485 precincts).

[14] The reader may wonder about the observations at or near 100 percent turnout that appear to be reporting "too low" a percentage of the eligible electorate for Regions + SPU. In fact, we have no explanation for these apparent deviations from the norm except to note that they appear in Figures 4.9b (for Luhansk), 4.11 (for Lviv) and later for Luhansk again (Figure 5.15). Generally, these tend to be small precincts (e.g., < 250 eligible voters) and may correspond to military instillations or other such special districts.

[15] We can only speculate as to why the SPU performed so well in these two districts in 2006 since Moroz won little support there in the first round of 2004 or in the 2002 parliamentary vote. In 2004 his total vote in the four rayons comprising these two districts was approximately 2400, or less than 1 percent (down from 7,000 votes in 2002) as against more than 44,500 votes in 2006 and more than 106,000 in 2007. Thus, we cannot preclude the possibility that the SPU was the beneficiary of suspect votes in 2006 as well. Interestingly, in election district 51 (Kramatorsk), Moroz won approximately 9000 votes in 2004 – his strongest showing in Donetsk that year – as well as 8,000 votes for his party in 2002. But in 2006 his party's vote dropped to only approximately 1,750 votes and 1,900 votes in 2007. All of this precludes the possibility that his increased vote in 2006 in districts 48 and 49 (as well as districts 54 and 55 in 2007) was part of an overall secular increase in support.

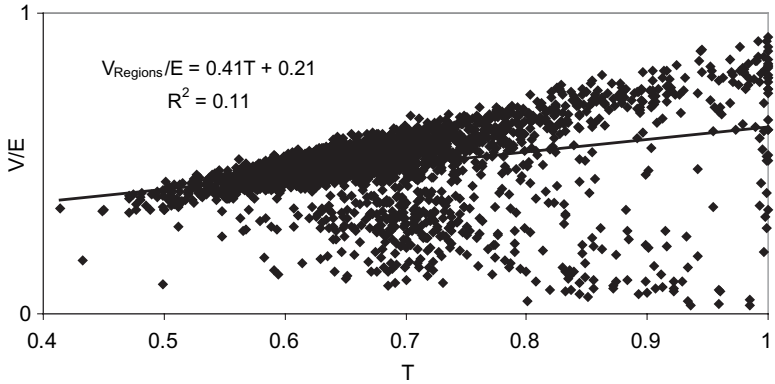


FIGURE 5.11. *T* versus *V/E*, Donetsk Oblast 2007, Party of Regions

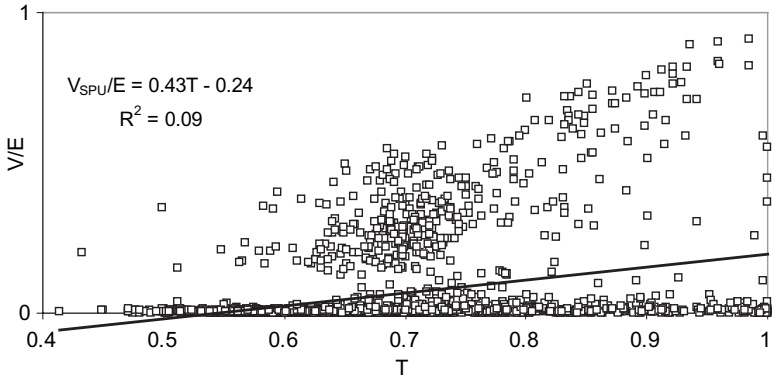


FIGURE 5.12. *T* versus *V/E*, Donetsk Oblast 2007, SPU

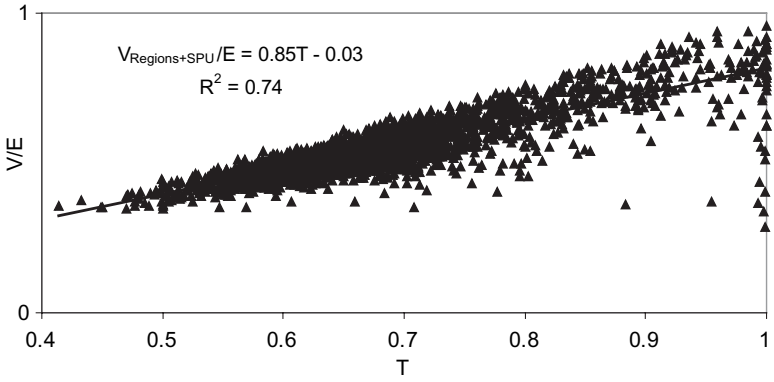


FIGURE 5.13. *T* versus *V/E*, Donetsk Oblast 2007, Regions and SPU

data for 2006 are quite different from what Figures 5.11 through 5.13 report. Specifically, for 2006 we get

$$V_{Regions,2006}/E = 0.64T + 0.07, R^2 = 0.31$$
$$V_{SPU,2006}/E = 0.13T - 0.06, R^2 = 0.02$$
$$V_{Regions+SPU,2006}/E = 0.77T + 0.01, R^2 = 0.65$$

Figures 5.11–5.13 in combination with these regressions suggest precisely the form of manipulations that most likely occurred in Donetsk in 2007. Whereas in the second round of 2004, Yanukovich and his team simply stuffed ballot boxes or added votes to his official totals so as to distort the overall distribution of turnout, in 2007 they balanced the books by subtracting votes from Regions and awarded them to the SPU.

The incentive for transferring votes from Regions to the SPU is clear: If the SPU's vote could be increased from 2.86 to 3.0 percent, it would qualify for seats in the parliament and forestall BYuT and Our Ukraine from a parliamentary majority. That is, adding 0.14 percent to the SPU's national share (at the expense of Regions) in effect adds a full 3 percent (less 0.14) to Yanukovich's side of the ledger. If the strategy of fraudulently adding to the SPU's vote had been successful, BYuT and Our Ukraine's combined seat count would have dropped from 228 to 221, while Regions's, in combination with the SPU and the CPU, would have increased to 210 from 202. In that case Litvyn's bloc with 20 seats would be pivotal, and surely Yanukovich preferred to negotiate with Litvyn to retain his position as prime minister rather than allow Yushchenko and Timoshenko to seek a reformation of their Orange Coalition. Yanukovich might even have forced Yushchenko into negotiations, forestalling Timoshenko as prime minister and winning any number of concessions about power sharing. Such are the incentives established sometimes by party list electoral systems.

It is tempting now to use our analysis to try to estimate the number of votes transferred from Regions to the SPU, but first we need to keep in mind that we are looking here at only one oblast. The second candidate for similarly suspicious manipulations is neighboring Luhansk, which participated nearly on a par with Donetsk in fraud in the second round of the 2004 presidential contest. As a partial check on our

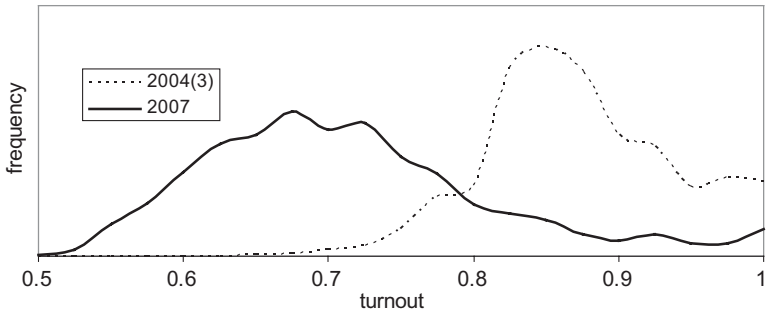


FIGURE 5.14. Luhansk Oblast Turnout 2007 versus 2004(3)

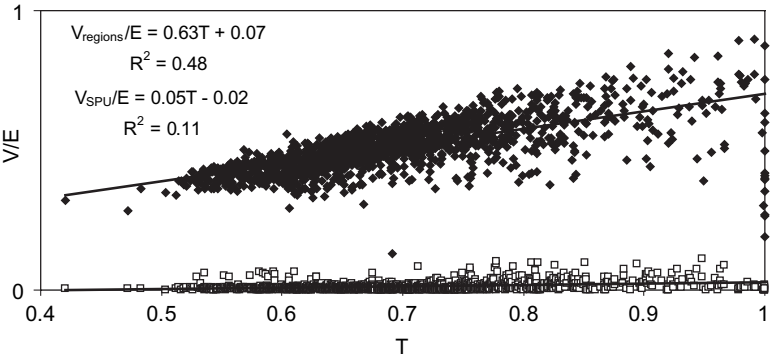


FIGURE 5.15. *T* versus *V/E*, Luhansk Oblast 2007

interpretation of things, then, Figure 5.14 compares the distribution of turnout in 2007 with the third round of 2004. As with Donetsk, we see little here that is suspicious – the distribution is normal and shows the marked decline in turnout common when comparing a presidential election with a parliamentary one. Of course, the issue we are exploring here is not whether ballots were stuffed or turnout artificially augmented, but whether votes were transferred from Regions (or some other party) to the SPU. Figure 5.15, then, graphs *V/E* versus *T* for both Regions and the SPU, and as this figure shows, there is no hint of votes being transferred between the two parties. Indeed, the comparison of Luhansk and its erstwhile twin Donetsk only serves to confirm our suspicions about Donetsk and our interpretation of the data there.

To see now that suspicions of fraud should focus on a subset of Donetsk election districts, consider Figures 5.16a–5.16d.

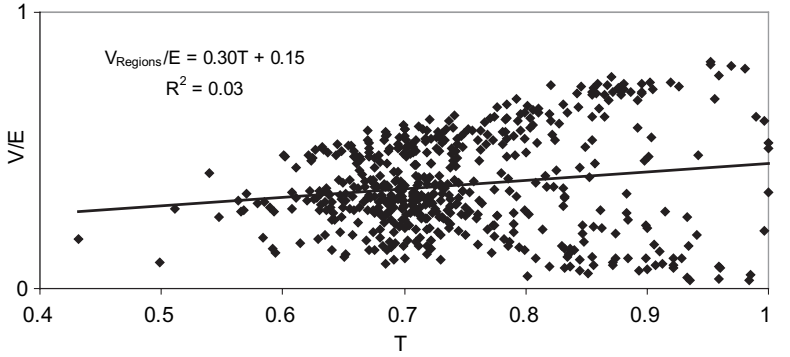


FIGURE 5.16a. *T* versus *V/E*, Donetsk 2007 Districts 48, 49, 54, 55, Regions

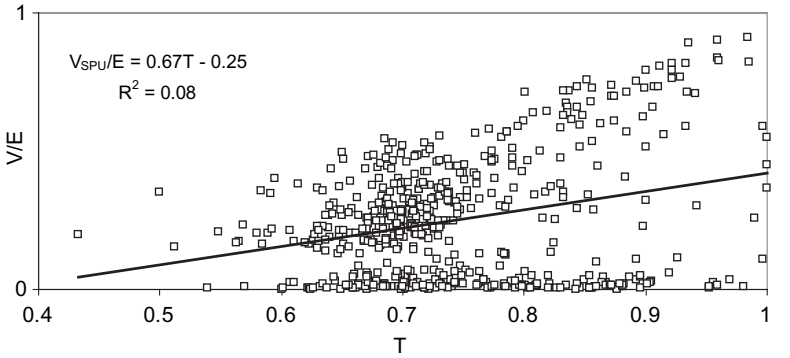


FIGURE 5.16b. *T* versus *V/E*, Donetsk 2007 Districts 48, 49, 54, 55, SPU

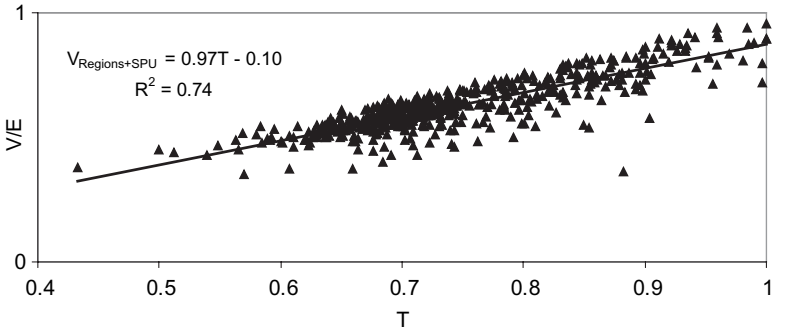


FIGURE 5.16c. *T* versus *V/E*, Donetsk 2007 Districts 48, 49, 54, 55, Regions and SPU

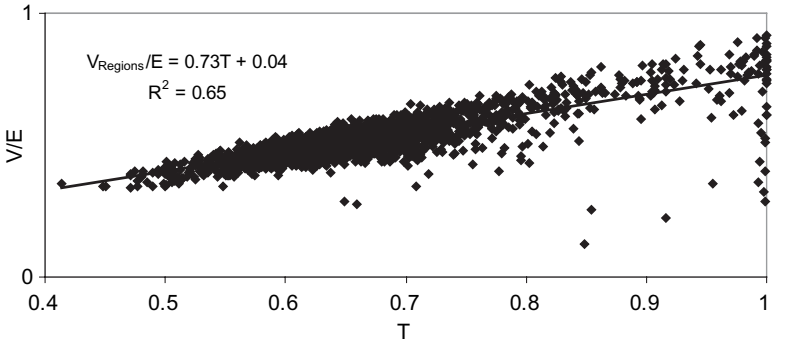


FIGURE 5.16d. *T* versus *V/E*, Donetsk 2007 Districts 39–47, 50–53, Regions

Figures 5.16a portrays the relationship between *T* and *V/E* for the Party of Regions in four election districts (officially numbered 48, 49, 54, and 55) that individually yield a suspicious distribution around any regression line; Figure 5.16b gives that relationship for the SPU in those four districts; Figure 5.16c shows what occurs if we add the votes of Regions and the SPU in those districts, and finally; Figure 5.16d shows the relationship between *T* and *V/E* for Regions in the thirteen seemingly normal election districts of Donetsk. Clearly, there is a discernable difference between Figures 5.16a and 5.16d. Figure 5.16d looks like a carbon copy of the data from Luhansk in Figure 5.15, and more interestingly still is that Figure 5.16c does as well. Notice, moreover, that if we draw a horizontal line through the approximate center of the data in Figure 5.16a we can identify those precincts wherein the most suspicious manipulations took place. Thus, not only does this forensic indicator reveal the nature of the fraud committed, it also tells us where it occurred.

Admittedly, some care needs to be exercised here since as we note earlier, the SPU did exceptionally well in election districts 48 and 49 in 2006, and it is far from clear whether there were incentives to pad its vote then in Donetsk. Nevertheless, even in the four districts cited in Figures 5.16a and 5.16b, there is a discernable difference between 2006 and 2007. Specifically, for 2006 in districts 48, 49, 54, and 55, precinct level data yields the following regressions:

$$V_{Regions,2006}/E = 0.68T - 0.04, R^2 = 0.22$$
$$V_{SPU,2006}/E = 0.22T - 0.04, R^2 = 0.02$$
$$V_{Regions+SPU,2006}/E = 0.83T + 0.08, R^2 = 0.73$$

Thus, we see for 2006 a significantly larger coefficient for Regions when compared to 2007 (0.68 versus 0.30) and a significantly smaller coefficient for the SPU (0.22 versus 0.67). Moreover, the coefficient for Regions plus the SPU is smaller in 2006 than 2007 (0.83 versus 0.97), suggesting that the SPU's 2006 vote did not simply derive from Regions.[16]

Turning to how many votes we might deem suspicious and what it cost Regions if in fact those votes were transferred to the SPU in an unsuccessful attempt to push it above the 3 percent threshold, we can give only a rough estimate that is necessarily sensitive to our assumptions. Two calculations are possible. The first uses only the data from Donetsk while the second uses estimates based on the SPU's share of the vote in Luhansk. To begin, consider Figure 5.17, which graphs the distribution across precincts of the SPU's share of Donetsk's eligible electorate. As we see here, there is a dominant mode to this distribution around 0.025, whereupon the distribution drops to near zero at 0.125, and then rises again slightly thereafter with some precincts (12) reporting as much as 80 percent or more of the eligible electorate voting for the SPU.[17] Suppose we assume, then, that the SPU's natural (fraud-free) share of the eligible electorate is given by the first node of the distribution in Figure 5.16, 0.025 – or approximately 90,000 votes. Since official totals awarded the SPU approximately 192,000 votes, we arrive at an estimate of 102,000 fraudulently transferred ballots.[18] Alternatively, we might speculate that this method does not capture the more subtle instances of fraud. So suppose we take the SPU's share of

[16] In districts 54 and 55, the SPU's support showed a 97 percent increase over 2006 while in districts 48 and 49, its total jumped 138 percent above what it received in 2006. All this occurred, moreover, when, in the remaining thirteen districts of Donetsk, the SPU's vote increased from 17,500 to 22,000, or only a 26 percent increase. Surely, such a remarkable upsurge in two districts, while not confirming fraud, is suspicious.

[17] The number of precincts reporting a share of the eligible electorate in excess of 0.125 for the SPU is 368.

[18] This estimate tells us why votes had to be taken from Regions – with fewer than 94,000 votes for BYuT in Donetsk, there simply wasn't a source that, if stolen, would not have revealed the fraud as self-evident.

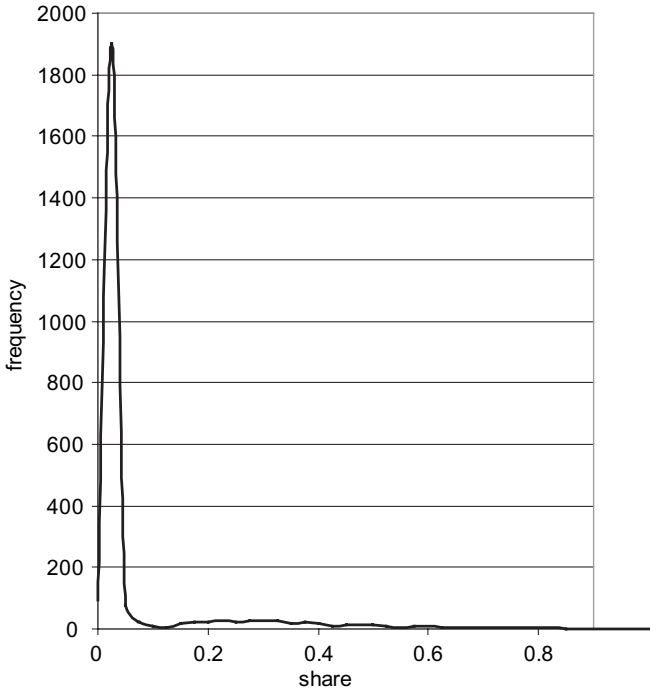


FIGURE 5.17. Distribution of SPU's Share of the Eligible Electorate, Donetsk Precincts 2007

the eligible electorate in Luhansk, 0.008, as our benchmark of the SPU's honest vote in Donetsk. In that case, SPU's true vote is but 29,000 and our estimate of fraud grows to 163,000 votes.[19]

Admittedly, neither 102,000 nor 163,000 votes approaches the level of fraud that occurred in Donetsk in the second round of the 2004 election. Nevertheless, it is interesting to see what impact these transferred votes might have had on final outcomes. Suppose we take 102,000 votes as our estimate and give them "back" to Regions, thereby

[19] In fact, the number 163,000 seems the most accurate. For election districts 39 through 47 and 50 through 53, the SPU averaged 11.55 votes per precinct after deleting precincts with fewer than 100 voters. In districts 48, 49 (Mariupol), 54, and 55, however, its official total is 169,596 or an average of 315.23 per precinct. If we assume the legitimate average in these four districts was 11.55, then subtracting that number from 315.23 and multiplying by the number of precincts in the four suspect districts gives 163,382 ostensibly fraudulent votes.

increasing its vote count to approximately 8,109,000 votes. Regions plus the CPU would then qualify for one additional seat while BYuT plus Our Ukraine would lose one seat. By this "back of the envelope" calculation, then, the net loss to Yanukovich and his allies of their electoral shenanigans was two seats. Alternatively, if we take 163,000 as our estimate and add this number to Regions, then Regions plus the CPU gain two seats in the parliament at the expense of BYuT and Our Ukraine. Thus, having gained a seat or two at the expense of their opponents – and keeping in mind that BYuT and Our Ukraine hold a parliamentary majority only by a margin of two seats – we should perhaps not be surprised that Timoshenko, Yushchenko, and their supporters quietly accepted the gift given them and chose to ignore any evidence of electoral malfeasance in Donetsk. In all likelihood, moreover, Donetsk was not the only venue for fraud in the attempt to push the SPU past the 3 percent threshold, although it clearly experienced the most concerted effort at sustaining Yanukovich's coalition. We have already seen that Luhansk failed to participate in things, but consider the neighboring oblast of Zaporizhzhia and Figures 5.18a and Figures 5.18b. Figure 5.18a, which graphs Regions's share of the eligible electorate against turnout, looks unexceptional by itself, with but a hint of a few "falling snowflakes." However, Figure 5.18b, which concerns only the SPU, reveals again a pattern of "rising snowflakes," albeit far fewer in number than in Donetsk. Clearly, the attempt to secure extra votes for the SPU was a half-hearted effort in Zaporizhzhia, since at most we are speaking of but fifteen precincts out of more than 1,050 and fewer than 5,000 suspect votes.[20] A similar estimate applies to Crimea. There we can detect thirteen "rising snowflakes" in a graph of $V_{SPU}/E$ against $T$, but the overall estimate of suspect votes in them is no more than 5,400.[21]

[20] The SPU's vote among the eight precincts in which it won more votes than Regions, was 3,100 and in those precincts where it won more than 100 votes, 4,488.

[21] The precincts in question are #31–33, 64, and 66 in election district 8, 81–84 in district 6, and 94 and 95 in district 3. The SPU's average vote across these precincts is 425.23 (5,528 votes) whereas its average for the remaining 1,197 precincts is 9.25 (11,078 votes). So if we assume that 9.25 is the "correct" average and subtract it from 425.23, we get 415.98 times 13 = 5,407 suspect votes. In Kirovohrad, on the other hand, another oblast that gives Regions good support, we find only a handful of suspect precincts in election district 100 that can account for at most 700 or so votes for the SPU, while in Kyiv oblast only a few precincts (in district 86) report numbers, amounting to fewer than 500 votes, favoring the SPU that might be deemed suspicious.

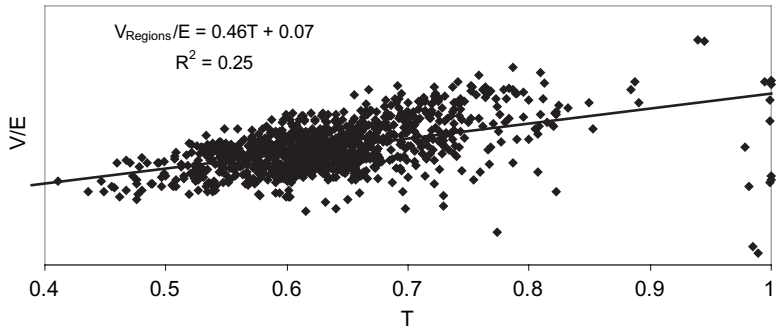


FIGURE 5.18a. *T* versus *V/E*, Zaporizhzhia 2007, Party of Regions

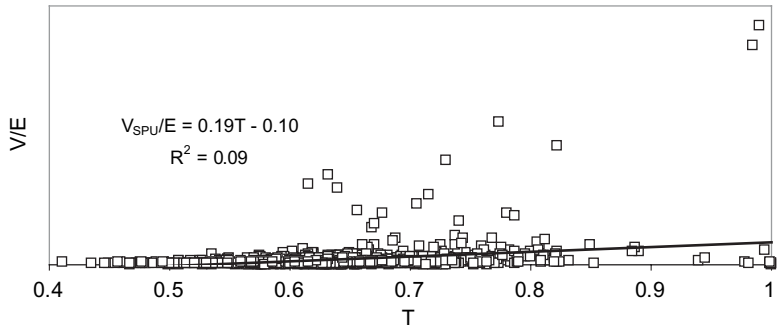


FIGURE 5.18b. *T* versus *V/E*, Zaporizhzhia 2007, SPU

Insofar as exercising care in the interpretation of the relationship between *T* and *V/E* is concerned, Odessa oblast warrants a closer look. Briefly, Figures 5.19a through 5.19d graph *V/E* versus *T* for Regions and the SPU after separating out precincts in the city of Odessa (districts 132 and 133 versus 134 through 141). As Figure 5.19a shows, the relationship between *T* and *V/E* is unexceptional in the city of Odessa, whereas Figures 5.19b and 5.19c occasion the suspicion that votes were transferred from Regions to the SPU or that the SPU's vote padded: the coefficient on *T* in Figure 5.19b seems too low (as is $R^2$) and too high in Figure 5.19c. However, when we add the votes of Regions and the SPU (Figure 5.19d) the relationship between *T* and *V/E* occasions few suspicions but is nevertheless not as tight around the regression line as we find either in Luhansk (Figure 5.15) or Donetsk (Figures 5.16c and 5.16d) – an $R^2$ of 0.35 as compared to 0.49, 0.74 and 0.65. Thus, although we cannot preclude the

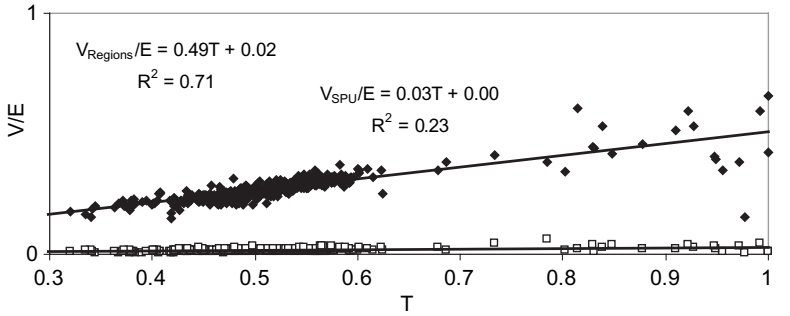


FIGURE 5.19a. *T* versus *V/E*, City of Odessa 2007

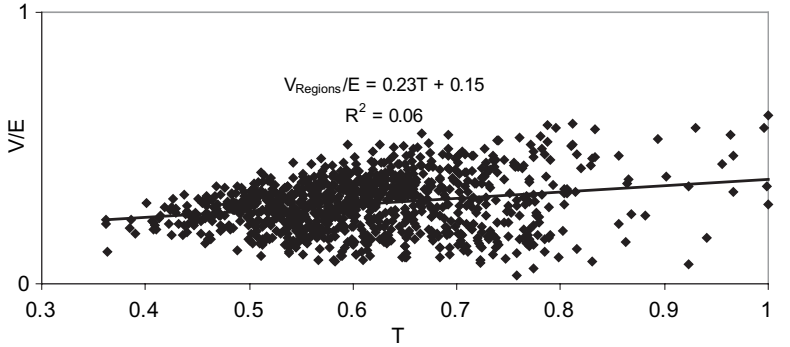


FIGURE 5.19b. *T* versus *V/E*, Regions, Odessa Oblast, Districts 134–141

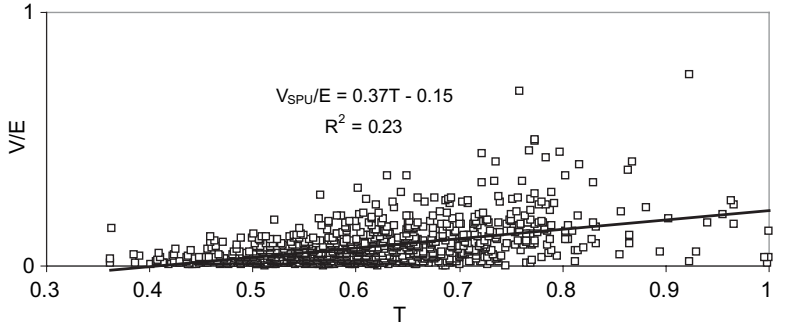


FIGURE 5.19c. *T* versus *V/E*, SPU, Odessa Oblast, Districts 134–141

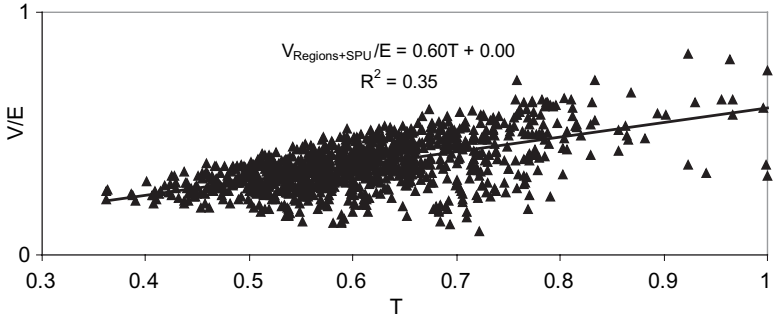


FIGURE 5.19d. *T* versus *V/E*, Regions and SPU, Odessa Oblast, Districts 134–141

possibility that the SPU's vote was padded in both 2006 and 2007, the data here is on the edge of the ability of our indicators to convincingly signal fraud. But one thing is clear: if there was fraud of any appreciable sort in Odessa in 2007, it was nowhere near the magnitude reached in Donetsk.[22]

In terms of the gains Yanukovich and his party sought by manipulating the vote count, suppose an additional 0.14 percent of the ballots had been transferred to the SPU – or 33,600 votes. If we subtract this total from the final vote awarded Regions, its total is diminished only slightly with an attendant loss of at most one seat. Surely, engaging in fraud of the sort indicated by our analysis in order to win SPU fifteen or so seats was a risk well worth taking. But why did this strategy fail? Surely 33,600 votes is not a large number – a mere ten or fifteen votes per precinct in Donetsk – especially since between three and five times that number had already been transferred from Regions. Here we can only speculate, but a reasonable conjecture is that fraud's perpetrators miscalculated: they assumed it would take something less than 135,600 or 196,600 votes to push the SPU past the 3 percent threshold. And what, we might guess, they specifically failed to anticipate was the strategic calculation of their own electorate. It was apparent that the SPU would lose support in the West owing to Moroz's defection from the Orange Coalition. Indeed, its vote did decline precipitously there (e.g., from 14.7 to 2.5 percent

[22] To be fair to the SPU we note that in 2006, it outpolled Regions in 64 precincts whereas in 2007, it increased that total by only 1 to 65.

in Vinnytsia, from 10.2 to 2.1 percent in Kyiv, from 12.7 to 3.8 percent in Poltava, from 13.4 to 4.3 percent in Cherkassy, from 12.9 to 2.9 percent in Chernihiv, and so on). Electoral strategists might have assumed, though, that a good share of that loss would be offset by votes gained in the East owing to Moroz's alliance with Yanukovich. That gain, though, did not materialize – at least not to the extent anticipated. In Luhansk, for example, the SPU won less than 2 percent of the vote. The SPU's gain in Crimea was from 1.2 to 1.9 percent, in Sevastopol from 0.8 to 2.7 percent, and in Odessa from 6.3 to 7.2 percent. Only, unsurprisingly, in Donetsk did Moroz's party realize any significant gains – from 3.7 to 8.0 percent of the vote (and there, as we suspect, primarily as a result of fraud). The reason for these modest gains seems self-evident. Consider the following strategic calculation on the part of a voter who favors Yanukovich as prime minister: a vote for Regions and the CPU, both of which are certain to pass the threshold for representation, is a clear vote for Yanukovich and his policies. A vote for Moroz's SPU, on the other hand, is to support an uncertain prospect. At best it is, like voting for Regions or the CPU, a vote to maintain Yanukovich in his parliamentary position; but at worst, if the SPU fails to clear the threshold, it's a wasted vote – nearly equivalent to voting for Our Ukraine or BYuT. Thus, a voter who might even prefer the SPU would be wholly rational to cast their vote instead for Regions or the CPU, both of which are ideological substitutes for the SPU.

The problem confronting the SPU and those who might have attempted to push it past the threshold for representation is perhaps best seen by borrowing some data from Hinich et al.'s (2008) preelection poll. That poll asked respondents to grade parties on a scale of from 1 to 10, with 10 indicating strong approval and 1 strong disapproval. Figure 5.20 graphs the distribution of the differences in scores between Regions and the SPU and between the CPU and the SPU (i.e., for each respondent we subtract the score given to the SPU from the score for Regions and the same with respect to the SPU and the CPU). What we see here is that for the vast majority of respondents, the SPU is a virtual substitute for Regions and the CPU. Moreover, if respondents graded the parties differently, they tended to grade either Regions or the CPU higher. Thus, if Regions and the CPU are certain to win seats, but the SPU remains an uncertain prospect, a

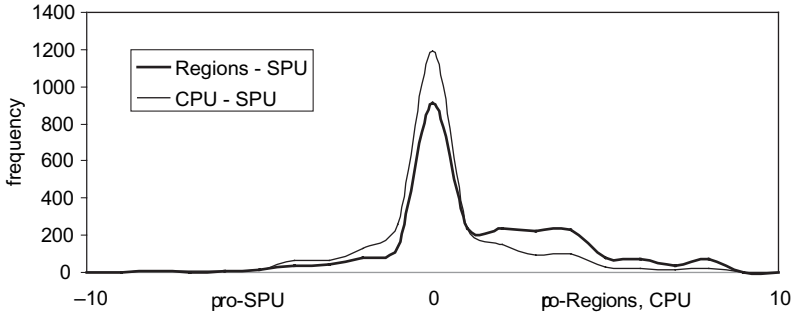


FIGURE 5.20. Grading the SPU versus Regions and the CPU, 2007

rational voter who prefers one of these three parties over any other should vote for Regions or the CPU. Thus, we might speculate that by failing to anticipate the possibility of strategic voting among their own electorate, the powers that be in Donetsk simply did not foresee the need for transferring as many as votes as would be required to move the SPU past the threshold for parliamentary representation. And when it became apparent that more votes were needed, there simply wasn't enough unreported precincts to effect the outcome in a disguised way.

Minimally, Donetsk illustrates how our forensic indicators need to be considered both as a whole and separately, and in conjunction of what we know about strategic motives and imperatives. A graph such as Figures 5.11 or 5.12 makes sense only if we understand beforehand who are ideological allies and what is to be gained by moving votes among members of a specific parliamentary coalition. This analysis of Donetsk, though, establishes one other thing: the potential impact of objective on-the-ground observers for the detection of fraud. Notice that what leads us to suspect something other than an honest vote count in Donetsk in Figure 5.11 is the downward deviation of a relatively significant sample of precincts and their corresponding upwards deviation in Figure 5.12. Suppose, however, that votes had been transferred from Regions to the SPU uniformly across all precincts. In that case the relationship between *V/E* and *T* would have looked unexceptional for both parties and the fraud would be undetectable. In other words, we can detect a manipulation of the vote here only because a subset of precincts acted differently than the rest. To see precisely what we mean, suppose we do the following: In each

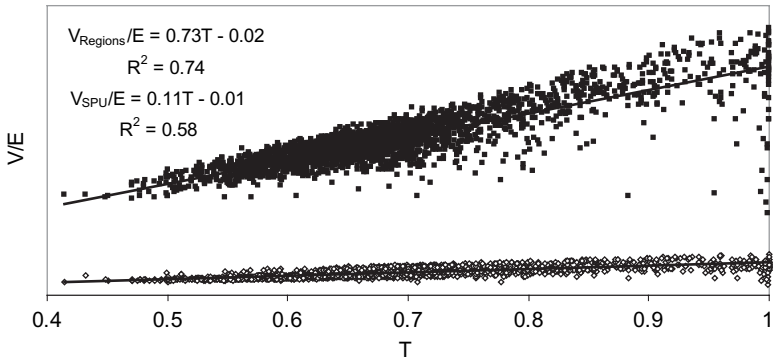


FIGURE 5.21. *T* versus *V/E*, If Fraud Had Been Done with Skill

precinct in which SPU received more that 0.025 of the eligible vote, let us set the SPU's vote equal to 0.025 of the eligible electorate, subtract that number from the votes officially award to it, and give the difference back to Regions. The SPU, left with 33,734 votes, now needs 189,223 votes to pass the 3 percent threshold – or approximately 11 percent of Regions's "new" overall vote in Donetsk. So suppose we give the SPU that 11 percent in each and every precinct, at Regions's expense. A graph of *T* versus *V/E* in Donetsk would then look as shown in Figure 5.21.

Figure 5.21 would occasion no suspicions. Indeed, it is virtually identical to what we observe in Luhansk. This is not to suggest that fraud was conducted with greater skill in Luhansk than in Donetsk – that speculation is wholly unreasonable for purely practical and substantive reasons and unsupported by any evidence. Instead, we are saying that our ability to detect fraud in Donetsk depends critically on the fact that a subset of precincts acted differently than the rest. This, then, suggests how to make fraud's detection more likely. Specifically, if it is less likely to occur in the presence of independent and objective observers, then the mere presence of those observers among a subset of polling stations will ensure that any fraud in the unmonitored stations will be detectible by a careful examination of official returns.

This points the way to facilitating fraud's detection. If fraud is less likely to occur when independent observers are present, their mere presence among a large enough subset of polling stations can ensure that the data in the fraud-free and fraud-infected precincts yield

potentially distinct patterns, which opens the door wider to the possibility that we can differentiate between types by an examination of official returns. Election observers are commonly assumed to serve two purposes: to discourage fraud and to detect and report it when it does occur. The analysis here suggests that it may be sufficient that they simply perform the first function and that a subsequent analysis of the data can substitute for the second. Of course, we should not preclude the possibility that anyone intent on committing fraud will not seek and find inventive ways to preclude direct observation of their activities. It may not be possible for observers to close off all avenues of electoral skulduggery. However, all we may need is for observers to impact the efficiency with which fraud can be committed or to cause variations in method. All of this may yield detectible patterns in the data. Notice moreover that if the potential perpetrators of electoral malfeasance know that their actions leave detectible fingerprints owing to the presence of observers and the uneven distribution of their actions, then they have two choices: disallow observers or abandon fraud altogether as an electoral strategy. Russia has, since 2004, chosen the first option; Ukraine appears to be moving in the direction of accepting the second. In any event, our argument here is simply that a well-monitored election requires both direct observation and statistical analysis, where the combination of the two can act as a significant incentive to conduct elections that are free, fair, and democratic.

## 5.3 CONCLUSIONS

Of all the conclusions that can be reached from this analysis of Ukraine's election returns, the one that stands out is the apparent absence of any significant fraud in the data for 2006 and 2007 that is comparable to what we find in Russia or in Ukraine's own 2004 November runoff presidential vote. This is not to say that numbers were not fudged somewhere by someone for some party. Surely there are features of Lviv that warrant closer inspection. And the evidence is incontrovertible that returns from Donetsk were late arriving so that numbers could be manipulated at the margin in the attempt to push Moroz's SPU above the 3 percent threshold for representation. Clearly, though, whatever fudging might have occurred in either

oblast did not reach the levels of excess found in Ukraine's presidential contest two years earlier. So aside from commenting on the value of our forensic indicators, we cannot resist the temptation to ask: why not? Why are Ukraine's 2006 and 2007 parliamentary contests (as well as its December 2004 vote) counterexamples to the proposition that fraud and fraudulent elections are an inherent consequence of a Soviet past? And if, as Russians are wont to argue, Ukrainians are little different from Russians (or if as the most xenophobic and imperialistic among them commonly assert, Ukraine is an inherent part of Russia or, as Putin argues, not even a legitimate state), why is this not true of its electoral politics?

Surely there are multiple answers to such questions, but one word that comes immediately to mind is "competitiveness." Although Ukraine's 2004 presidential election was competitive nationally, it was far less so locally. Throughout most of Ukraine either Yanukovich or Yushchenko held a commanding lead over the other. But 2006 and 2007 were different. For example, of the 345 rayons (out of 755) carried by Yanukovich's Party of Regions in 2006, Timoshenko's bloc polled second (and more importantly, outpolled the Communists) in 304 (88 percent) of them. And although Regions outpolled Timoshenko in all of its domain 6 to 1 in that first parliamentary contest following the October Revolution, fully 22 percent of BYuT's overall national support came from those rayons. Conversely, while only 16.5 percent of Yanukovich's support came from the rayons supporting Yushchenko or Timoshenko, the party lists of these latter two not-altogether-harmonious politicians competed heavily between themselves as well as against other parties. In those places won by one or the other of them (largely Western Ukraine of course), BYuT polled 35 percent of the vote while Our Ukraine polled 23 percent – leaving 42 percent for other party lists. Unlike 2004 where it was not unusual to find dozens of rayons or election districts in which one candidate or the other won more than 90 percent of the vote (and just as in Russia in 2004 where it is easy to find voting precincts and districts in which turnout equals 100 percent of the vote with the Kremlin's candidate the unanimous choice of those "voting"), no single party stood in any significant number of rayons in 2006 without some opposition from a second or even third party. What we say here about 2006 holds with even

greater force in 2007. And just as competition drives out price fixing in markets, it drives out corruption in politics.

Of course, competition is not a primary cause of anything, but is itself a consequence of other things. Meaningful opposition in Russia is simply not tolerated, whereas in Ukraine, Yanukovich, running for the presidency from the position of prime minister and with the backing of the incumbent regime, found himself head-to-head with a more-than-viable opponent. Here we can only speculate about the ultimate cause of this difference. One important fact is that, unlike Russia, no single part of Ukraine's government controls all arms of state coercion – the courts, the army, the police, internal security forces, the secret services. Thus, a chief executive must make careful accommodation of political opponents and cannot so easily suppress that opposition. Even in 2004, then President Kuchma found it impossible to control all agents of coercion. As one member of Ukraine's secret service was reported to have said when asked, while standing before the crowds at Independence Square during the Orange Revolution, if his men would fire on the crowd below if so ordered, "no, my wife and daughter are demonstrating down there."

Even here we may be looking at something that is more a consequence than a cause, with the previous quotation a clue to perhaps a more satisfactory explanation of things. First, there is the fact that Ukraine is indeed a divided society with one-half much more sympathetic to strong ties to the West than the other side. It would, for example, have impacted our analyses only modestly if, instead of dividing our data according to whether Yushchenko or Yanukovich carried a region or election district, we had simply divided the country into Eastern and Western halves.[23] A head of state, then, must learn to balance these opposing interests and preferences without recourse to something he does not have – a monopoly on physical coercion. There is, though, something else a Ukrainian leader does not possess that a Russian president has in abundance – a ready means with which to buy off potential enemies and competitors (referring, of course, to Russia's oil and natural gas resources). If Putin was able to buy off

[23] See the election maps presented in, for example, http://www.en.wikipedia.org/wiki/Ukrainian_presidential_election,_2004 and http://www.psephos.adam-carr.net/countries/u/ukraine/ukrainemapindex2004.shtml.

members of the European Union (e.g., Gerhard Schröder), it was surely no more difficult to buy off those who would usurp his authority in domestic affairs. With a constant flow of fungible dollars and euros, a Russian president can distribute the country's windfall among a coterie of apparatchiks, all of whom have little incentive to see any other arrangement. And if by chance someone refuses to be bought or stay bought, then as events surrounding Yukos and its imprisoned CEO Mikhail Khorderkovsky illustrate, the coercive authority sustained by Russia's authoritarian form of state capitalism and managed democracy can be employed. As any number of dismissed, indicted, or imprisoned regional governors and political opponents of the Kremlin can testify, there is only one route to political survival in Russia – strict subservience to the powers that be in Moscow. Hence, as we note in earlier chapters, the Kremlin can establish a Prisoners' Dilemma game among regional political elites so that all compete with each other in their support of the Kremlin's policies. And finally, of course, pity the investigative reporter or journalist silly enough to dare to trace and report on the flow of monies around official circles in Russia.

A Ukrainian leader, in contrast, must govern a country with no such authority or constellation of resources. There is little opportunity to establish a game there among regional and local elites that parallels the one their counterparts must play in Russia. Surely past presidents bemoaned the fact that rusting steel mills, sunflower seeds, sugar beets, inefficient coal mines, and the manufacture of obsolete airplanes don't yield the same economic returns as oil and natural gas. But such is the lot of any head of state in Kiev, which leaves that office vulnerable to opposing economic and political interests and sustains some degree of competition both in the political and economic spheres.

There is, though, one final cause to be considered, and here we hesitate to use a word some of our rational choice colleagues might prefer to avoid, culture. Poorly conceptualized, an appeal to this amorphous concept nevertheless might help us understand why one society but not another can be mobilized to political action (and we refer here not only to those who demonstrated in Independence Square in 2004, but to the innumerable journalists and political commentators who refused and continue to refuse to follow any "party line" as well as those political and economic elites who

maintain a degree of independence from the powers that be in Kyiv). What, for instance, allows one society to oppose the actions of the state as so many did in Kyiv in 2004, but renders another (Russia) so seemingly servile and satisfied with the bread crumbs dropped by a "good Czar"? We have no ready explanation for such differences in expectations and the extent to which they allow for or discourage political mobilization. But we ought not dismiss history's imponderables – of the fact that a part of Ukraine sees itself as being a part of Europe as opposed to a resurgent Russian empire, and that by claiming to be the successor state of the USSR, Russia carries with it in the eyes of many Ukrainians the baggage of its association with the *holodomar* (genocide by famine) and the criminal inhumanity of Stalin, Kaganovich, Molotov, and their ilk. As Andrew Wilson states the matter, "socio-economic factors alone cannot explain why west Ukrainians, despite their equally distressed economic circumstances, still support nationalist candidates with appalling records of economic management" (1997, p. 146). Ukraine's geographic proximity to Russia in conjunction with this history certainly plays a role in the Ukrainian psyche, as well as a shared desire among a good percentage of the population to be something other than "Russian." For them at least, if Russia chooses to be *X*, they prefer to be not-*X*. At the same time, that history and proximity puts another part of Ukraine in sympathy with closer ties to Russia and gives the nation less interest in pursuing integration with Europe.

Whatever the role history plays in determining the politically relevant dimensions of culture and people's expectations and beliefs, the importance of culture in the proper functioning of a democratic state is explicitly noted in, for instance, Rossiter's (1966) treatise on the Philadelphia Convention of 1787:

> [I]t takes more than a perfect plan of government to preserve [a] state of ordered liberty . . . Something else is needed, *some quality of mind and heart diffused among the people* to strengthen the urge to peaceful obedience and among their governors to keep them from sliding into corruption . . . that "something else" is . . . public and private morality. Free government rests at bottom on the moral basis of decent, brave, honest, liberty-loving, industrious, patriotic men. Such men are the raw materials of free government, and there must be enough of them in every society to overcome the obstinate forces of dishonor, unreason, sloth and cruelty. (p. 63, emphasis added)

One could easily rewrite Rossiter's argument using the words culture, corruption, and competition. It remains to be seen whether culture, however conceptualized, explains any of the differences between Russia and Ukraine, and whether those differences are a permanent feature of each country's political landscape. Nevertheless, there appears to be a marked difference between them today that allows one to move in the direction of a competitive party system, while the other reproduces a "party system" controlled by a central authority that dictates the final tally of votes.

# 6

# The United States

> Do you think that the U.S. electoral system is absolutely flawless? Shall I remind you of some election (scandals) in the States?
>
> Vladimir Putin, December 24, 2004

> The statistical study of precinct-level data does not suggest the occurrence of widespread fraud that systematically misallocated votes from Kerry to Bush.
>
> Democratic National Committee executive summary, 2005

## 6.1 CALIFORNIA, NORTH CAROLINA, AND ARIZONA

People might argue that Russia and Ukraine are special cases, and they are right if established democracies are the benchmark. A count of ten or even three million fraudulently cast ballots, all going to an incumbent, is inconceivable today in any state we might label a stable functioning democracy. Russia's uniqueness in particular, unless compared to places like Zimbabwe or the Asian republics of the former USSR, is underscored when one reads of the regime's largely impotent political opponents being harassed, arrested, beaten, and simply kept off the ballot by a variety of pseudo-legal maneuvers or maneuvers proclaimed legal by a subservient judiciary. However, elections have not always been wholly free and fair in the United States. We recall the humorous comment by Boss Tweed in the movie *Gangs of New York* that his minions ignore the uncomfortable fact that they had run out of ballots and to "keep counting!" Although a

fictionalized account, its humor lies in the historical truth it contains. Nevertheless, as Alexander Keyssar (2000) notes in his seminal study of the right to vote in America, "[historical] claims of widespread corruption were grounded almost entirely in sweeping, highly emotional allegations backed by anecdotes and little systematic investigation or evidence . . . most elections appear to have been honestly conducted: ballot box stuffing, bribery, and intimidation were the exception, not the rule" (pp. 159–60). In a more contemporary assessment, "actual cases of election fraud explicitly intended to affect the outcome of a federal election are almost nonexistent" (Bailey 2008: 97). Put simply, with competition largely driving the most egregious forms of fraud into exile, fraud never reached the proportions it has achieved in Russia. It is true that books and Web sites proliferate with titles such as "Proof of election fraud exposed," "'Stinking evidence' of possible election fraud found in Florida," and "The 2004 election: The mother of all election fraud," with their authors claiming to have discovered the nefarious reasons why exit polls and final tallies did not match or to have compiled some evidence or gained the testimony of some witness proving that someone somewhere stole some amount of votes in favor of someone and that the victory of a candidate they abhor is illegitimate. The fact remains that if one side or another engages in shenanigans in a reasonably competitive democracy, transitional or established, it can at best be of a marginal sort – too few voting booths in specific precincts, a biased assessment of poorly marked ballots, the faulty administration of absentee votes and registration lists, or electronic voting machines that are accidentally unplugged and left unattended until their reserve batteries exhaust themselves.

Of course, in truly competitive elections, massive fraud is unnecessary – a few votes here and there can swing an outcome. Just as 500 or so "dimpled ballots" may have swung the election to Bush in 2000, it has been argued that a mere handful of precincts and graveyards in Chicago swung the election to Kennedy in 1960. To the extent, then, that our forensic indicators are designed to uncover fraud and the application of various administrative advantages of greater magnitude, their application to data from a competitive democracy ought to yield little in the way of suspicious findings. Despite the bombastic assertion that Russia will now pass "independent" judgment on

Western elections as it seeks to deflect criticism from its corrupt electoral system, the issue of electoral irregularities in the United States, Canada, and Europe does not concern millions of suspicious votes. There is little need to argue, when explaining election statistics in the West, that some unseen mujahideen, like their cousins in Chechnya, descended from the Alps or Rocky Mountains to vote. There may be problems with America's highly decentralized administration of elections or with its peculiar method of aggregating votes in its presidential contests whereby a popular vote winner loses in the Electoral College as occurred in 1824 with the election of John Quincy Adams, with Rutherford B. Hayes (1876), John Kennedy (1960), and George W. Bush (2000).[1] But massive irregularities of the sort now endemic to Russia are not the problem. It follows, then, that our forensic indicators are unlikely to uncover irregularities when applied to data from the United States; and if they do, the more reasonable hypothesis is that those indicators are somehow poorly conceived or that the data fail to satisfy our underlying assumptions.

The analysis that follows, then, is not intended to address the issues raised by others as to the legitimacy of vote counts in places like Florida in 2000 or Ohio in 2004. We leave it to others to address the pros and cons of alternative voting technologies. Nor are our indicators equipped to address the substantive concerns of those who, with an objective eye, point to the administrative deficiencies of contemporary electoral systems. Instead, what follows is intended as a warning about the potential misuse of our indicators. Those indicators are at best but a part of the forensic arsenal analysts can use when evaluating elections. But just as forensic tools can be misused in a criminal investigation – legitimate alibis ignored, DNA tests contaminated, fingerprints misidentified, eyewitness accounts blurred by prejudice, physical evidence misplaced – the tools we offer here can be

[1] This observation should not be interpreted as an indictment of the Electoral College. From the perspective of encouraging or discouraging fraud, while that system may make the outcome depend critically on a handful of votes in one state, it blunts the impact of fraud in other less competitive states. Thus, its overall impact on motives to commit fraud are unknown. It is a blunder of the first order, moreover, to assume that if the College had not been in effect that Nixon or Gore or whoever would have won an election, since such an assumption presupposes that both candidate strategies and voter behavior are unaffected by the electoral system. Decades of research establish that precisely the opposite is true.

deliberately or inadvertently misused as well. Analysts with ideological or partisan objectives, for instance, can fail to account appropriately for heterogeneity in the data – or, worse still, they can manipulate heterogeneity by combining or separating samples in inappropriate ways to yield false signals. Alternatively, someone intent on reporting fraud where there is none can focus on one indicator while ignoring the exculpatory evidence offered by others. This chapter, then, applies two of our indicators to data from the United States in part to warn against the possibility that there may be those who would use our or similar methods inappropriately. The analysis that follows also shows how different elections are in the United States from their Ukrainian and Russian counterparts. Specifically, we illustrate here some of the pitfalls that await those who would use our indicators without reference to the underlying differences between data drawn from counties or precincts that favor Democratic versus Republican candidates and why the issue of heterogeneity is likely to be especially bothersome when considering data from the United States.

With respect to the challenges that present themselves when analyzing data drawn from the United States, the first is that too few counties report their vote in ways that allow for easy access to precinct-level returns. It might even seem that there is a conspiracy (which there isn't) against performing analyses of the sort we offer here. As the critical nodes of a decentralized electoral system, counties are often committed to Web sites and data archives of their own unique design. Some report only county-wide totals, some give precinct level data in PDF format, others in Excel, others in some obsolete spreadsheet form, and still others merely offer photocopies of handwritten protocols. Some report only on the most recent election whereas others maintain an archive going back decades that can change formats from election to election. One can even complain that some counties seem more interested in using their Web sites to proclaim their official bird, song, flower, insect, or fruit than an election's outcome. Making matters all the more difficult for the analyst is the fact that America is a mobile and growing society, so collecting time series precinct data is a virtual impossibility – boundaries sometimes seem to change with the weather (if data on them is reported at all).

Without making extraordinary efforts at overcoming these obstacles, this chapter considers a set of nonrandomly chosen states and

counties dictated largely by the form of the data offered on readily accessible Web sites. As noted, we do this not because we believe we can uncover some instance of evident fraud since our indicators are ill-suited to detecting the subtle ways of manipulating an election learned over 200 or so years of trial, error and experience. Instead, this chapter explores the performance of our indicators when we have good reason for believing they will detect nothing.

## San Francisco

We begin with the county of San Francisco and the 2004 Bush-Kerry presidential contest. Here we are dealing with a county that voted overwhelmingly for Kerry with a margin that parallels Russia's autonomous republics. Nevertheless, notice the wholly normal (i.e., nonsuspicious) distribution of turnout across precincts in Figure 6.1a.

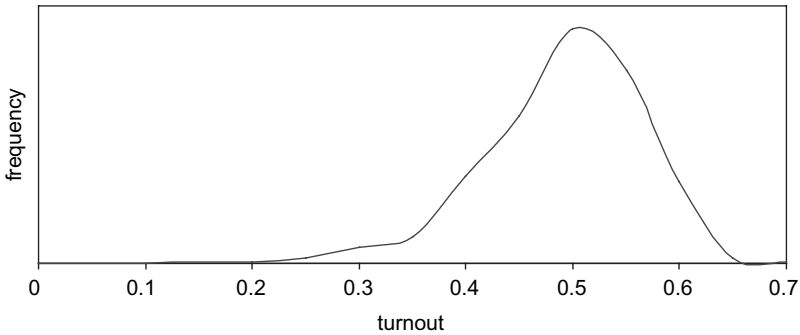


FIGURE 6.1a. Turnout in San Francisco County Precincts 2004

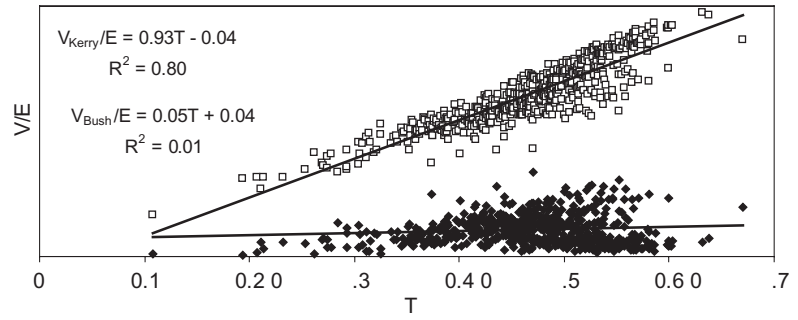


FIGURE 6.1b. *T* versus *V/E*, San Francisco County Precincts 2004

Figure 6.1b, in turn, shows that despite Bush's unpopularity in that county, the coefficient on *T* for Kerry is less than 1.0 so that even Bush gains a few votes with every increase in turnout (5 for every 100 additional voters). Minimally, then, the data here demonstrate a valid, fraud-free pattern even when one candidate is overwhelmingly favored in the vote.

## North Carolina

Now consider Figures 6.2a–6.2c, which concern all precincts in North Carolina. Here, however, because it is safe to assume that there are marked demographic differences between Democratic and Republican precincts (i.e., nonhomogeneity in the data), we separate the precincts according to which candidate won there. The first thing to observe in Figures 6.2a and 6.2b is that we find nothing suspicious. Both candidates gain as turnout increases, Bush gains the most in precincts he carried and Kerry gains the most in his base of support. Moreover, intercept terms are near 0 and no $R^2$ is so low as to suggest aggregation error when looking at the leading candidate. Notice moreover the wholly unexceptional distributions of turnout among both "Bush precincts" and "Kerry precincts" in Figure 6.2c.

However, we can use North Carolina to offer an egregious example of the pitfalls of aggregation error; specifically, the incorrect inferences we might draw from data when we fail to control for precincts of different types. Consider Mecklenburg County and suppose, as we show in Figure 6.3a, that we run our regressions without first dividing Bush from Kerry precincts. Notice that the coefficients for turnout, *T*, are not unlike what we might find for the bastions of strength for Yanukovich or Yushchenko in 2004. However, the data here makes little sense as evidenced by, among other things, the negligible $R^2$ for Kerry. This figure differs in another important respect from the ones we show for places like Tatarstan and Bashkortostan. Specifically, the two regression lines cross in the middle of the spread of observations because one candidate dominates when turnout is low and the other when turnout is high. We know, though, that Democratic supporters tend to vote at lower rates than Republicans, which is to say that turnout and preferences correlate so as to generate aggregation error of the sort described in Chapter 2. Thus, if, as in Figures 6.3b and 6.3c, we

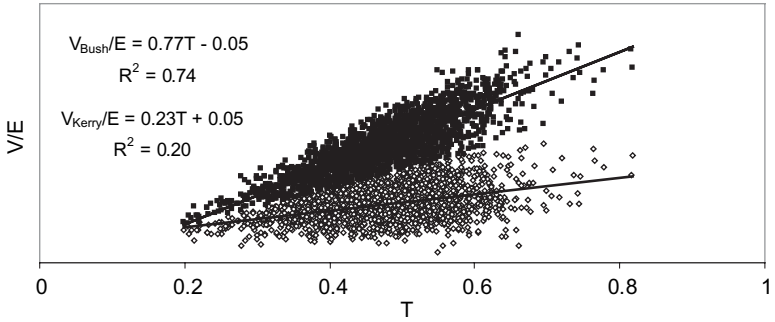


FIGURE 6.2a. *T* versus *V/E*, North Carolina, 2004, Bush Precincts

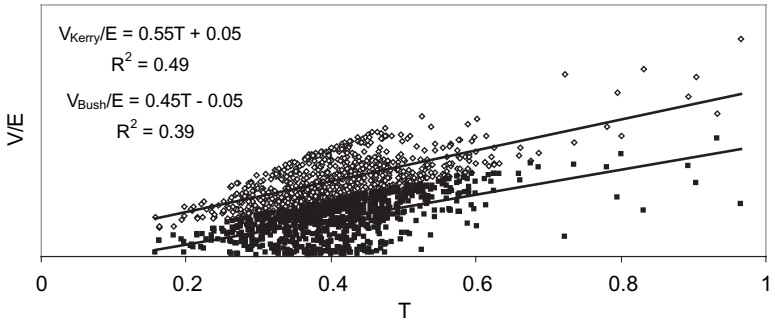


FIGURE 6.2b. *T* versus *V/E*, North Carolina, 2004, Kerry Precincts

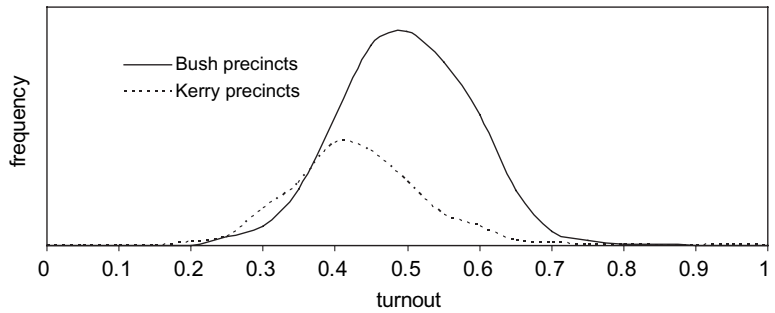


FIGURE 6.2c. Turnout Distribution, North Carolina, 2004

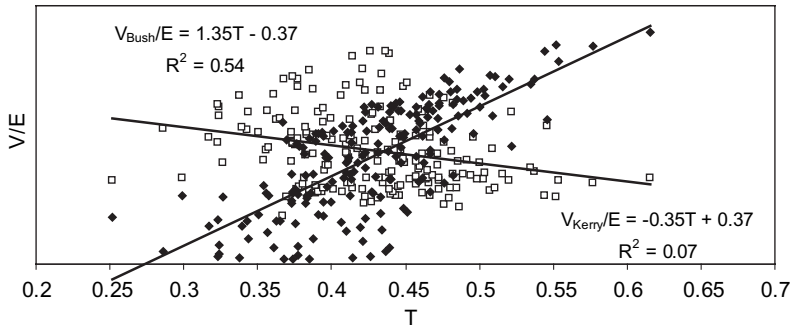


FIGURE 6.3a. *T* versus *V/E*, Mecklenburg County, North Carolina, All Precincts

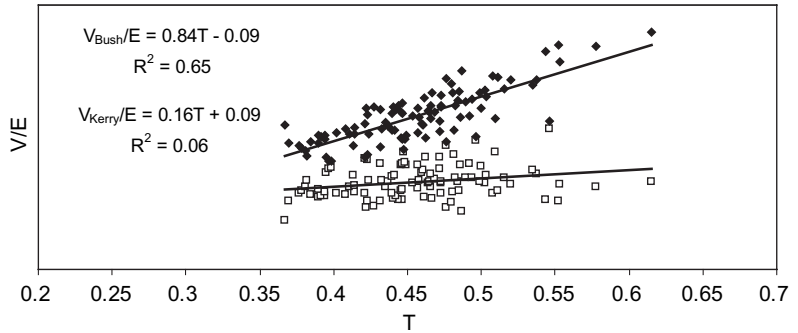


FIGURE 6.3b. *T* versus *V/E*, Mecklenburg County, North Carolina, Bush Precincts

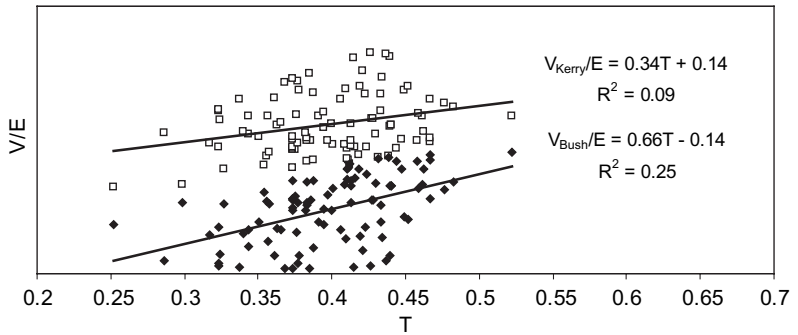


FIGURE 6.3c. *T* versus *V/E*, Mecklenburg County, North Carolina, Kerry Precincts

separate precincts into those carried by Bush and those by Kerry respectively so as to partially control for this intervening variable, we immediately see a return to a more normal pattern.

To reiterate, the specific source of aggregation error that Figure 6.3a illustrates derives from the fact that the precincts carried by a Democrat report on average a distinctly lower average turnout than those carried by a Republican (the actual average turnout rates across precincts is 40.2 percent for those carried by Kerry and 45.6 for those carried by Bush). One might argue, of course, that this discrepancy in turnout rates is itself insidious despite the fact that the 2004 vote was hardly unique in this respect. Registration barriers or the strategic assignment of polling stations might account for some of this difference. But we also cannot exclude the fact that for reasons we only imperfectly understand but are well-documented, a variety of demographic variables do correlate with partisan preference along with one's likelihood of voting. In other words, our assumption of homogeneity is not satisfied and turnout correlates with a candidate's *relative* level of support. It is only when we separate Kerry from Bush precincts and, thereby, move in the direction of eliminating the effects of unobserved variables, that a normal relationship between turnout and a candidate's absolute vote begins to appear.

It is true that $R^2$ remains especially low in the precincts carried by Kerry. However, rather that raise suspicions about fraud, it is more reasonable to explore the hypothesis that there are other unobserved variables mediating the relationship between preference and turnout. Surely, being the most populous county in the state with a mixture of urban (Charlotte) and rural voters and a population that is 64 percent white, 28 percent black, and 6 percent Latino, the door is open for the interplay of all of the usual demographic correlates of partisan preference and turnout. We emphasize, then, that our division of precincts into those carried by one candidate versus another is but an admittedly crude first step in a more comprehensive analysis, especially if we suspect fraud. If, for instance, one candidate fraudulently manipulated votes sufficient to swing precincts from one column to another, then an analysis that merely divides precincts on the basis of who won what is necessarily compromised. It is more appropriate, then, to employ proxy variables – socioeconomic characteristics – that we know a priori correlate historically with both turnout and partisan

preference and which the candidates cannot manipulate. Recall, when analyzing Lviv, for instance, that we separated the data according to whether precincts corresponded to village (rural) or city (urban). We did this in part because of the availability of that measure, but also because we have good reasons for supposing that voting patterns and preferences differ between rural and urban areas in the former Soviet Union. Similarly, dividing our Ukrainian data into those districts or precincts carried by Yanukovich or Regions versus those carried by Timoshenko or Yushchenko in effect divides our data East and West and, for the most part, into industrial versus agriculturally dominated economies and Ukrainian-speaking versus Russian-speaking populations. (Indeed, the ideal for places such as Lviv and Donetsk would be precinct level election data linked to data on, minimally, percentage urban, the precinct's economic base, and percentage Russian-speaking.) A more thorough analysis of North Carolina or any other state requires an equivalent analysis. But because our analysis here is offered simply to illustrate the potential for aggregation error (via the comparison of, in this case, Figure 6.3a against Figures 6.3b and 6.3c), we proceed without seeking more theoretically justifiable proxy variables.

### Arizona

Arizona, which split strongly for Bush in 2004 (55 percent versus 44 percent), illustrates the problem of inappropriately combining all data into a single sample in the same way as North Carolina's Mecklenburg County. First, Figure 6.4a gives the distributions of turnout across the state's precincts and reveals a slight deviation from normality among Democratic precincts. And were we to combine this fact with Figure 6.4b, we might infer probable cause for suspicion – the coefficient for Kerry is simply too small and for Bush too large. Of course, we know a priori that, with Bush's plurality over Kerry of more than 200,000 votes in combination with the winner-take-all nature of the Electoral College, unobserved fraud sufficient to have swung the state to Bush is a virtual impossibility. Indeed, the data looks wholly unexceptional once we separate Bush and Kerry precincts (Figures 6.4c and 6.4d).

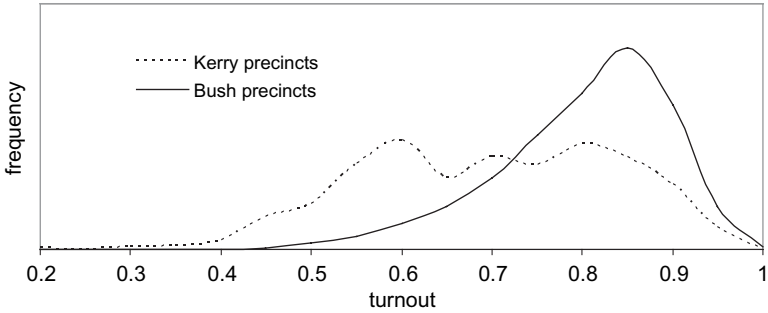


FIGURE 6.4a. Turnout Distribution, Arizona 2004

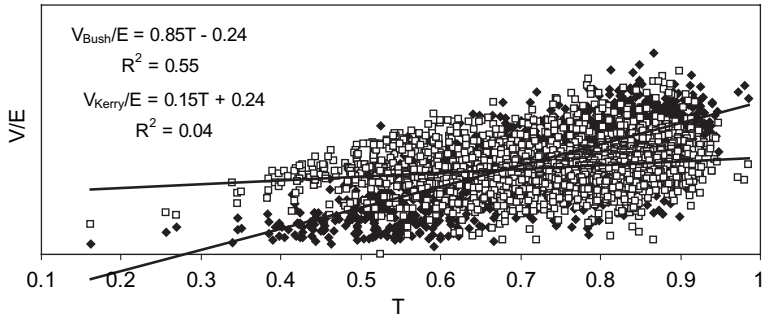


FIGURE 6.4b. *T* versus *V/E*, Arizona 2004, All Precincts

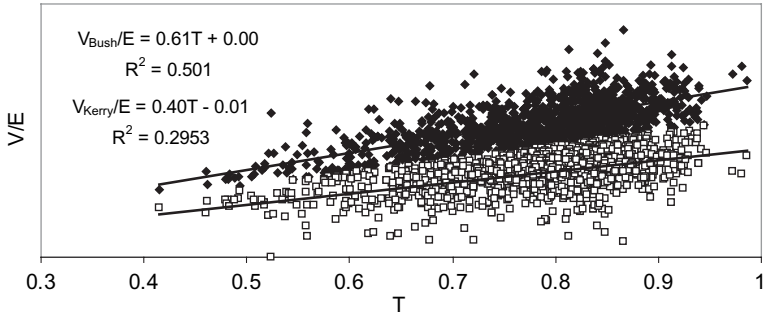


FIGURE 6.4c. *T* versus *V/E*, Arizona 2004, Bush Precincts

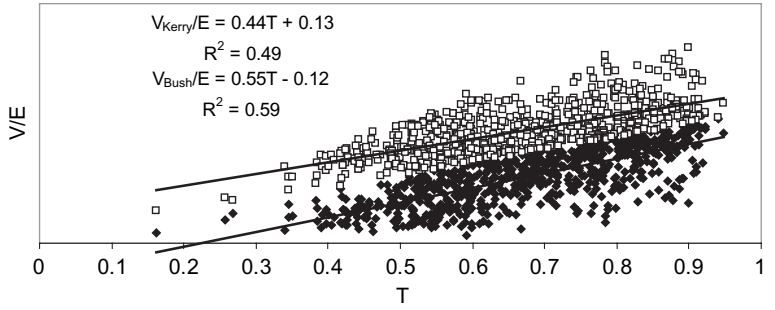


FIGURE 6.4d. *T* versus *V/E*, Arizona 2004, Kerry Precincts

## 6.2 FLORIDA

Now let us turn to several of the counties in Florida whose vote counts, owing to debates over hanging chads and the treatment of absentee ballots, occasioned considerable controversy in the 2000 Bush versus Gore election. We should state again, however, that we have no expectation of finding anything amiss since the issues in Florida did not concern thousands of votes, but rather mere hundreds if not dozens that in any official tabulation would not appear until after the third or fourth decimal. And indeed, this expectation is fully met. First, consider Figures 6.5a–6.5c, which graph the distributions of turnout for Bush and Gore precincts in Dade County along with graphs of the relationship between turnout and each candidate's share of the eligible electorate. As with North Carolina, we find nothing here that is unusual or suspicious: coefficients sum to nearly 1.0, Gore does best in the precincts he carries, while Bush holds the turnout advantage in those precincts that vote Republican.

These figures, in fact, are repeated if we consider other countries such as Duval, Palm, and Broward. For example, in Duval County the relationship between *T* and *V/E* is, for Bush precincts:

$$V(Bush_{Bush,\,Duval})/E = 0.98T - 0.26,\ R^2 = 0.77$$

$$V(Gore_{Bush,\,Duval})/E = 0.07T + 0.16,\ R^2 = 0.02$$

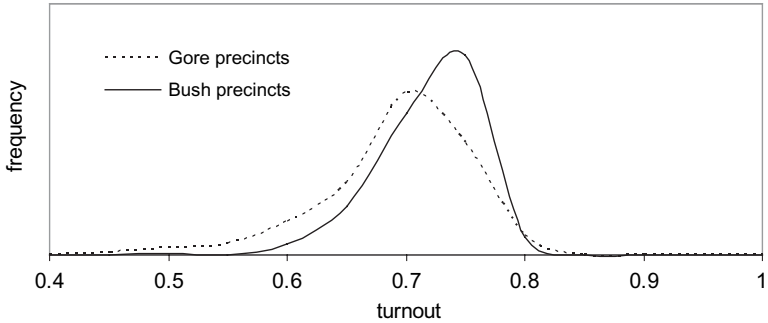


FIGURE 6.5a. Turnout Distribution, Dade County, Florida 2000

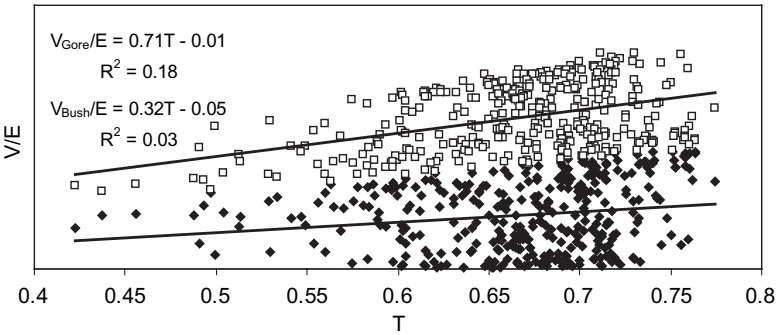


FIGURE 6.5b. *T* versus *V/E*, Dade County, Florida, Gore Precincts 2000

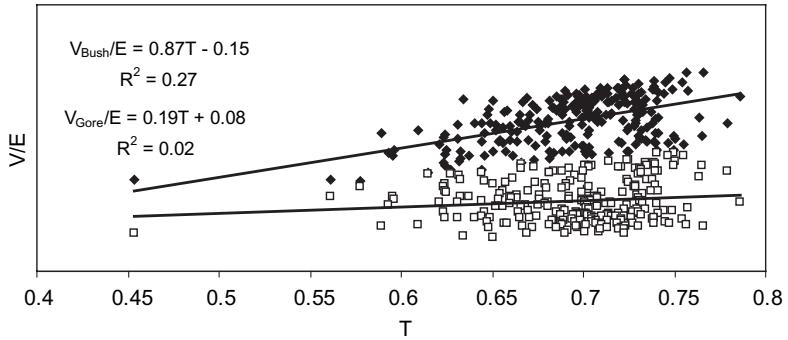


FIGURE 6.5c. *T* versus *V/E*, Dade County, Florida, Bush Precincts 2000

and in the Gore precincts,

$$V(Bush_{Gore,\,Duval})/E = 0.76T - 0.06,\ R^2 = 0.01$$

$$V(Gore_{Gore,\,Duval})/E = 0.08T + 0.04,\ R^2 = 0.52$$

In Palm County, the parallel estimates are as follows: for Bush precincts,

$$V(Bush_{Bush,\,Palm})/E = 0.59T - 0.03,\ R^2 = 0.44$$

$$V(Gore_{Bush,\,Palm})/E = 0.43T - 0.02,\ R^2 = 0.29$$

and in the Gore precincts,

$$V(Bush_{Gore,\,Palm})/E = 0.17T + 0.07,\ R^2 = 0.04$$

$$V(Gore_{Gore,\,Palm})/E = 0.80T - 0.11,\ R^2 = 0.55$$

Finally, in Broward County, Gore's dominance is sufficient that there is little need to separate precincts, and the resulting relationship between turnout and each candidate's share of the eligible electorate is as shown in Figure 6.6.

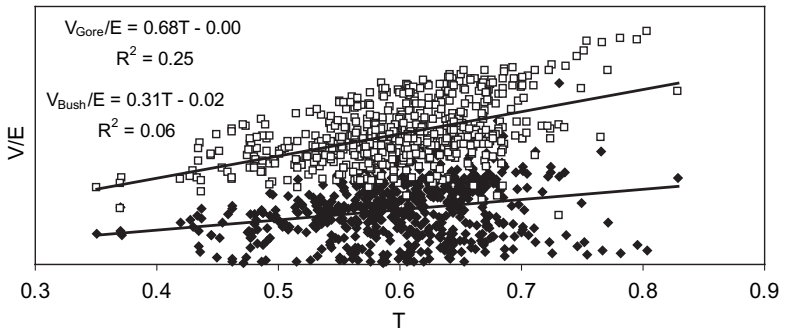


FIGURE 6.6. *T* versus *V/E*, Broward County, Florida, All Precincts 2000

Admittedly, the variances in each of the several Florida counties about the *V/E* versus *T* regression lines are considerable. But absent other reasons for supposing foul play of a magnitude that would register on our indicators we should take the numbers here as indicating a free and fair contest. Of course, given the controversy surrounding vote counting in these counties, indicators and analyses other than the ones we consider should be explored, while, at the same time, the analyst checks to see if a low $R^2$ disguises aggregation error whereby suspicious coefficients arise for distinct types of precincts.

## 6.3 IDAHO AND TEXAS

### Idaho

Idaho is interesting not simply because it offers accessible data back to 1992, but because it is an example of a state that historically votes overwhelmingly for one party (Republican) in presidential elections. In 2004, for example, Bush carried Idaho, winning 69.9 percent of the vote, with Kerry winning a plurality in only 68 of 851 precincts. Looking, then, at Figure 6.7a and the distributions of turnout across all precincts for four presidential elections, we see little here that might raise suspicions. The 2004 election, though, warrants a closer look owing to the "wiggle" in its distribution and indeed, Figure 6.7b, with Bush's coefficient on turnout exceeding 1.0 and Kerry's being negative, might raise eyebrows.

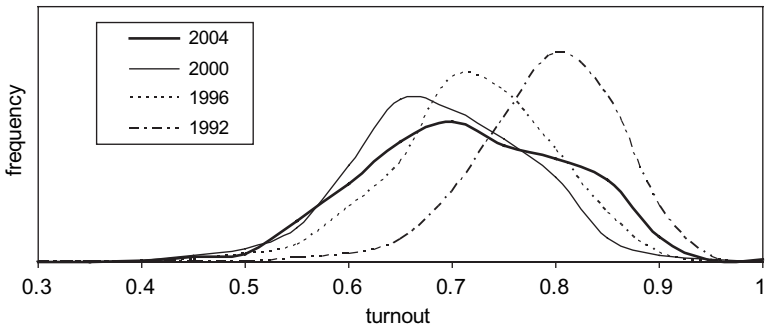


FIGURE 6.7a. Turnout Distribution, Idaho

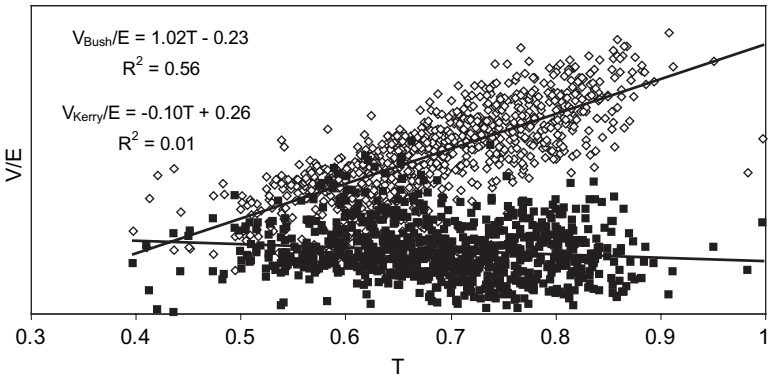


FIGURE 6.7b. *T* versus *V/E*, Idaho, All Precincts 2004

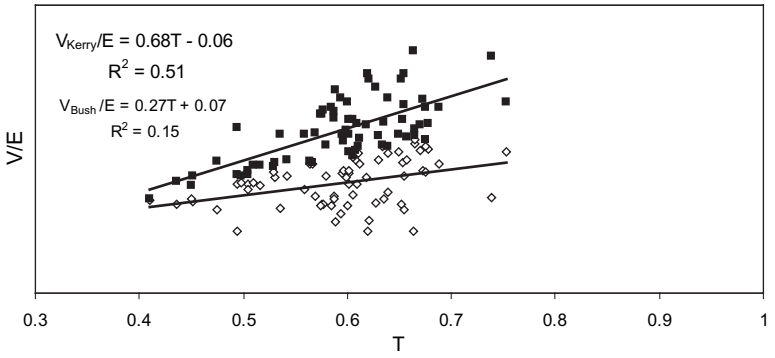


FIGURE 6.8a. *T* versus *V/E*, Idaho, Kerry Precincts 2004

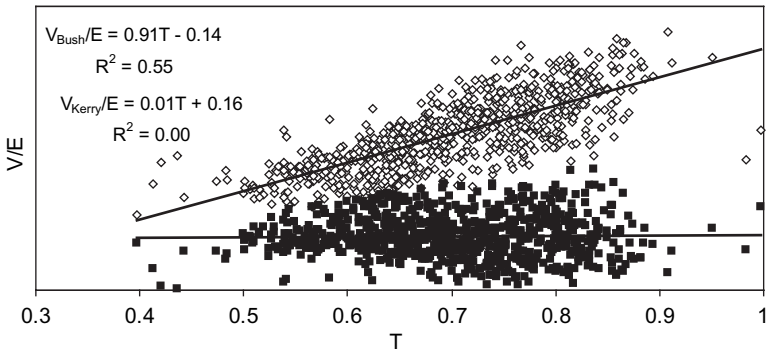


FIGURE 6.8b. *T* versus *V/E*, Idaho, Bush Precincts 2004

Admittedly, the coefficients in Figure 6.7b are not far outside of the interval [0, 1] in any statistical sense, but it would be more reasonable if they approximated each candidate's share of the vote. However, notice the few precincts around the 60 percent turnout rate that give Kerry an above-average share of the vote. This may signal the absence of homogeneity in the data, and, in fact, to see how a small subset of precincts can change matters, let us again separate Kerry and Bush precincts and consider the relationship between $T$ and $V/E$ in each subcategory. In this case we get two sets of estimates, neither of which occasions any suspicion (see Figures 6.8a and 6.8b). Of course, one needs to ask again whether there is a logical, demographic basis for separating precincts according to who won what. We suspect there is, but we leave the final determination of things to those expert in Idaho politics.

Nevertheless, if one chooses to regard the coefficients for 2004 as suspicious, the 2000 vote should raise even more eyebrows since here the coefficient on $T$ exceeds 1.0 for Bush even after we separate his precincts from Gore's. These numbers, moreover, seem all the more suspicious when compared to 1996 and 1992, where no coefficient exceeds 0.78. It is here, though, that common sense is in order. Aside from the fact that the turnout distributions offer no probable cause for suspecting fraud, we also need to keep in mind that the Republican presidential candidate's plurality in these four elections was approximately 200,000 votes in 2004, 174,000 in 2000, 85,000 in 1996, and 42,000 in 1992. The smaller pluralities in 1996 and 1992, though, are due to Ross Perot's strong support where in 1992, with 27 percent of the vote, he nearly outpolled Clinton, and won another 12.7 percent in 1996. (See Table 6.1.) Once again, there simply is no motive for fraud in Idaho on anyone's part in any of these elections.

## Texas

Texas is much like Idaho, at least in terms of the support it gave to Republicans in 2000 and 2004 owing in part to the favorite son candidacy of George Bush. In 2000, Bush beat Gore with 61 percent of the two-party vote, with Gore winning a positive plurality in only 24 of Texas's 254 counties. Four years later, Kerry, with the deadly (at least for Texas) label "Massachusetts liberal," fared even worse,

TABLE 6.1. *T versus V/E for Idaho, 1992–2004*

| | Republican Statistics | | | Democratic Statistics | | |
|---|---|---|---|---|---|---|
| | *Coefficient on T* | *Intercept* | $R^2$ | *Coefficient on T* | *Intercept* | $R^2$ |
| | *2004* | | | | | |
| All Precincts | 1.02 | −0.23 | 0.56 | −0.10 | 0.26 | 0.01 |
| Bush Precincts | 0.91 | −0.14 | 0.55 | 0.01 | 0.16 | 0.00 |
| Kerry Precincts | 0.27 | 0.07 | 0.15 | 0.68 | −0.06 | 0.51 |
| | *2000* | | | | | |
| All Precincts | 1.18 | −0.34 | 0.67 | −0.17 | 0.28 | 0.06 |
| Bush Precincts | 1.10 | −0.28 | 0.68 | −0.12 | 0.24 | 0.03 |
| Gore Precincts | 0.51 | −0.08 | 0.40 | 0.57 | −0.04 | 0.47 |
| | *1996* | | | | | |
| All Precincts | 0.78 | −0.19 | 0.38 | 0.06 | 0.17 | 0.05 |
| Dole Precincts | 0.73 | −0.13 | 0.44 | 0.11 | 0.12 | 0.03 |
| Clinton Precincts | 0.42 | −0.06 | 0.47 | 0.38 | 0.06 | 0.43 |
| | *1992* | | | | | |
| All Precincts | 0.77 | −0.28 | 0.35 | −0.17 | 0.34 | 0.02 |
| Bush Precincts | 0.67 | −0.17 | 0.36 | −0.08 | 0.24 | 0.01 |
| Clinton Precincts | 0.38 | −0.07 | 0.36 | 0.29 | 0.08 | 0.17 |

winning only 38.5 percent of the two-party vote, and a positive plurality in even fewer counties than Gore, 18. Figure 6.9, then, graphs the distribution of turnout across counties for 2004, and it would seem that Texas at least defines a "normal" density.

Figure 6.10a, in turn, graphs the relationship between turnout and Bush and Kerry's share of the eligible electorate when we use data from all 254 precincts. Needless to say, the negative coefficient for Kerry seems suspicious, but now in Figure 6.10b consider what happens when we look only at counties carried by Bush. Clearly, Figure 6.10b looks far more "regular" than does Figure 6.10a so that again we see the effect of separating data by at least one crude proxy variable. Nevertheless, in a pattern that may hold lessons for how we interpret some of the coefficients we saw in Donetsk, Luhansk, and Lviv in Ukraine, notice that the coefficient on *T* for Bush remains greater than 1.0, while that for Kerry is slightly negative. Here, of

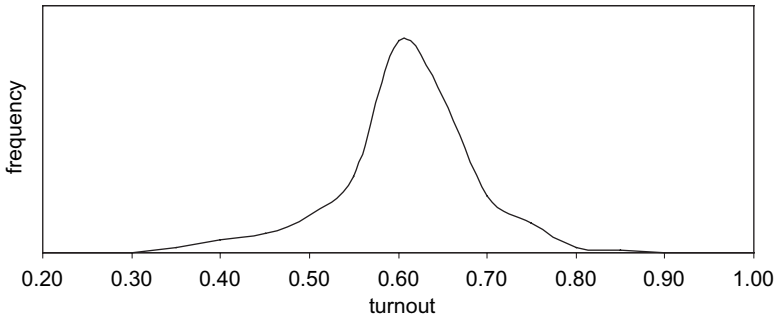


FIGURE 6.9. Turnout Distribution, Texas Counties 2004

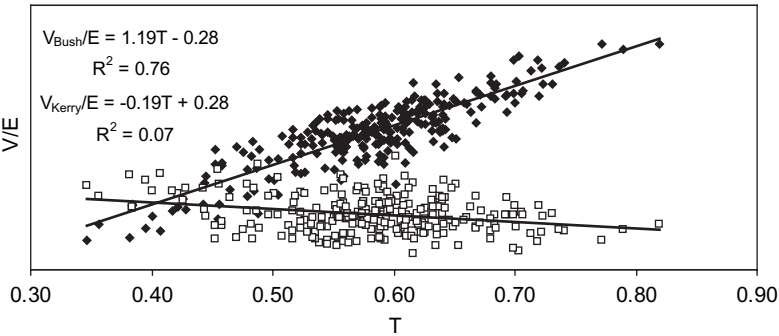


FIGURE 6.10a. *T* versus *V/E*, Texas 2004, All Counties

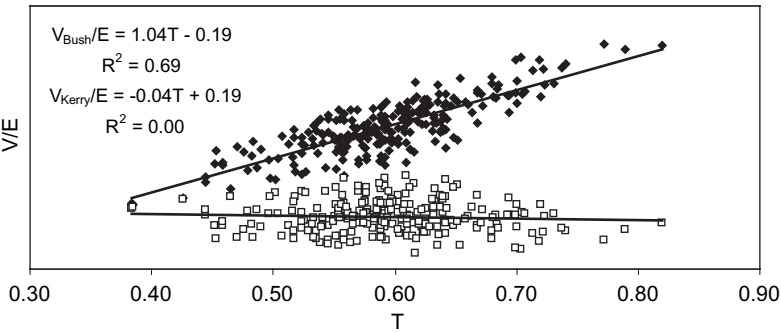


FIGURE 6.10b. *T* versus *V/E*, Texas 2004, Bush Counties

course, we have good reasons for supposing, a priori, that there were no significant irregularities in the voting on an order of magnitude to occasion indications of fraud among our forensic tools – a supposition sustained by the normality of the turnout distribution in Figure 6.9. We can only speculate here, but our best guess is that what we are seeing is the impact of two things: first, the impact of a favorite son and the increased turnout that occurs when a subset of the electorate votes with especially high rates in order to support a candidate with local roots. Recall that in Donetsk, for instance, election district data yield a coefficient in excess of 1.0 for *T* in the third round of the 2004 contest (see Figure 4.8a) – a round we deemed relatively free and fair as compared to the first runoff round in November. In this respect, then, Texas, with its favorite son, looks much like Donetsk with Yanukovich on the ballot. There is, though, another explanation for Texas that does not apply to Donetsk. Specifically, because the data here are aggregated up to the county as opposed to precinct level, we are, in effect, comparing apples and oranges and engaging in a somewhat illegitimate analysis. Among other things, Figures 6.10a and 6.10b equate Loving County, with fewer than sixty residents, and Harris County (Houston), with a population in excess of 3.6 million. These two counties differ, moreover, in more than mere size: in 2004, Bush won 81.25 percent of the vote in Loving, but only 54.75 percent in Harris. Minimally, then, Texas should not only alert us to the possibility of coefficients that exceed 1.0 in special circumstances (where one such circumstance is the existence of a variable that correlates with both turnout and preference – the favorite son) but should also warn us, when treating aggregate data, to do what we can to ensure that our observations are comparable. Texas, in fact, literally cries out for a level of aggregation no greater than individual precincts – data, insofar as we know, that is unavailable on the internet. However, we should add, by way of emphasizing the need to identify motive when investigating a crime, that there is little reason to assume fraud of any magnitude in Texas (at least in 2004) for the same reason there is no reason to suspect fraud in Idaho. If any significant share of Bush's nearly 1.7 million vote plurality over Kerry was due to fraud, we should see a coefficient on *T* far in excess of 1.04 or 1.19 – more likely, in excess even of the coefficient we estimate for Russia's republic of Tatarstan (1.67). And as with Idaho, there simply is no

motive for fraud otherwise since anything less leaves the Electoral College count unchanged.

## 6.4 OHIO 2004

### Franklin and Cuyahoga Counties

While Florida with its hanging chads was the focus of attention in 2000, questions surfaced in 2004 about the legitimacy of the vote in Ohio. In Franklin County (Columbus) the media fixated on a solitary election district that reported some 6,000 more votes for Bush than there were registered voters, while in Cuyahoga County (Cleveland) Democrats alleged such tactics as too few polling stations in predominantly Democratic precincts. As the losers of any contest as important as the presidency, we cannot take Democratic assertions of foul play as evidence of such, but we are not so bold as to assert that there were no irregularities scattered about here and there (far be it for us to assert that Ohio Republicans learned nothing from Cook County Illinois Democrats). However, the data from neither Franklin nor Cuyahoga County raise any suspicions by our indicators. Figures 6.11a and 6.11b begin by offering the distributions of turnout in Franklin County for both 2000 and 2004, and if there are irregularities here it is to be found in the distribution of turnout in Democratic precincts – an irregularity or wiggle in 2000 (which largely disappears in 2004) that closely matches what we found for Yushchenko in December 2004.

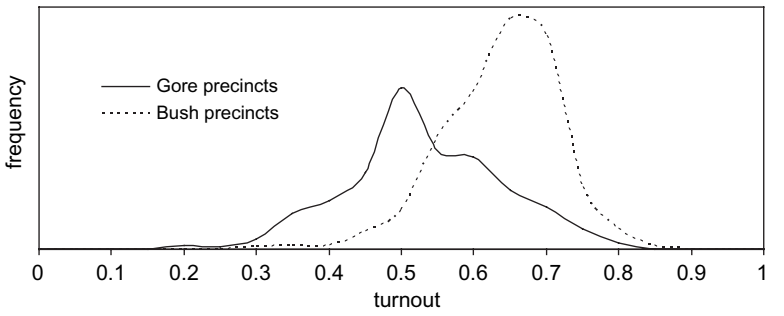


FIGURE 6.11a. Turnout Distribution, Franklin County, Ohio, 2000

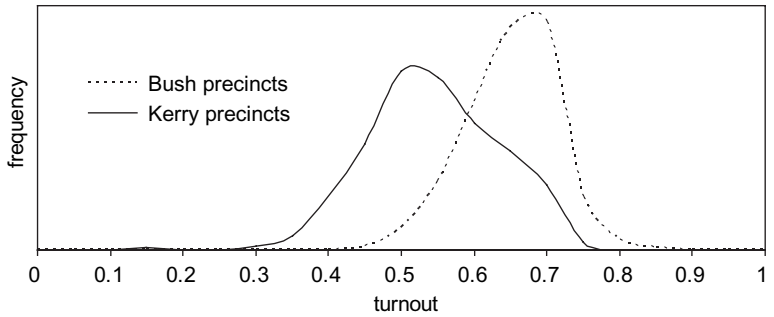


FIGURE 6.11b. Turnout Distribution, Franklin County, Ohio, 2004

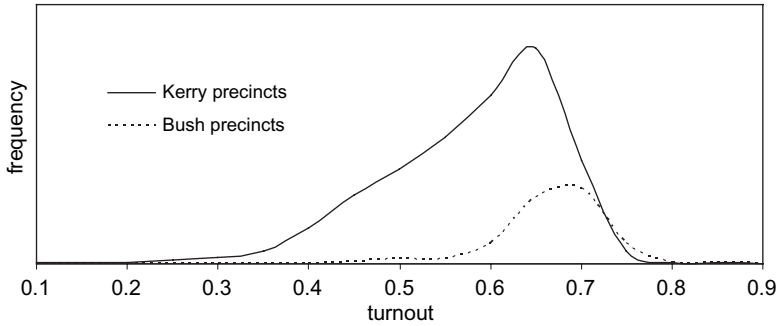


FIGURE 6.12. Turnout Distribution, Cuyahoga County, Ohio, 2004

The distribution of turnout in 2004 for Cuyahoga County (Figure 6.12) tells much the same story – a consistently lower average rate of turnout among precincts supporting the Democratic candidate despite the overwhelming vote for Kerry, but little in the way of any suspicious pattern.

If Democrats have a complaint it is that their electorate simply doesn't vote at the same rate as their Republican counterparts. An equivalent story of free and fair is told by our second forensic indicator, the relationship between absolute vote and turnout. After dividing Democratic from Republican precincts, Figures 6.13a and 6.13b portray what we find in Franklin County in 2000, Figures 6.14a and 6.14b give the results for Franklin in 2004, and Figures 6.15a and 6.15b do the same for Cuyahoga County in 2004. Although a low $R^2$

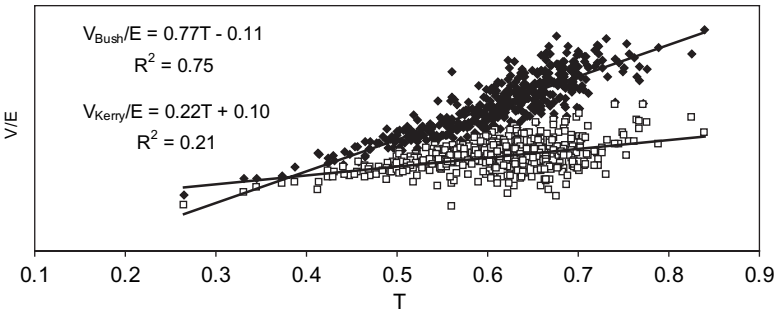


FIGURE 6.13a. *T* versus *V/E*, Franklin County, Ohio, Bush Precincts 2000

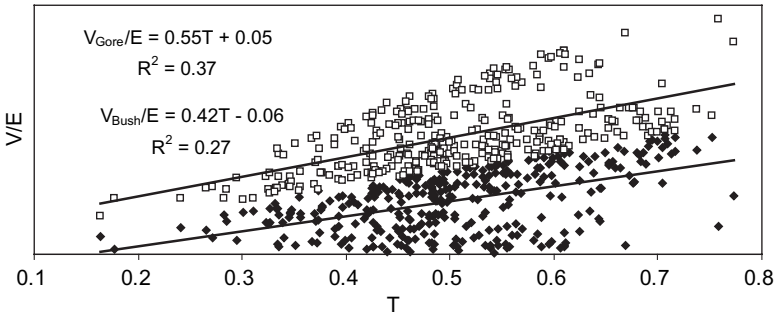


FIGURE 6.13b. *T* versus *V/E*, Franklin County, Ohio, Gore Precincts 2000

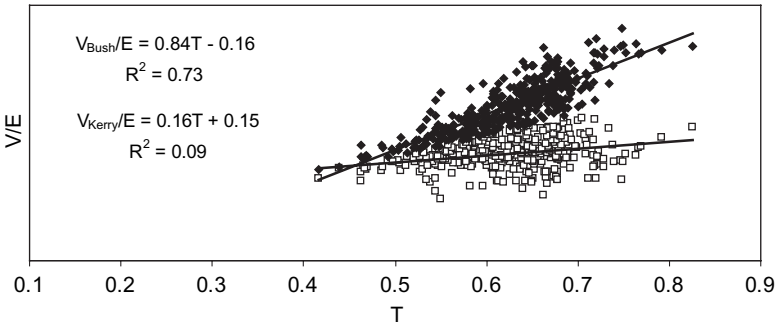


FIGURE 6.14a. *T* versus *V/E*, Franklin County, Ohio, Bush Precincts 2004

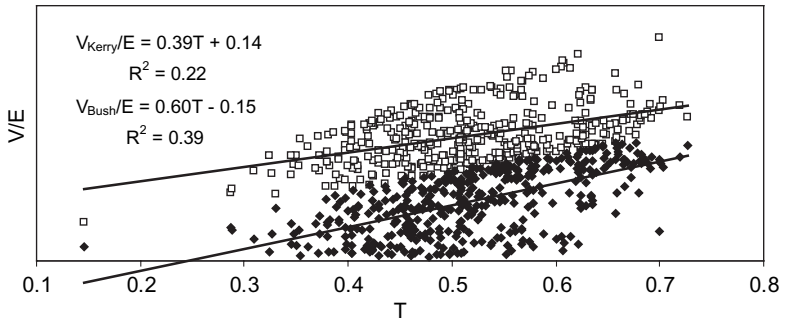


FIGURE 6.14b. *T* versus *V/E*, Franklin County, Ohio, Kerry Precincts 2004

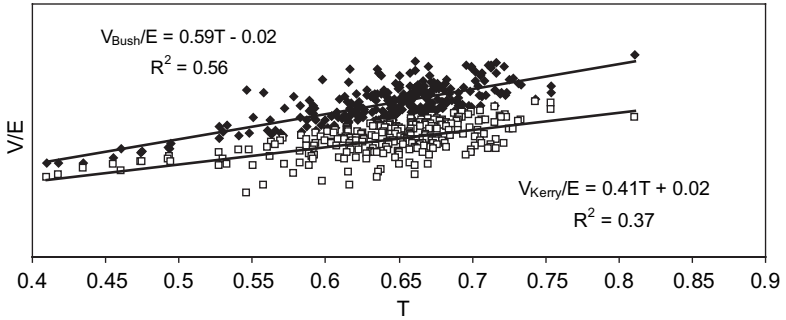


FIGURE 6.15a. *T* versus *V/E*, Cuyahoga County, Ohio, Bush Precincts 2004

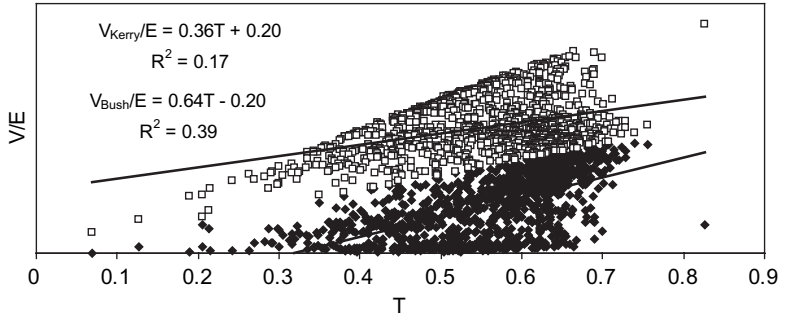


FIGURE 6.15b. *T* versus *V/E*, Cuyahoga County, Ohio, Kerry Precincts 2004

for several of these regressions suggest that there is almost certainly much to learn from a further refinement of the data and analysis, the uniform implication of these figures is not that fraud permeated voting but simply that regardless of whether we look at Democratic or Republican precincts, Republicans gain when turnout increases. It may be that a more refined analysis will uncover some suspicious patterns and relationships, but Figures 6.13a–6.15b make it clear that whatever malfeasance we might find would not compare to what we observe in various Russian regions.

## Hamilton County

To this point we've discovered little of a suspicious nature in Ohio. If voting irregularities existed, they were of too small a magnitude to be detected by our methods. Indeed, both Florida and Ohio demonstrate that short of putting the charges of irregularity leveled by Democrats into the "conspiracy theory" category, we must conclude that our methods and their reliance on aggregate data are ill suited for detecting whatever manipulations might arise in contemporary American politics. But now as a further caution about the application of our indicators, consider Figures 6.16a–6.16c, which summarize our two indicators applied to precincts in Hamilton County (Cincinnati) in 2004. Although the turnout distribution is slightly bimodal in Kerry's precincts (Figure 6.16a), by itself that is insufficient to occasion any suspicions since the wiggle (along with the one in Figure 6.11a) is most

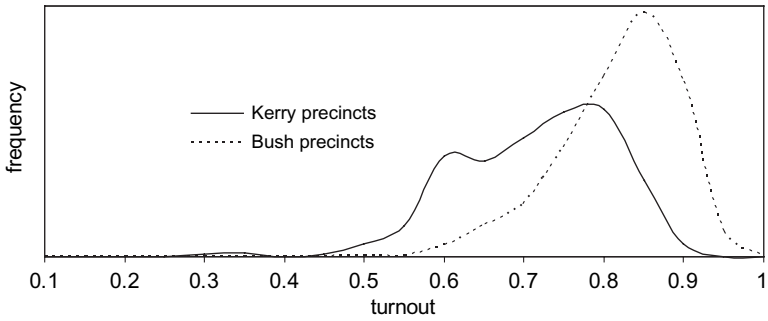


FIGURE 6.16a. Turnout Distribution, Hamilton County, Ohio, 2004

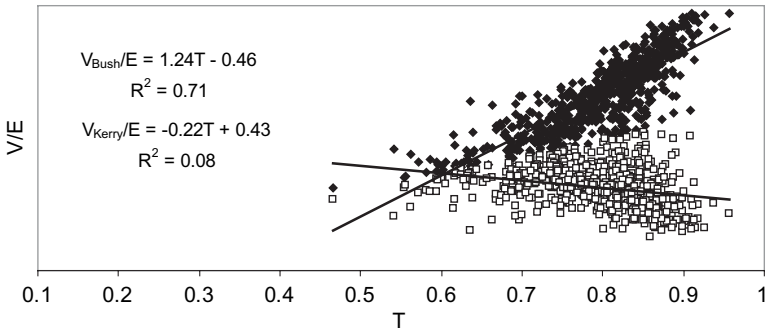


FIGURE 6.16b. *T* versus *V/E*, Hamilton County, Ohio, Bush Precincts 2004

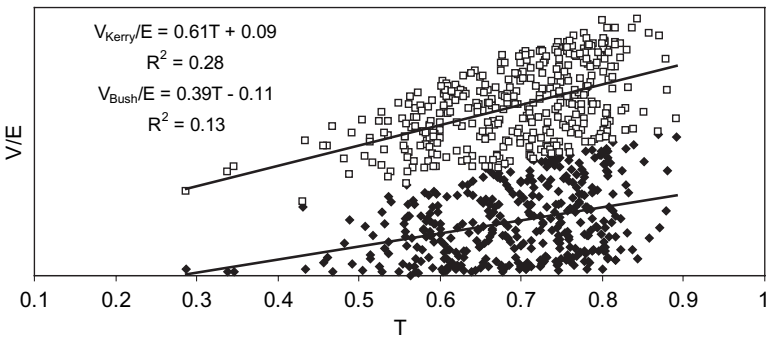


FIGURE 6.16c. *T* versus *V/E*, Hamilton County, Ohio, Kerry Precincts 2004

likely occasioned by mixing predominantly white Democratic precincts and predominantly black precincts. Instead, it is in the precincts carried by President Bush that we see a pattern in the relationship between share of the eligible electorate and turnout (Figure 6.16b) reminiscent of Russia's republics: the coefficient for Kerry is significantly negative and for Bush significantly greater than 1.0. It is only in precincts carried by Kerry that we see a normal relationship.

It might seem, then, that we have discovered the proverbial "smoking gun" that opens the door to the possibility that irregularities of some sort swung Ohio and the election in Bush's favor and perhaps even condemn it to illegitimacy. It is here, though, that we see the need to apply our methods with special care. Hamilton County is

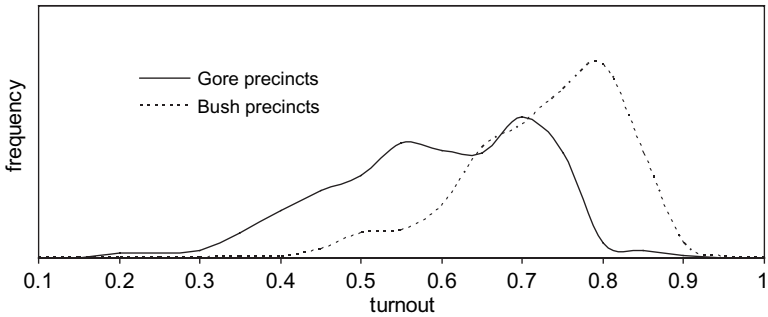


FIGURE 6.17a. Turnout Distribution, Hamilton County, Ohio, 2000

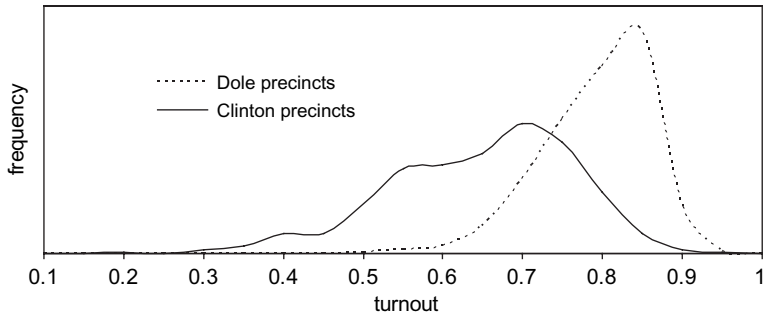


FIGURE 6.17b. Turnout Distribution, Hamilton County, Ohio, 1996

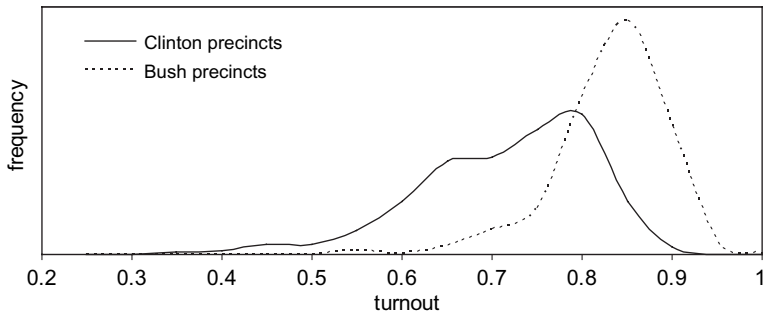


FIGURE 6.17c. Turnout Distribution, Hamilton County, Ohio, 1992

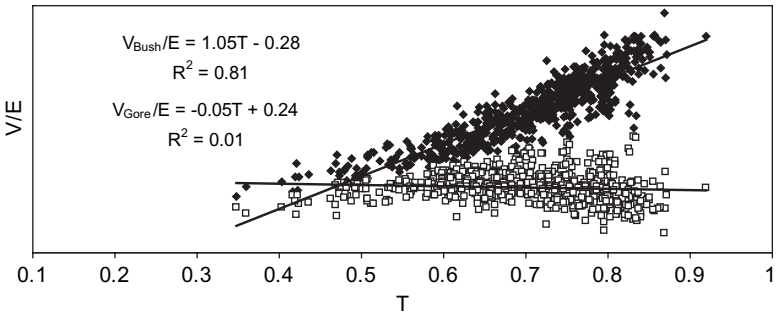


FIGURE 6.18a. *T* versus *V/E*, Hamilton County, Ohio, Bush Precincts 2000

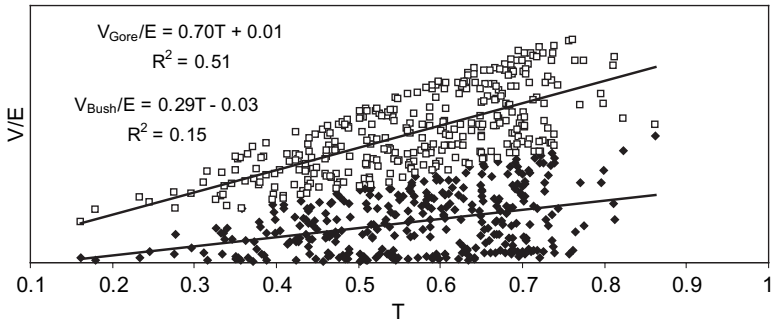


FIGURE 6.18b. *T* versus *V/E*, Hamilton County, Ohio, Gore Precincts 2000

one of those rare examples with a Web site that not only reports its data in readily analyzable form, but which does so for elections as far back as 1992 (as of the writing of this volume). Thus, as Figures 6.17a–6.17c show, the distributions of turnout are nearly identical for every presidential election since 1992, including the wiggle in the Democratic distributions that might otherwise occasion suspicions. Indeed, unless fortified with detailed ancillary knowledge about turnout, we daresay it would be impossible to associate each with the proper year if given all four in a blind "taste test."

More importantly, a nearly identical pattern in the relationship between turnout and the Democratic candidate's share of the eligible electorate in Republican precincts holds for all three elections. First, for 2000, we have Figures 6.18a and 6.18b. The relationship between

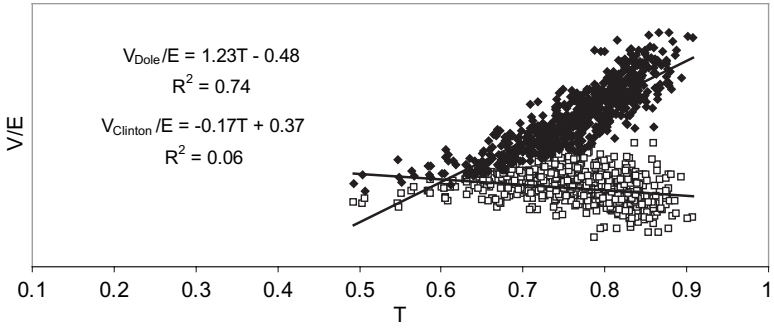


FIGURE 6.19a. *T* versus *V/E*, Hamilton County, Ohio, Dole Precincts 1996

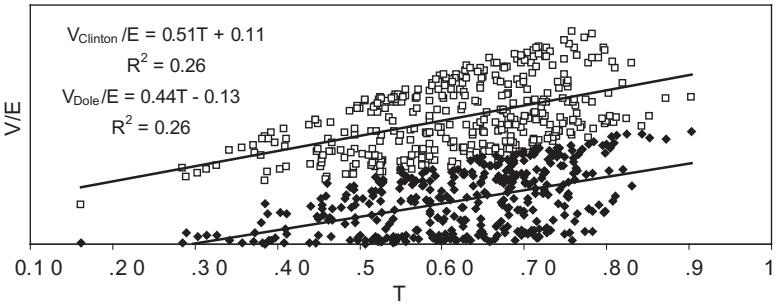


FIGURE 6.19b. *T* versus *V/E*, Hamilton County, Ohio, Clinton Precincts 1996

turnout and share of the eligible electorate in 1996 looks like a repeat of 2004, as shown in Figures 6.19a and 6.19b. And finally, Figures 6.20a, 6.20b, and 6.20c show what we find for the 1992 presidential contest. (Interestingly, notice in Figures 6.20a and 6.20c that despite the negative coefficient for Clinton in Republican precincts, even Ross Perot in 1992 gains votes in those precincts as turnout increases.)

There are two alternative inferences to be drawn from these figures: either Hamilton County's Democratic Party has been hypnotized, drugged, bought off, or otherwise rendered oblivious to significant and historically consistent fraud, or there is a benign explanation for the patterns our analysis reveals. In fact, there exists such an explanation; namely, the heterogeneity of precincts supporting Republican-candidates. First, recall once again our discussion of Figure 4.14b and

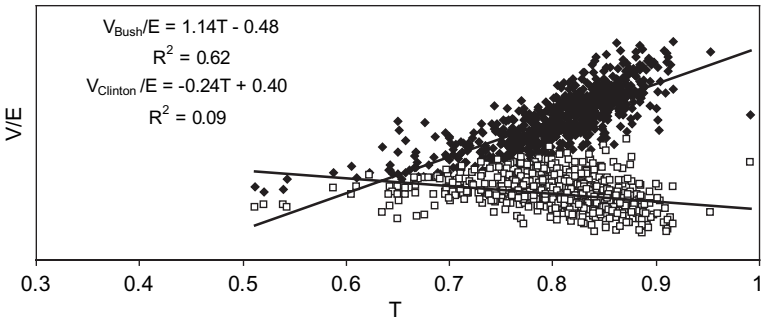


FIGURE 6.20a. *T* versus *V/E*, Hamilton County, Ohio, Bush Precincts 1992

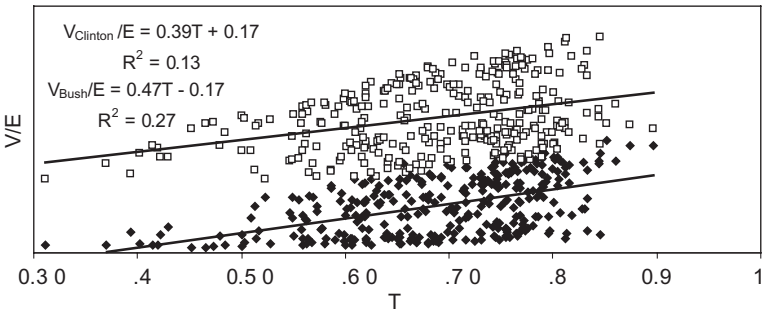


FIGURE 6.20b. *T* versus *V/E*, Hamilton County, Ohio, Clinton Precincts 1992

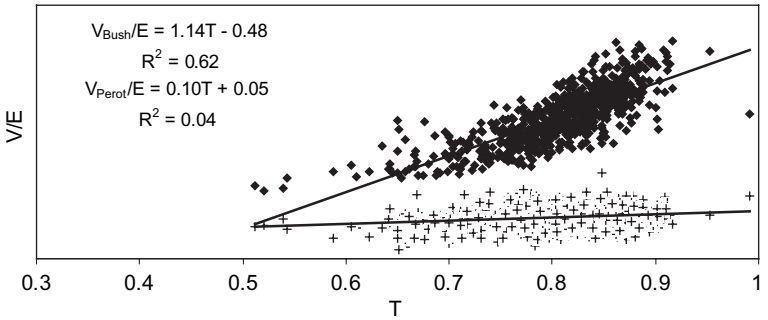


FIGURE 6.20c. *T* versus *V/E*, Hamilton County, Ohio, Bush Precincts 1992

our 2004 analysis of Lviv oblast in Ukraine. Aggregation error arises there if we combine urban and rural rayons or election districts. Here, however, we note that despite the propensity of large cities to vote Democratic, of Cincinnati's 416 precincts in 1992, fully 163 of them (39 percent) gave Bush a plurality over Clinton. So suppose as an admittedly crude reclustering of our data, we separate these 163 precincts from all others that supported Bush and estimate the relationship between $T$ and $V/E$ within each subset. In this case, the regression coefficient on $T$ in Cincinnati for Bush's share of the eligible electorate equals 0.86 ($R^2 = 0.50$, and with the coefficient for Clinton becoming an insignificant $-0.02$ with $R^2 = 0.00$), whereas for the remaining Republican precincts it drops from 1.14 to 1.09 ($R^2 = 0.59$, with the coefficient for Clinton now $-0.11$, $R^2 = 0.05$, up from $-0.24$). Since turnout in Bush's Cincinnati precincts was 78 percent and in the remaining Republican precincts 82 percent and since his share of the eligible electorate averaged 40 percent in those Cincinnati precincts and 46 percent in the ones that remain among precincts that gave him a positive plurality, aggregation error of precisely the sort described for Lviv can account for a part of the coefficient for Bush that equals 1.14 and for Clinton of $-0.24$.

Admittedly, a decline in the coefficient on $T$ from 1.14 to 1.09 might not dissuade people from supposing that we have uncovered the root cause of a suspicious relationship. But much the same story is told by the other elections in our data set for Hamilton County. For example, for 1996 Figure 6.18a reports a coefficient for $T$ for Dole in precincts he carried of 1.23 and for Clinton of $-0.17$. However, if we split off those precincts in Cincinnati carried by Dole, we get

$$V(\textit{Cincinnati, 1996})_{\textit{Dole}}/E = 1.00T - 0.33,\ R^2 = 0.70$$

$$V(\textit{Cincinnati, 1996})_{\textit{Clinton}}/E = -0.01T + 0.27,\ R^2 = 0.00$$

$$V(\textit{other, 1996})_{\textit{Dole}}/E = 1.01T - 0.31,\ R^2 = 0.59$$

$$V(\textit{other, 1996})_{\textit{Clinton}}/E = -0.12T - 0.33,\ R^2 = 0.04$$

In 2000 we get

$$V(Cincinnati,\ 2000)_{Bush}/E = 0.83T - 0.16,\ R^2 = 0.75$$

$$V(Cincinnati,\ 2000)_{Gore}/E = 0.15T + 0.14,\ R^2 = 0.11$$

$$V(other,\ 2000)_{Bush}/E = 1.05T - 0.27,\ R^2 = 0.80$$

$$V(other,\ 2000)_{Gore}/E = -0.05T + 0.24,\ R^2 = 0.01$$

Finally, for the case that initially drew our attention to regression coefficients outside of the interval [0, 1], 2004,

$$V(Cincinnati)_{Bush}/E = 0.88T - 0.23,\ R^2 = 0.72$$

$$V(Cincinnati)_{Kerry}/E = 0.12T - 0.22,\ R^2 = 0.04$$

$$V(other)_{Bush}/E = 1.22T - 0.43,\ R^2 = 0.71$$

$$V(other)_{Kerry}/E = -0.20T + 0.40,\ R^2 = 0.06$$

Of course, the coefficients on $T$ for Republican candidates among their precincts outside of Cincinnati still exceed 1.0, and here the analyst has two choices. The first is to join those conspiratorial theorists who are still counting votes in Florida and Ohio. But if one chooses to draw an insidious inference from the coefficients here, one also has to tell us why the Democratic party has been so incompetent over two decades as to not identify and put a stop to any alleged falsifications and manipulations. The more reasonable hypothesis is that there exists a further natural refinement of the data that would move both pairs of coefficients into the interval [0, 1] – that "Cincinnati" is only an imperfect proxy for whatever heterogeneity and relevant unobserved variables reside in the data.

The critical word here is "natural." Fair and objective analysts are not free to simply regroup data at will in order to eliminate suspicions of fraud or to generate suspicions when that suits their purpose. We suspect, in fact, that there is a more justifiable definition of subgroups in

Hamilton County (or, equivalently, a combination of proxy variables used as controls when regressing *V/E* against *T*) other than the one we consider here, where by justifiable we mean one rooted in some theory of voting behavior or in the legitimate differential organizational skills of the parties and candidates. If, for example, a party has what experts deem a well-functioning organization in some precincts but not in others, then it may make more sense to define clusters on that basis rather than rely on simple geography or who won a plurality where. In Lviv oblast we have good reasons for supposing that village and city precincts, taken separately, are relatively homogeneous – the legacy of Soviet society wherein people were not allowed to segregate according to income. Geographic homogeneity, however, is hardly a characteristic of the United States so that even a collection of precincts that give the same party a plurality in a presidential election can have quite different socioeconomic characteristics and quite different relationships between turnout and a candidate's level of support.

That there is considerable room for errors of ecological correlation in Hamilton County is revealed by the considerable variation that consistently exists in *V/E* within specific townships of the county. For example, in Green, the share of eligible electorate voting for Bush in his precincts varies between 43 and 77 percent, in Delhi it varies between 40 and 74 percent, and in Anderson between 33 and 73 percent. Moreover, among all precincts outside of Cincinnati carried by Bush, his share of the eligible electorate varies between 22 and 86 percent, whereas even among Bush's precincts in Cincinnati proper, the share of the electorate voting for him varies between 31 and 59 percent. Naturally, we expect variation, but such wide ranges within individual townships and across townships suggest that considerable heterogeneity resides in the data even after we separate Bush from Kerry precincts in Cincinnati from the rest. Minimally, at least, in any application of our indicators, the analyst needs to verify that there is not some natural and benign demographic explanation for the coefficients he or she recovers before proclaiming fraud.

## 6.5 CONCLUSIONS

If anything, Hamilton County underscores the fact that forensic indicators need to be informed by a detailed understanding of the data

at hand, and it may be that all one indicator or another can do in offering probable cause is provide a challenge to the expert in the revealed patterns in the data that require explanation. Here, though, we want to emphasize that we make no claim that the forensic tools set forth in this volume are the only ones that can be developed or that there might not be better ones. We note in this regard Sergei Shpilkin's observation about the distribution of turnout in Russia in 2008 wherein he finds an unusually high number of precinct statistics that end with five or zero.[2] Figure 3.11 applies Shpilkin's insight to Russia's 2007 vote and suggests that this approach might add to our arsenal of indicators and even help differentiate between, say, stuffed ballot boxes and forged election summaries.[3] Nor would we argue that the application of our methods cannot be refined with better data than we treat here – data that include a wider variety of demographic measures and, perhaps more importantly, a record of the precincts or voting districts that were and were not subject to meaningful external scrutiny during the actual balloting and vote counting. If our analysis of the differences between Russia's oblasts and autonomous republics, or between the urban and rural parts of Lviv, or between Republican districts in and out of Cincinnati shows anything, it is that the applicability of our indicators depends critically on the extent to

[2] See *TimesOnline*, April 16, 2008. See also http://freakonomics.blogs.nytimes.com/2008/04/16/russian-election-fraud/.

[3] We emphasize that this indicator must be approached with care. An indicator that looks at patterns in the digits requires a model of how fraudulent numbers might be generated. Absent that mode evidence of the type Shpilkin refers to, as well as Figure 3.11, can only give probable cause for looking at other indicators. It also follows that the absence of an unusual pattern in digits cannot be taken as exculpatory. If, for instance, the number voting is entered onto a protocol without reference to ballots cast, then even if that number ends with zero or five, there is no guarantee that turnout percentages or percentage voting for a candidate will end with any specific digit. However, we can imagine circumstances in which such an indicator can help distinguish between stuffed ballot boxes and falsified protocols. Although it is difficult to imagine an election commission placing an order for, say, 6,872 ballots as opposed to 6,750, 6,900, or even 6,825, once the ballots are distributed and mixed with legitimate votes, it becomes less likely that we can find any pattern in the numbers. However, if protocols are filled out without reference to legitimate ballots, we can only guess at the heuristic officials will employ when entering fictitious numbers. If there is no need to disguise one's actions, then hypothesizing a heuristic that assigns a greater than random probability to numbers ending in zero or five is as good as any other and is perhaps the best. For a rigorous application of these ideas see Berns and Scacco (2008).

which the data at hand matches the underlying assumptions of a model of a free and fair contest. More specifically, our indicators assume homogeneity and the absence of certain types of intervening variables and look for deviations from this assumption occasioned by illegal manipulations of the vote. It is critical, then, that the data, absent fraud, satisfy this assumption or violate it in known ways. Put simply, we need to know beforehand what our data should look like if fraud were wholly absent.

This requirement places prior studies of the correlates of voting and an understanding of the substantive context of an election at the center of any study of fraud. This is true even if fraud was not the focus of those earlier studies. Our forensic indicators seek, in effect, to detect nonhomogeneity in the data occasioned by various forms of electoral malfeasance. But there are other potential confounding sources of heterogeneity, and it is essential that we know these sources beforehand. Thus, while some might interpret this volume as an argument against studying voting in Russia or Ukraine using the tools and insights developed for understanding elections and voting in fully developed democracies, precisely the opposite it true: with the heightened potential for fraud and increased incentives for the excessive application of administrative advantage, it is perhaps all the more important that we learn what motivates voters there and the likely form of an undistorted outcome.

Our analysis of the Ukrainian oblast of Donetsk in 2007 provides an especially poignant illustration. First, the data there in the relationship between turnout and a party's share of the eligible electorate shows what might be observed if an analysis were linked with data about the allocation of election observers whose mere presence discourages fraud. Second, the pattern we do observe – the abnormally high level of support given to a specific party, the SPU, in but a subset of precincts – becomes understandable when we refer to Hinich et al.'s (2008) analysis of a preelection poll that estimates the perceived spatial positions of parties and the coalitional imperatives that arise from those positions. Among the things revealed is the fact that voters were likely to treat the Party of Regions and Ukraine's Communist Party as substitutes for the SPU, and that voters who support Yanukovich as prime minister on average preferred Regions and the CPU to the SPU. This led to a ready conjecture as to why fraud was not spread

uniformly (and perhaps undetectably) across all of Donetsk; namely, those with an interest in artificially bolstering the SPU's vote failed to anticipate the potential for strategic voting. Unfamiliar with a free and fair vote, they failed to appreciate the likelihood that a good share of SPU's support would switch to Regions or the CPU to guard against the possibility of casting a wasted vote for a party that would fail to meet the threshold for representation. Absent this appreciation, they overestimated the SPU's vote and were compelled at the last minute to commit a relatively crude and detectible form of fraud in the form of transferring votes to the SPU from another member of their coalition.

Our discussion of Donetsk in 2007 illustrates another critical component of any satisfactory analysis. First, one refinement of our methods that ought to be pursued pertains to estimating the relationship between *V/E* and *T*. Surely, a simple regression – even one in which the data are divided according to one or more proxy variables to approximate homogeneity – can be refined with more complex and theoretically justified specifications. Here again theories of voting in a free and fair contest, along with some substantive expertise, need to be more formally incorporated in a specification of an econometric model. Donetsk, though, illustrates the value of looking at something more than regression coefficients and $R^2$s. We also need to look at residuals – the distribution of the data around an estimated relationship. Keep in mind that in 2007 the coefficient on *T* falls in the interval [0, 1] and that Donetsk is hardly unique in yielding a low value for $R^2$. Instead, it is the peculiar pattern of the residuals – the falling snowflakes – that occasions probable cause for suspecting fraud when we combine that pattern with what we know about the motives of political elites in the region.

Refining our methods and accommodating substantive expertise also requires that we pay close attention to the types of elections to which we apply any set of forensic indicators. The data in this volume illustrates three distinct types. The first is an election that is competitive across the data. With a few exceptions (e.g., San Francisco in 2004), data from the United States fits this category. The second type is an election that is noncompetitive locally, but competitive nationally. Ukraine's three elections – 2004, 2006, and 2007 – fit this description. Although the 2004 vote was competitive nationally, Yushchenko was virtually unchallenged in Lviv and Yanukovich unchallenged in

Donetsk. The third type is illustrated by Russia and exemplified by Tatarstan. There, at least since 2000, elections are neither competitive nationally nor regionally and are dictated instead by autocratic national and regional bosses. Of these three types, our methods find the greatest challenge in terms of occasioning probable cause for detecting significant fraud when it exists within the second class.

In the first type, of course, we expect fraud and corruption to be driven from the system. But once suitable accommodations are made for the natural heterogeneity of the data, fraud should be easy to detect since our expectations about vote flows, turnout distributions and relationships between turnout and absolute shares of the vote are for the most part derived from a description of elections of this type. In the third type, elites care little about the electorate's preferences and choices, since it is they who will dictate the final tally of votes. Thus, as in places like Tatarstan and Baskortostan, as well as throughout Russia since Putin, the evidence for fraud becomes unambiguous. The middle category, in contrast, can give complex and at times conflicting signals about fraud. As the distributions of turnout in Figures 5.6a (Lviv) and 5.10 (Donetsk) reveal, those distributions can deviate from simple Gaussian forms (multimodal in Lviv, and upturned right tails in Donetsk) even though there is no other basis for supposing ballot stuffing. In both oblasts (as well as others in Ukraine, each to a different degree) voters are not simply casting a vote for or against a specific candidate or party so much as they are casting votes about differences in culture, history and their view of their country's place in the world. Thus, regardless of the presence or absence of competitiveness locally and regardless of the machinations and manipulations of elites, a good many citizens will vote, in effect, to wage "democratic war" against those who do not share their views. In this instance, we may see not only skewed distributions of turnout but accentuated relationships between turnout and a candidate or party's share of the electorate.

The reader, then, should not be lulled by the ease with which we detected fraud in the second round of Ukraine's 2004 presidential contest and its virtual absence thereafter. In addition to the magnitude of the fraud committed in that second round, the "perfect social science experiment" presented us by Ukraine is unlikely to be replicated elsewhere. Even still, if the reader senses from time to time some

ambivalence about how we interpret the data from Western Ukraine – Lviv in particular – then their sense of what we have written is correct. In terms of trying to explain some of the patterns we find, short of proclaiming fraud or drawing parallels with some of the differences between urban and rural Russian regions, we are able only to speculate, for instance, about why turnout differs so markedly at times between urban and rural rayons or precincts in Ukraine (again, Lviv in particular). Unlike what we observe in Donetsk or Luhansk in 2004, in Tatarstan and the other Russian republics throughout their post-Soviet history or in Moscow's Presnya rayon in 2004 and 2007, parts of Western Ukraine (as well as parts of the East) present us with ambiguous signals that allow for any number of benign explanations. All of this, of course, is to say once again that our methods can at best augment the studies of those with substantive knowledge and first-hand experience.

Any further refinement of fraud's indicators, though, requires walking a fine line. On the one hand, we want to be methodologically correct, where the conceptualization and application of indicators is consistent with the formal details of whatever models we have of a free and fair contest and with whatever assumptions we make about underlying statistical error. On the other hand, we want to avoid becoming immersed in arcane statistical and econometric issues wherein our analyses become little more than academic exercises and lose whatever impact they might have on government officials and society generally. Our discussion of how we estimate vote flows illustrates one (unavoidable?) extreme whereas we have deliberately tried to keep our discussion of turnout and the relationship between *V/E* and *T* simple. Whether we have been too simple is a judgment left to the reader.

Regardless of the avenues that open for future research, this much is clear: methods exist for the detection of election fraud using official data, at least when that fraud is especially egregious as it is in Russia and was in Ukraine. Nevertheless, the further development and application of forensic indicators must avert two specific dangers. First, as our analysis of Hamilton County, Ohio, shows, good data (i.e., fraud-free data) can be made to look bad just as, we suppose, bad data can be made to look good. Econometric estimates need to be treated with care, and as with any statistical methodology, there is no

substitute for analysis, reanalysis, re-reanalysis, and an incessant digging into the numbers. Returning to the parallel we draw in Chapter 1 with criminal investigations, all evidence needs to be collected and dissected with no hypothesis accepted or rejected until experience and the data suggest there is little more to be learned. And whatever it is we think we have learned needs to be consistent with what we also thought we knew beforehand, or good reasons given for revising our beliefs. This is the art of data analysis and but a restatement of our argument that there is no black box – no index or magical configuration of numbers – into which one inputs the data and out of which emerges a grading of an election's legitimacy.

There is, though, a second and perhaps more menacing danger: namely, the counterresponses of those intent on committing fraud. In Ukraine in 2004, Yanukovich's minions and Putin's election mechanics orchestrated fraud in a clumsy and transparent way, allowing even the country's official Central Election Commission Web site to report instances of turnout in excess of 100 percent. The outcome was not merely an embarrassment to Putin and Yanukovich, but alerted the world to the excesses to which post-Soviet apparatchiks were willing to go in perverting democracy. In 2007, in contrast, votes were not simply added to the SPU's Donetsk totals in the attempt to push it past the 3 percent threshold for parliamentary representation, but the books were balanced by subtracting votes from Yanukovich's Party of Regions. Since their experience in 2004 underscored the fact that fraud in the form of stuffed ballot boxes might be too easily detected, they tried a different approach. But here again fraud's perpetrators left identifiable fingerprints. While Regions outpolled the SPU by 20 or 30 to 1 throughout most of Donetsk, they then had the SPU pull even with Regions and even outpoll it by a factor of 15 to 1 in a number of late-reporting precincts. Although this allows two indicators to look normal – the distribution of turnout and the flow of votes nationally – it left fraud's perpetrators vulnerable to being discovered by a third.

The suggestion here, then, is that those who are intent on committing fraud will become increasingly adept at disguising their actions. Indeed, had Yanukovich's allies in Donetsk laid better plans in 2007, they might have spread their manipulations across all precincts, thereby leaving their crime undetected and even undetectable.

All we might have had then to raise suspicions is a less-than-wholly-incriminating statistical argument about differences between Luhansk and Donetsk. It is not unreasonable to suppose, moreover, that the current Russian regime is even now assessing ways to upgrade their democratic credentials for a gullible West while insuring specific outcomes in any future Duma and presidential contest without leaving the same fingerprints of fraud as in the past. Fraud's perpetrators can, of course, always take advantage of the fuzzy boundary between intimidating voters and merely good hard campaigning and the softer application of "administrative advantage." More problematical, though, is that we can readily imagine an autocratic state such as Russia centralizing its electoral system further with a more refined use of the internet whereby fraud is perpetrated according to fixed formulas designed specifically to thwart econometric detection. For example, it most likely wouldn't take more than ten lines of code to imagine individual precincts in Moscow's Presnya rayon reporting their results electronically to the regional center wherein final tallies are altered to yield the requisite vote share for the regime's candidate or party but in a manner designed to avoid detection by any of our forensic tools. And is it so difficult to imagine a regime such as Russia's embracing electronic voting in order to portray itself as the frontier of technology and democratic process, but where that embrace is designed to achieve a more efficient form of central control and usurpation of democracy?

With this warning in mind, we conclude by going full circle with an editorial comment about Russia. If our analysis establishes anything it is that the country is not a democracy, transitional or otherwise. The election data it generates leaves us with more than probable cause for believing that it has moved away from the democratic ideals that flourished briefly in the 1990s. Instances of fraud, once confined to its ethnic republics in 1990s, now encompass all of Russia, from Kazan to Moscow. Its politics, moreover, have converged on a party system modeled after the old CPSU wherein Putin, as head of United Russia, can maintain control while passing his protégé off as head of state. Some may regard this as a harsh judgment, but any objective assessment of Russia's electoral system tells us that allowing Putin (or Medvedev) to stand as a peer with the leaders of the industrialized democracies is an undeserved gift. If Russia warrants inclusion in this

club, then why not China, which neither pretends to be something it isn't nor demands that we accept a lie as the truth. Russia pretends to be a democracy in much the same way the Soviet Union did, where the words of election commissars today merely echo the proclamations of Andrei Vyshinkys. By acquiescing to this charade we undermine our legitimacy when encouraging democracy elsewhere. It is time to acknowledge what Russia is and to do what we can to keep its "autocratic disease" from spreading. The spread of that disease is what Putin sought when sending his election mechanics to Kiev in 2004 in a failed attempt to steal the Ukrainian presidency for a Russian-backed candidate. That plan was foiled by the Ukrainian people, who were encouraged by a West that refused to treat a fraudulent outcome as legitimate. However, we are reminded of Winston Churchill's remark that if the world were a hotel, the Russians would be walking the halls checking the doorknobs. Since it isn't in the character of the current regime to resist pressing on with what it attempted in Ukraine, the question is whether the West will, when confronting Russia's *Alice in Wonderland* "democracy," continue to pretend that flamingos are croquet mallets and the Queen of Hearts a benevolent monarch.

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