Determinants of Electoral Malpractice in the Post-Soviet Area: A Fuzzy-Set Analysis

Abstract

Despite a generally significant degree of malpractice in elections in the post-Soviet area, the authorities of most post-Soviet states consistently invite the OSCE to observe the elections. Roughly since the turn of the century, assessment forms filled out by observers in forty-six elections have contained a standardized question about the quality of election-day procedures, allowing for a comparative study of electoral malpractice in the region. The paper performs a series of fuzzy-set analyses to come to a closer understanding of the conditions that lead to a high degree of malpractice in the post-Soviet area. In particular, the analysis scrutinizes five conditions that have previously been identified as relating to electoral malpractice in general or specifically in the post-Soviet area: the degree of competition in elections, the level of competitiveness in the political systems, the presence of OSCE observers, the presence of observers of the Commonwealth of Independent States, and disproportionality in the translation of votes into seats. The analysis suggests that elections with a relatively narrow margin of victory and elections held in a relatively competitive political environment tend to feature less electoral malpractice on election day. The analysis however fails to find conditions that are consistent with the outcometo a degree where it is reasonable to speak of sufficient or near-sufficient conditions, indicating that the circumstances that relate with electoral malpractice are highly diverse.

Max Bader
University of Munich
max.bader@gsi.lmu.de

Introduction

Over the course of the twenty years of post-Soviet independence, elections that have been organized in the post-Soviet states (except for the Baltic states) have overwhelmingly taken place in an undemocratic context. Of the twelve post-Soviet states, only Moldova and Ukraine have organized one or several elections that have been assessed by the observer missions of the OSCE as being in line with international standards (Herron 2009: 11). The substandard elections can be roughly divided into three types: elections in which no opposition candidates or parties are allowed to run (primarily in Turkmenistan and Uzbekistan); 'hegemonic authoritarian' elections in which at least part of the opposition can participate but the margins of victory for the regime candidate or party is large and predetermined (mostly in Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Russia under Putin, Tajikistan), and 'competitive authoritarian' elections in which there is substantial competition between regime forces and the opposition despite a purposefully distorted playing field at the benefit of the regime forces (Armenia, Georgia, Russia under Yeltsin, and some elections in Moldova and Ukraine).

Regardless of the resolve of incumbent forces in the post-Soviet states to win elections by unfair means, they allow for the observation of their elections by international observer missions organized by the OSCE. As participating states in the OSCE, the post-Soviet states have an obligation to invite OSCE observers to their elections, and they have typically acted in accordance with the obligation. The legislative election of 2007 and the presidential election of 2008 in Russia were not observed by full-scale missions due to a disagreement with the OSCE (Peuch 2007). A number of elections in Turkmenistan, Uzbekistan, and previously in Belarus, have not been visited by short-term observers because the conditions for democratic elections were found to be too obviously lacking. Almost all other elections in the region since the mid-1990s, however, have been observed by missions that comprise between one hundred and a thousand short-term observers in addition to long-term observers. The primary purpose of the observation missions is to assess the elections for their compliance with the international standards as formulated in the 1990 Copenhagen Document and subsequent OSCE documents. Approximately since the turn of the century, the forms that observers fill out in each polling station that they visit contain a standardized question regarding the perceived quality of voting and counting procedures in the polling stations. By the end of 2011, the question about the quality of election-day procedures has been answered by observers in forty-six elections, allowing for a comparative study of electoral

malpractice in the region. Accordingly, this paper performs a series of fuzzy-set analyses (Ragin 2000; Ragin 2008a) to come to a closer understanding of the conditions that lead to a high degree of malpractice in the post-Soviet area. In particular, the analysis will scrutinize four conditions that have been identified in scholarly and non-scholarly literature as possibly relating to electoral malpractice in general or specifically in the post-Soviet area: the degree of competition in elections, the level of competitiveness in the political systems, the presence of OSCE observers, and the presence of observers of the Commonwealth of Independent States (CIS). An initial analysis incorporates forty-six cases - both legislative and presidential elections - after which separate analyses are conducted for legislative elections (n=28) and presidential elections (n=18). Analyses are performed for legislative elections with and without the inclusion of an additional condition - the share of seats that are distributed through a majoritarian electoral formula.

In turn, the paper introduces the outcome and the conditions that are probed in the fuzzy-set analysis, discusses the calibration of the raw data into fuzzy membership scores, and walks through the actual performance of the fuzzy-set analysis. The conclusion summarizes and reflects on some dilemmas of QCA applications.

The outcome

On election day, short-term observers of the OSCE in teams of two visit anything between five and fifteen polling stations in each of which they spend roughly half an hour. During this time, they fill out a form which contains a few dozen questions about the organization of the election in the polling station and about the voting process. One crucial question on the form asks the observers to give an assessment of the overall quality of voting procedures, with four possible answers: 'very bad', 'bad', 'good', and 'very good'. At the closing of the polling station, observer teams stay in one polling station to observe the counting process. On a separate form with questions about the counting process, observers again are asked to give a qualitative assessment of procedures, with the same four possible answers.

The observer missions, consequently, collect a large number of assessments on the quality of voting and counting procedures at the precinct level. Regarding voting procedures, the number of assessments is equal to the total number of polling stations visited by the observer teams. Since counting is observed in only one polling station per observer team, the number of assessments of counting procedures is simply equal to the number of observer

teams. Altogether, the number of assessments on voting procedures typically runs in the thousands, while the number of assessments of counting procedures is anything between fifty and several hundred.

Roughly since the turn of the century, the final reports of the observer missions almost always contain information about the percentage of observer teams who have assessed voting and counting procedures as 'very bad' or 'bad', and 'good' or 'very good', respectively. For example, the final report of the 2010 presidential election in Belarus notes that 'the overall process was assessed as 'good' to 'very good' in 94 per cent of the observed polling stations' and that 'observers evaluated the overall conduct of the vote count as 'bad' to 'very bad' in 71 (45 per cent) of polling stations visited' (OSCE/ODIHR 2011: 20). The same figures are sometimes also contained in the preliminary statements of the observer missions that are issued on the day after the election.

The assessment of voting and counting procedures is probably weighted heavily in the overall assessment by the OSCE of the elections. In the final reports of the observer missions, however, the percentages of positive and negative assessments are tucked away in the second half of the reports and not given much prominence. Obviously, the figures do not present a full picture of the quality of the elections or their adherence to international standards, as much manipulation and malpractice often takes places prior to election day. Stages in the electoral process that can be manipulated, for example, include the drafting and amending of legislation, the registration of candidates, the drawing of district boundaries, the composition of election commissions, media reporting, and the handling of complaints and appeals after election day (Schedler 2002). The final reports from the observation missions provide much description regarding all these stages, but the only data that are both non-descriptive and constantly reported are the figures on election-day irregularities. A second comparative advantage of the data, on the condition that we can assume that they are truthfully reported, is that they are not affected by possible political considerations. By contrast, it is often asserted that the spoken and written statements of the OSCE missions about the overall compliance of an election with international standards are on occasion or even systematically influenced by political motives (Hutcheson 2011; Lichkova 2007). Finally, it is important to realize that not all electoral malpractice amounts to fraud. Among different forms of electoral malpractice, a distinction can be made between deliberate efforts to influence the outcome of elections, or fraud, and

unintentional violations of standards that can be generally ascribed to a lack of professionalism (López-Pintor 2010: 8).

Regarding voting procedures, the most common irregularities, according to OSCE reports, include the presence in polling stations of unauthorized persons, multiple voting - individuals being given the opportunity to vote more than once - and ballot stuffing. Other irregularities that the final reports often mention are group voting and open voting, which both violate the principal of secrecy of the vote, and proxy voting, whereby a person (unlawfully) votes on behalf of someone else. Among the irregularities that are most often observed during the vote count are, again, the presence of unauthorized persons, tampering with results protocols - the changing of figures on those protocols - and the failure to publish the results at the polling station immediately after the count as well as the refusal to distribute copies of the result protocols to observers. While some of these irregularities may result from a lack of professionalism on the part of members of election commissions, most irregularities that are mentioned in the OSCE reports point to deliberate efforts to corrupt the election process. Moreover, there is a clear correlation between the scores for the quality of election-day procedures, and the overall assessment of an election by the OSCE.

In this paper, we are interested in the conditions that lead to electoral malpractice. For the fuzzy-set analysis, electoral malpractice is operationalized as the mean of the percentages indicating negative assessments of voting and counting procedures. To establish the electoral malpractice scores, we first take the mean of the scores indicating positive assessments of voting procedures and counting procedures that are reported in the final reports of the observation missions. Since this combined score indicates the share of 'good' and 'very good' assessments for procedures, subtracting the score from 100 yields the score that denotes 'bad' and 'very bad' assessments. These latter scores are reported in the 'electoral malpractice' column of the raw data table at the end of the next section.

The conditions
The literature about undemocratic elections in general and in the post-Soviet area in particular yields a number of suggestions and hypotheses regarding the determinants of electoral malpractice.

Competitiveness

The most obvious condition that may be thought to relate to electoral malpractice is whether a regime is democratic or autocratic: electoral malpractice should be more common in autocracies that organize elections, than in consolidated democracies. With the partial and arguable exception of Moldova and Ukraine during some of the years that are covered in this study, none of the states whose elections are under consideration here have been properly democratic since independence. Most regimes instead stretch along the subtypes of electoral authoritarianism, with 'hegemonic authoritarian' arguably being the most appropriate label for regimes which allow opposition in elections but are successful in shutting off real competition, and 'competitive authoritarianism' the best label for regimes with real but highly unfair electoral competition (Howard and Roessler 2006). While there is thus little variation between the regimes in that hardly any of them can be considered properly democratic at any time, there is considerable variation in the degree to which the political space is opened up. This variation is best captured by the 'political rights' component of the Freedom House Freedom in the World index.[1] Scores for 'political rights' range between 1 and 7, with 1 indicating full respect for political rights, and 7 indicating a total absence of political rights. While scores of 1 and 2 in practice are congruent with democracy, the 46 cases in this study all range between 3 and 7. A score of 6 for the case 'Kazakhstan 2005' in the raw data table for example indicates that the political rights score for Kazakhstan in 2005 was 6. Ten elections among the forty-six cases were conducted in a political context that according to Freedom House corresponded with a score of 3 for political rights. These elections featured a pluralist field and no excessive constraints on receiving registration for candidates and parties. Three elections, all in Belarus, on the other hand took place in a context in which, according to Freedom House, political rights were grossly denied.

Competition

While competitiveness refers in this study to the general openness of the political arena, competition here concerns the margin of victory in elections. As the scores for 'competition' and 'competitiveness' in the table with calibrated values demonstrate, elections in a competitive political context often also feature relatively high competition, but competition far from always goes together with competitiveness. This pertains most markedly to some elections in

---

[1] The Freedom House Freedom in the World index can be consulted at
http://www.freedomhouse.org/template.cfm?page=15.

Georgia that took place in a context that allowed for political pluralism but nonetheless saw very large margins of victory. Vice versa, elections that are held in a strictly uncompetitive political context in this study's sample invariably feature a low degree of competition. Altogether, in thirteen out of the forty-six cases in this study's sample, the values for 'competition' and 'competitiveness' diverge considerably.

Different and in part opposing views exist on the relation between electoral malpractice and electoral competition. A first intuition dictates that when elections are close -that is with a high degree of competition- undemocratic incumbents will resort to widespread fraud to ensure victory (Lehoucq 2003). If the margin of victory is large, by contrast, then incumbents will keep away from fraud. This may be particularly so for hegemonic authoritarian regimes that firmly control the political playing field and do not allow a meaningful degree of competition in elections. The little political opposition that exists under the hegemonic authoritarian regimes of Azerbaijan, Belarus, Kazakhstan, Russia, and Tajikistan is fragmented and hapless and in no situation to pose an electoral threat to pro-presidential forces. Besides, the leaders of the regimes may calculate that much of the electorate that nourishes anti-regime sentiments is unlikely to turn out in elections. Another reason why especially competitive authoritarian regimes have an incentive to refrain from extensive and large-scale fraud on election day is the risk of post-election protests. A significant share of regime changes inside and outside the post-Soviet area in recent decades has transpired in the form of electoral revolutions (Bunce and Wolchik 2006). In these revolutions, the popular perception that the regime has committed fraud in elections, or has even stolen elections, triggers mass protests which eventually bring an end to the regime. Three such revolutions in recent years in the post-Soviet area - in Georgia in 2003, in Ukraine in 2004, and in Kyrgyzstan in 2005 - gave rise to the belief that a new momentum for democratization was under way, and made leaders in the region aware of the risks that fraudulent elections entail. The circumstance that the three revolutions happened to competitive authoritarian regimes rather than to hegemonic authoritarian regimes was not by chance. Among the 'factors of success' of the revolutions identified by McFaul (2005: 7) were the presence of a relatively strong opposition movement and some independent media through which the opposition was able to spread its message. These two elements are common under competitive authoritarian regimes, while political opposition is weaker and the media environment more constrained under hegemonic authoritarianism. Competitive authoritarian regimes therefore seem especially at

risk of facing the type of protests that can lead to electoral revolutions if they commit fraud. This poses a dilemma to authoritarian regimes that organize competitive elections as those elections by definition feature comparatively small margins of victory, and committing some degree on fraud on election day may be necessary to ensure regime survival.

A reason to believe that uncompetitive elections may feature a high level of fraud is that a large margin of victory in hegemonic elections in itself contains benefits for the regime. A big electoral win allows authoritarian regimes 'to project an image of invincibility and strength' (Magaloni 2008: 729). The circumstance that large-scale fraud is committed, often in a quite visible way, can further reinforce this image: a regime that commits fraud with impunity now may be unlikely to be overturned in next elections. The signal of strength can have beneficial effects for the regimes at different levels: it can convince current regime insiders to stay loyal with the regime; it can discourage the opposition from further engaging in opposition activity (Magaloni 2006); and it is likely to lead to lower turnout, especially among voters who are inclined to vote for the opposition (Simpser 2004). Because of these benefits, authoritarian regimes are thought to rig elections even when they may not need to do so to win them. The thesis that committing fraud with impunity enhances the perceived strength of a regime can explain why hegemonic regimes do fairly little to cover up much of the fraud that they commit in elections (Hyde 2006) and why electoral malpractice does not significantly decrease over time if it decreases at all. The election observation reports of the OSCE suggest indeed that comparatively obvious forms of fraud such as ballot-stuffing, multiple voting, vote-buying, and tampering with protocols are, as before, frequently applied in the former Soviet Union.

The scores for 'competition' are calculated by dividing the vote share (in some cases seat share) of the main opposition candidate or party in elections by the vote (seat) share of the regime candidate or party. Consequently, scores range between 0 and 1, with a score of 0 indicating that the opposition did not any seats/votes, and a score of 1 indicating that an opposition party or candidate won at least as many seats or votes as the regime party or candidate. For presidential elections, the raw data table contains the vote shares of regime candidates against those of the main opposition candidate. For legislative elections in which at least part of the available seats in the legislature were elected through proportional representation with party-lists, the vote shares are those of the main pro-regime party and the main opposition party in the proportional section of the vote. For the Azeri parliamentary elections of 2005

and 2010, in which all deputies were elected from single-member districts, the seat shares of the ruling Yeni Azərbaycan Party and the main opposition party are displayed. As the table indicates, no opposition candidates representing political parties won mandates in the 2010 election (Bəylərqızı, 2010). The figures for the Belarusian parliamentary elections of 2004 and 2008, and for the Kyrgyz legislative election of 2005, present the seat shares of legislators who are supportive of the regime and the seat shares of opposition politicians, respectively.

OSCE observers

Election observers that are dispatched by the OSCE are expected to report irregularities, but not to thwart those irregularities as they happen before their eyes. The presence of observers who assess an election for its compliance with international standards, however, can affect the level of malpractice. First, it has been demonstrated that the mere presence of observers in polling stations reduces the extent of fraud committed on election day (Hyde 2007). Second, when authorities that are bent on winning an election with unfair means anticipate the arrival of a large number of observers, they may exchange the fraud that they would otherwise commit on election day for forms of manipulation that are less likely to be detected by observers (Simpser 2007). In both scenarios, the presence of bigger numbers of observers reduces the level of expected election-day malpractice.

Data on the number of OSCE observers in an election are found in the final reports of observer missions. In some cases (Armenia 1998, Azerbaijan 2000, Russia 2003 and 2004, and Ukraine 2004) only rounded figures are given in the reports. The numbers in the final reports concern the total number of STOs whose work is coordinated by the OSCE-led International Election Observation Mission (IEOM). The biggest share of observers in the IEOM are seconded by OSCE participating states and comprise the OSCE/ODIHR EOM. Smaller number of observers in the IEOM typically represent the OSCE Parliamentary Assembly (OSCE PA) and the Parliamentary Assembly of the Council of Europe (PACE).

The number of OSCE observers per election grew strongly until the mid-2000s, but has since decreased. The smallest number of observers in this study's sample - 115 - was dispatched to the legislative election of Kyrgyzstan in 2000. The biggest numbers of observers - between 800 and 900 - were present at the three most recent elections in Ukraine, reflecting the heightened interest of Western countries in these elections. Less important than absolute numbers of

observers is the number of observers relative to the number of polling stations. To illustrate the point, elections in Moldova have been observed by a similar number as elections in Russia; but while observers in Moldova were able to visit more than half of all polling stations, in Russia, with almost fifty times more polling stations, observers only visited fewer than two per cent of all polling stations. The values for the conditions *osceobservers* and *cisobservers* therefore are calibrated from the number of observers divided by the number of polling stations

CIS observers

Despite the fact that all members of the Commonwealth of Independent States (CIS) are also participating states in the OSCE, the CIS set up an alternative election observation mechanism, at the instigation of Russia, in 2001. Since that year, the CIS has sent observation teams, typically dominated by Russian observers, to most elections in the region (Gorovoy 2006). The establishment of the CIS-EOM was borne out of discontent among the CIS states with OSCE election observation. One element of criticism shared by the authorities of most CIS states is that OSCE election observation is too strict in applying international standards, sometimes perceived as specifically Western European standards (e.g. Churov 2007), to elections in the region, and that the missions do not respect local practices and traditions. Another indictment holds that the OSCE election observation missions are excessively critical in their assessments of elections in the post-Soviet area while ignoring or downplaying shortcomings in elections in other countries (Kozlovskii 2011). A major difference between the approaches of the OSCE and CIS in election observation is that the latter primarily assesses elections for compliance with national legislation rather than with international standards. Like the OSCE, the CIS missions publish reports and statements with findings from the observation. Compared to OSCE reports, the CIS reports are brief and contain mainly factual information. The conclusions of the CIS missions validate every election without major critique, and typically contain a statement akin to: 'The mission recognizes the elections as free, legitimate, and transparent, and calls on other organizations to join these conclusions'. This pertains even to elections in Turkmenistan and Uzbekistan, where, in the view of the OSCE, the basic requisites for a democratic electoral process are missing.

Given the CIS' track record of positive assessments, the authorities of the CIS states anticipate that when a CIS mission is present, it will whitewash even the most crude malpractice. The findings of the CIS mission are often reported

extensively in national media, overshadowing the generally more critical OSCE assessments. High visibility of CIS observers on the ground can be thought to serve as a signal to election management bodies that possible fraud will be met with impunity - an outcome they would be less likely to anticipate if only observers who do critically report on electoral malpractice would be visible Mirroring how bigger number of OSCE observers may decrease levels of malpractice including fraud, the presence of bigger numbers of CIS observers therefore may be related to higher levels of malpractice. Data on the number of CIS observers in election come from two websites maintained by the CIS.[2] On average, CIS missions are roughly half as large as OSCE missions. The biggest CIS mission to date has been to the highly contested 2004 presidential election in Ukraine. Besides, large missions have traditionally been dispatched to Belarus and Kazakhstan, which are among Russia's closest allies in the region. On a number of occasions - the presidential election in Georgia in 2008, and legislative elections in Moldova in 2005, and in Ukraine in 2006 and 2007 – no CIS observers were invited due to political tension with Russia at the time.

Majoritarianism

A condition that is included only in the fuzzy-set analysis of the cases with legislative elections is the degree to which seats in parliament are allocated through single-member district (SMD) elections. There are two reasons to expect more electoral malpractice when more seats are allocated through single-member districts (Birch 2007). First, because of the winner-takes-all nature of SMD elections, candidates in SMDs have an especially strong incentive to rig their way to victory. Second, the number of votes that need to be 'stolen' in SMDs in order to win the election in a particular district is relatively small.

The post-Soviet area is home to a broad array of different electoral systems for legislative elections. Most countries started out after gaining independence with mixed electoral systems, in which a share was allocated through SMD elections, and a share through proportional party list voting. Only one country in this study's sample opted for full proportional representation (Moldova) and exclusively SMD elections (Belarus) each. Four countries – Kazakhstan, Kyrgyzstan, Russia, Ukraine – made a switch to full-PR in the 2000s. Of those countries where some seats are allocated through SMD elections, the proportion of the number of these seats relative to the number of seats in the legislature ranges from less than a third (Armenia 2007) to close to ninety per cent (Kyrgyzstan 2000 and Kazakhstan 2004).

---

[2] http://www.cis.minsk.by and http://www.e-cis.info/

[Table 1 here]

Calibration

For the fuzzy-set analysis, the raw data are calibrated into fuzzy set membership scores. Because the raw data are overwhelmingly continuous, I use the direct method of calibration as suggested by Ragin (2008: 71-108). Central to the direct method of calibration is the specification, for each condition, of three anchors for full membership (1), full non-membership (0), and the cross-over point of membership (0.5).

With regard to the outcome, full non-membership is set at 5. Considering that the OSCE has not observed elections where the level of malpractice was found to be 0, a score of 5 indicates a minimum level of malpractice and a 'clean' electoral process. In our sample, three elections – the July 2009 legislative election in Moldova, the 2007 legislative election in Ukraine, and the 2010 presidential election in Ukraine – that have been assessed by OSCE missions as being largely in line with international standards, are fully outside the set. Since there are no compelling theoretical or substantive reasons for a specific cross-over point, the cross-over point is set at the level of the median score (19); consequently, there are as many cases more outside than inside the set as there are cases which are more inside than outside. Incidentally, the median score nearly coincides with the mean, indicating that the cases are fairly evenly distributed between the anchor points for full membership and full non-membership. Full-membership is set at 35; the six elections in our sample that are beyond this point and therefore fully inside the set - Azerbaijan 2000 and 2003, Belarus 2004, and Tajikistan 2005, 2006, and 2010 - were exceptionally poorly conducted. In the 2004 elections in Belarus, for example, 'counting proved problematic: at the majority of polling stations observed, transparency was lacking and procedures for compilation of protocols were not followed' (OSCE/ODIHR 2004: 2). Regarding the 2010 elections in Tajikistan, the OSCE mission plainly observed that '[m]ost PECs [precinct election commissions] seemed to have limited knowledge of election procedures' (OSCE/ODIHR 2010: 26).

The values for the *competitiveness* condition, taken from the 'political rights' component of the Freedom House Freedom in the World study, range between 3 and 7. Regimes with a score of 3 for political rights typically do not impose any major restrictions on electoral competition in terms of candidate

registration, access to media, etc. A score of 3 therefore is taken here to indicate a full degree of competitiveness. The lowest possible score of 7 for political rights on the other hand indicates maximum efforts on the part of authorities to limit contestation. Full non-membership, correspondingly, is at 7. A natural choice would be to set the cross-over point equidistant from the full-membership and full-membership anchors. This however would yield a number of fuzzy-set scores at 0.5, complicating the fuzzy-set analysis (Ragin 2008a). Instead, therefore, the cross-over point is set at the level of the median score (4.86).

The original values for the *competition* condition are derived by dividing the vote share (in some cases seat share) of the main opposition candidate or party by the vote share of the regime candidate or party. A value of at least 1 consequently indicates that the regime lost against the opposition, and is understood as full competition. Six cases from the sample are entirely inside the *competition* set: the five elections in Ukraine, and the 2010 legislative election in Moldova. With regard to Ukraine, the full-membership scores are due to the defeat of incumbent presidents in the two most recent presidential elections, and the failure of pro-presidential forces to win legislative elections. The full membership in the set of the 2010 legislative election in Moldova is due to the continuing popularity of the Communist Party despite its removal from power. A value of 0 indicates that the regime has not allowed any real electoral competition, and full non-membership in the *competition* set is therefore set at 0. In the three cases with a 0 value – legislative elections in Belarus in 2004 and 2008 and in Azerbaijan in 2010 – not a single opposition candidate entered the legislature following the elections. I place the cross-over threshold at 0.33: at this point, regime forces win three times as many votes (in some cases seats) as opposition forces, an outcome typical for elections in Azerbaijan, Belarus, Kazakhstan, Russia, Tajikistan, and most elections in Georgia and Kyrgyzstan. The 0.33 level represents a high degree of ambiguity. Below the 0.33 cut, elections are clearly hegemonic, meaning that an opposition candidate is left no chance against a regime candidate, and opposition parties are left no chance of gaining a significant share of seats in the legislature. Crucially, in the case of these hegemonic elections all main political players typically are cognizant of the hegemonic outcome of the elections well before election-day, affecting their pre-election behavior and electoral strategies. Above the 0.33 cut, it may be argued that elections still contain a serious degree of competition, and that opposition forces accordingly believe in electoral success.

With regard to the two separate conditions *osceobservers* and *cisobservers*, the original values are the number of observers divided by the

number of polling stations. With the ratio between the number of OSCE observers and the number of polling station rarely exceeding 1:5, the point of full-membership for *osceobservers* is set at 0.2. Since election observers can visit roughly up to ten polling station on election day (in teams of two), a score of 0.2 implies that, theoretically, all polling stations can be covered. The number of CIS observers is on average half that of OSCE observers; the full-membership point for *cisobservers* correspondingly is set at 0.1. Full non-membership for both *osceobservers* and *cisobservers* is set at 0, since the absence of observers in the case of the CIS, or the near absence of observers relative to the number of polling station in the case of OSCE observation, are common phenomena. Since there are, again, no compelling theoretical or substantive reasons for a specific a cross-over point, the cross-over point is set at the level of the median score - 0.080 in the case of *osceobservers*, and 0.034 in the case of *cisobservers* - indicating that as many elections are more inside than outside the set, as there are cases that are more outside than inside the set. In both cases, the median level is close to the mean.

As noted, there is great variety in electoral systems used for legislative elections in the region, with the three main types represented by a substantial number of cases. Considering this fairly even distribution, for the majoritarian condition the full-membership anchor is set at 1, where all members of the legislature are elected from single-member districts; the full non-membership is at 0, where no members of the legislature are elected from single-member districts; and at the crossover point half of members of the legislature are elected from single-member districts.

All fuzzy-set membership scores are displayed in table 2.

[Table 2 here]

The analysis

A fuzzy-set analysis is first performed for all forty-six cases, comprising both legislative and presidential elections. Subsequently, separate analyses will be performed for legislative elections and for presidential elections to reveal potentially different paths towards the outcome. With regard to the cases that represent legislative elections, the analysis will be performed with and without the inclusion of an additional condition - *majoritarianism*. Following best practices in QCA (Rihoux and De Meur 2009: 64), the search for sufficient conditions is carried out in relation to both a positive outcome and a negated outcome. The analysis uses the fs/QCA software, version 2.5, developed by

Ragin, Drass, and Davey (2006) and follows the instructions in the accompanying user's manual (Ragin 2008b). Considering the number of cases and the diversity of configurations with a positive outcome, a frequency threshold of 1 is applied in the different fuzzy-set analyses. In the two separate truth tables for the cases that represent legislative and presidential elections, there is a relatively large number of configurations with values of just over 0.85, and few with values between 0.75 and 0.85. The cutoff value for consistency of the configurations therefore is set at 0.85. This cutoff is relatively strict, and certainly higher than the lowest value that Ragin considers acceptable under certain conditions (Ragin 2009: 118). At the end of the section, I will evaluate what implications the selection of different cutoff values would have had for the analysis. The analyses of sufficient conditions with the 0.85 cutoff value will yield a total of twenty-four solutions - complex, intermediate, and parsimonious solutions for four different truth tables (for cases covering all elections, for legislative elections with and without the inclusion of an additional variable, and for presidential elections) and with both a positive outcome and a negated outcome. I will be interested in solutions (solution paths) with a consistency of at least 0.85 - the value suggested by Ragin (2006: 293). This value is identical, but unrelated to the value selected for indicating which configurations in the truth table exhibit the outcome. Below the level of 0.85. it becomes exceedingly difficulty to make a statement of sufficiency.

I do not hypothesize conditions that are necessary for the outcome to occur. In keeping with good practice in QCA (Ragin 2009: 110), and for the sake of completeness, however, I first analyze the data for the presence of necessary conditions.

The analysis of necessary conditions
The condition with the highest consistency score in the analysis of necessary conditions for all cases is the absence of competition, at 0.87. While being a fairly high value, it is in this case short of a value that warrants speaking of a necessary condition, especially in light of limited coverage. This can be illustrated by plotting the fuzzy-set scores of the outcome and the absence of competition.

[Figure 1 here]

If the absence of competition was a fully necessary condition, then the condition would constitute a superset of the outcome, and in the xy-plot, all cases would

be located below the diagonal. Fifteen out of forty-six cases, however, are above the diagonal and consequently do not contribute to the statement of necessity. The condition with the highest consistency score in the analysis of necessary conditions for cases that represent legislative elections is majoritarianism. At 0.83, the score is considerably short of pointing to a condition that is necessary. The analysis of necessary conditions for cases that represent presidential elections, finally, yields a condition - the absence of competition - with a high consistency score of 0.92. When we plot the outcome and the absence of competition, however, it become visible that seven out of eighteen cases do not contribute to the statement of necessity, and we therefore reject the statement that the condition is necessary for the outcome to occur.

[Figure 2 here]

What the analysis of necessary conditions at least reveals is that when elections feature little competition, the incidence of electoral malpractice tends to be high. We find this again in the analyses of sufficient conditions.

In search of sufficient conditions: all elections
The analysis now turns to the identification of sufficient conditions for the presence and absence of electoral malpractice. In the first step of every fuzzy-set analysis, a truth table (see below) is rendered that shows the different possible configurations, their frequency, and their consistency with the outcome. At this point, we check the table for limited diversity, and indicate the configurations that meet the frequency threshold and are above the consistency cutoff value, as exhibiting the outcome. In large part due to the high number of cases relative to the number of conditions, the issue of limited diversity is averted, as only four possible configurations are not represented by any of the forty-six cases from the sample. The issue of limited diversity is similarly insignificant in subsequent analyses.

[Truth table 1 here]

The second step of the fuzzy-set analysis entails the minimization of the truth table into readable solution formulas. Following the recommendation from the user's manual to the software (Ragin, Drass, and Davey 2006: 79), we let the software perform 'standard analyses' which render a complex, intermediate, and parsimonious solution through a Boolean minimization procedure. In the

complex solution, no logical remainders are involved into the minimization procedure. In the parsimonious solution, any 'simplifying assumption' regarding the logical remainders that helps generate a simpler solution, is permitted. The intermediate solution is generated by incorporating 'easy counterfactuals' that are based on information supplied by the analyst about the hypothesized relation between the conditions and the outcome (Wagemann and Schneider 2010: 391-2). In line with the theoretical assumptions expressed in the second section of this paper, the simplifying assumptions in case of the presence of the outcome are the following for all analyses ahead: the presence of *osceobservers* and *competitiveness* and the absence of *cisobservers* should contribute to the outcome, while the analysis is agnostic regarding the effect of *competition*.

The minimization of the truth table yields two solution paths with consistency values over 0.85: ˜competition*˜osceobservers (coverage 0.61, consistency 0.86), and ˜competitiveness*˜cisobservers (coverage 0.44, consistency 0.87). Both paths are contained in the parsimonious solution, while the former path is also contained in the intermediate solution. For the solution path with the highest coverage we draw up a scatter plot to assess whether the path points to a sufficient condition.

[Figure 3 here]

If the condition were a perfectly sufficient condition, then it would be a subset of the outcome, and all cases correspondingly would be located above the diagonal in the xy-plot. The scatter plot demonstrates that ten cases do not contribute to an affirmative statement of sufficiency, with some (Kazakhstan 2011, the legislative election of Kyrgyzstan of 2005, and Tajikistan 2000) being far outliers. Though the combination of little competition and few OSCE observers is visibly related to the outcome, the relation does not appear to amount to sufficiency or near-sufficiency. If the corresponding solution paths, however, reappear in subsequent analyses, this tentative conclusion may be reviewed. The analysis of sufficient conditions for the negated outcome employs the same principles as the analysis of sufficient conditions for the presence of the outcome. Among the solution paths generated by the minimization process there is one, in the parsimonious solution, with consistency over 0.85: competition*competitiveness (coverage 0.62, consistency 0.88). Again, we plot the potentially sufficient condition against the outcome:

[Figure 4 here]

In this xy-plot, even more cases - eleven from a total of forty-six - do not support the statement of sufficiency. The biggest 'outlier' in the plot is the legislative election in Georgia of 2003. As the plot suggests, this election was characterized by a significant degree of both competition and competitiveness, but also by a great degree of electoral wrongdoing. In sum, the analysis of sufficient conditions that incorporated both legislative and presidential elections has failed to yield significantly sufficient conditions.

In search of sufficient conditions: legislative elections
With the same conditions that were studied above, the truth table for the analysis of sufficient conditions for cases that represent legislative elections contains eleven instead of twelve configurations that are covered by cases.

[Truth table 2 here]

One of the solution paths seen in the analysis of cases representing both legislative and presidential elections also has a consistency of over 0.85 in this analysis: ˜competition*˜osceobservers (coverage 0.62, consistency 0.90). Another solution path with high consistency in this analysis is ˜competitiveness*˜osceobservers (coverage 0.58, consistency 0.86). This time, both solution paths are part of the intermediate solution, while the former solution path is also contained in the parsimonious solution. We draw xy-plots for both purported sufficient conditions against the outcome.

[Figures 5 and 6 here]

A proportion of the cases - six and seven out of twenty-six cases - similar to the one in the analysis of sufficient conditions for all cases, lies below the diagonal, and in some cases significantly so, making it difficult to invoke statements of sufficiency. It appears nonetheless that for the legislative elections in this study's sample, the combination of few OSCE observers combined with either little competition or little competitiveness, relates to a high incidence of electoral malpractice.

In the analysis of sufficient conditions with the same conditions but a negated outcome, no solution path exhibits a consistency value of over 0.85.

Next, we are interested in assessing whether an additional condition, majoritarianism, turns out to be a sufficient condition whether or not in

conjunction with other conditions. Through the inclusion of an additional condition, the full truth table includes sixteen more configurations. After subtraction of the rows that are not occupied by cases from the sample, the truth table appears as follows:

[Truth table 3 here]

Upon performing the 'standard analyses' built into the fs/QCA software, the condition *majoritarian* on its own appears as a solution path in both the parsimonious and intermediate solution paths. At 0.77, however, consistency is limited. The 0.77 value indicates some relation, but falls short of amounting to sufficiency. With a negated outcome, however, a solution path in the parsimonious solution appears with high consistency: competitiveness*~majoritarian (coverage 0.73, consistency 0.91). We draw the corresponding xy-plot for this condition.

[Figure 7 here]

Apparently, the combination of a pluralist political system and a large share of proportional party-list voting disproportionally often goes together with a low incidence of electoral malpractice. The circumstance that, as the xy-plot demonstrates, nine out of twenty-six cases do not contribute to the statement of sufficiency, however, leads us to hold back a statement of sufficiency.

In search of sufficient conditions: presidential elections
The final chance of identifying significantly sufficient conditions is in the analysis with cases that represent presidential elections. The truth table for the presence of the outcome, after subtraction of rows that are not covered by cases, counts ten rows.

[Truth table 4 here]

Minimizing the truth table to complex, intermediate, and parsimonious solutions does not yield solution paths with consistency over 0.85. Neither do such solution paths appear with a negated outcome. No sufficient conditions therefore are identified in the analysis of sufficient conditions for cases representing presidential elections.

Analyses with alternative consistency cutoff values
In the analyses above, a consistency cutoff value of 0.85 was employed to indicate in the truth table whether configurations do or do not exhibit the outcome. The failure to find credible sufficient conditions begs the question whether results would have been different if a different cutoff value had been selected. This question resonates with the broader concern about whether QCA in general or fsQCA in particular is too sensitive to some of the many discriminatory choices that researchers make over the course of any QCA application (Skaaning 2011). Short from examining this question extensively, the two tables below show which solution paths with consistency of over 0.85 and coverage of over 0.60 are found with three different consistency cutoff values: 0.80, the 0.85 value that was employed in the analysis above, and 0.90.

[Table 3 here]

[Table 4 here]

None of the conditions displayed in the tables live up to the level of sufficiency; in this particular series of fuzzy-set analyses, therefore, conclusions regarding the determinants of the outcome would have been similar. The variation in the solution paths with high consistency and considerable coverage however does reveal how much a slight modification of the choice of consistency cutoff value affects the outcome of the fuzzy-set analyses.

Conclusion and discussion
The search for determinants of electoral malpractice in this paper has not yielded conditions that are consistent with the outcome to a degree where it is reasonable to speak of sufficient or near-sufficient conditions. Of the five conditions that were probed, two - *competition* and *competitiveness* - recur in most solution paths with a consistency value of at least 0.85. The analysis therefore suggests that a high degree of competition in elections and political competitiveness disproportionally often go together with low incidence of electoral malpractice. This tentative finding contradicts the intuition that close elections in an undemocratic context feature much electoral malpractice because incumbents in close elections are particularly at risk of losing power, and confirms that states with weak political rights are more inclined to turn to electoral malpractice. But whether individually or in conjunction with other conditions, *competition* and *competitiveness* fall short of constituting sufficient conditions for electoral malpractice. A condition that does not show a clear

relation with the level of electoral malpractice is *osceobservers*. Some evidence exists that the presence of election observers can deter fraud (Hyde 2007; Oreshkin 2011). The analysis here however does not suggest that the size of an OSCE observation proportional to the number of polling stations is related to the level of electoral malpractice committed on election day: both elections with relatively large numbers of observers and elections with relatively small numbers of observers have featured high degrees of malpractice.

When a QCA application does not yield significantly consistent sufficient conditions, the researcher may be tempted to apply changes in one or several of the steps of the analysis, hoping that doing so will deliver more affirmative findings. Applications of fuzzy-set QCA are particularly prone to modification: an incomplete list of steps in an fsQCA application that can be modified includes the selection of cases, the selection of conditions, choosing the different anchor points in the calibration of the raw data to fuzzy membership scores, the choice of a consistency cutoff value in the analysis of the truth table, setting the frequency threshold, choices regarding simplifying assumptions, and determining what values amount to high enough consistency concerning the solution paths. In a recent analysis, Skaaning (2011) demonstrates that minor adjustments to calibration, consistency levels, and case frequency can lead to non-trivial changes in the solution formulas. The quick exploration above of the consequences of changes in the consistency cutoff value in this paper's fuzzy-set analysis similarly finds that a slight modification leads to significantly different solution formulas.

The adaptability of the many different steps in QCA applications can undermine the credibility of QCA findings. The literature about QCA generally proposes two standards of good practices that should enhance credibility. First, the different choices that the user makes regarding the selection of conditions, calibration, simplifying assumptions etc. should be informed by substantive knowledge of the cases and theoretical arguments regarding the conditions and the outcome (Ragin 2006; Rihoux 2006). In practice, however, it is unfeasible to provide justifications which are entirely grounded in theory and substantive knowledge of the cases for every choice made in the analysis: an element of seeming or real arbitrariness in one or more steps of the analysis can hardly be avoided. Second, the user is summoned to secure transparency of the analysis by explicitly reporting the theoretic and substantive arguments on the basis of which choices are made, and by providing a large number of elements of the analysis, including the operationalization of all conditions and the outcome, the truth tables, the analysis of necessary conditions, the interpretation of minimal

formulas, etc., in the publication of the analysis (Ragin and Rihoux 2009; Wagemann and Schneider 2010). Space limitations and concerns over readability however make it unlikely that QCA users will fully adhere to the standard of maximum transparency. In most QCA applications, users are transparent regarding some elements of the analysis, but not regarding other elements, and often, the justifications offered for the choices made in the analysis are far from exhaustive and theoretically grounded. Together, these dilemmas, that are intrinsic to the method, continue to threaten to cast doubt over the robustness of QCA findings.

References

Bəylərqızı, Ş. 2010. Milli Məclis, ya Hakimiyyət Məclisi? Azadlıq Radiosu (Radio Free Europe Radio Liberty) 08.11.10. http://www.azadliq.org/content/article/2214191.html (accessed 09.11.10)

Birch,Sarah. 2007. Electoral Systems and Electoral Misconduct. *Comparative Political Studies* 40(2), 1533-1556

Bunce, V.J., and Wolchik, S. 2006. International diffusion and postcommunist electoral revolutions. *Communist and Post-Communist Studies,* 39:283-304.

Churov, Vladimir. 2007. Suverennaia Demokratiya i Vybory. *Rossiiskaya Gazeta* No.4329, 30 March

Gorovoy, Vladimir. 2006. Missii Nablyudatelei ot SNG na Vyborakh v Gosudarstvakh Sodruzhestva. *Mezhdunarodnaia Zhisn'* No. 1.2: 83-93

Herron, E.S. 2009 *Elections and Democracy after Communism?* (New York: Palgrave and Macmillan).

Howard, M.M., and Roessler, P. 2006. Liberalizing Electoral Outcomes in Competitive Authoritarian Regimes. American Journal of Political Science 50(2): 365-381.

Hyde, Susan D. 2006. *How International Election Observers Detect and Deter Fraud.* Prepared for presentation at the conference on Election Fraud, September 28-29, 2006, Salt Lake City, UT.

Hyde, Susan D. 2007. The Observer Effect in International Politics: Evidence from a Natural Experiment. *World Politics* 60(1): 37-63.

Hutcheson, Derek S. 2011. Elections, International Observers and the Politicisation of Democratic Values. *Europe Asia-Studies* 63(4):685– 702.

Kozlovskii, Aleksandr. 2011. Kak reformirovat' "Smotriashchikh za Demokratiei" *Rossiiskaya Gazeta* No. 5454, 13 April.

Lehoucq, Fabrice. 2003. Electoral Fraud: Causes, Types and Consequences. Annual Review of Political Science 6:233-56

Lichkova, Natal'ya. 2007. Mezhdunarodnye nablyudateli - sovetniki, a ne sud'i. Interv'yu General'nogo sekretarya Soveta MPA SNG Mikhaila Krotova. Available from http://www.iacis.ru/html/print˙news.php?nid=651&langv=rus (accessed 30 September 2011˙

Lópesz-Pintor, Rafael. 2010. *Assessing Electoral Fraud in New Democracies. A Basic Conceptual Framework.* International Foundation for Electoral Systems.

Magaloni, B. 2006. *Voting for Autocracy. Hegemonic Party Survival and its Demise in Mexico.* Cambridge: Cambridge University Press.

Magaloni, B. 2008. Credible Power-Sharing and the Longevity of Authoritarian Rule. *Comparative Political Studies* 41(4-5):715-741.

McFaul, Michael. 2005. Transitions from Postcommunism. *Journal of Democracy* 16(3), 5-19.

Oreshkin, Dmitrii. 2011. Idi I Smotri! *Novaya Gazeta*, 25 October 2011.

OSCE/ODIHR. 2004. *Republic of Belarus Parliamentary Elections 17 October 2004. OSCE/ODIHR Election Observation Mission Final Report.* Warsaw, 9 December.

OSCE/ODIHR. 2010. *Republic of Tajikistan Parliamentary Elections 28 February 2010. OSCE/ODIHR Election Observation Mission Final Report.* Warsaw, 6 July.

Peuch, Jean-Christophe. (2007). Russia: Moscow Targets Vote Monitors In Bid To Overhaul OSCE. Radio Free Europe Radio Liberty 05.11.2007. http://www.rferl.org/content/article/1079077.html (accessed 23.03.2011)

Ragin C. 2005. *From fuzzy sets to crisp truth tables.* Compasss Working Paper 2004-28.

Ragin, Charles C.. 2006. Set Relations in Social Research: Evaluating their Consistency and Coverage. *Political Analysis* (14), 291-310.

Ragin, Charles C. 2008a. *Redesigning Social Inquiry. Fuzzy-Sets and Beyond.* Chicago and London: Chicago University Press.

Ragin, Charles C.. 2008b. *User's Guide to Fuzzy-Set / Qualitative Comparative Analysis*. Tucson, Arizona: Department of Sociology, University of Arizona.

Ragin, Charles C. 2009. Qualitative Comparative Analysis Using Fuzzy Sets (fsQCA). In *Configurational Comparative Methods. Qualitative Comparative Analysis and Related Techniques*, Rihoux, Benoît, and Ragin Charles C (eds.). Thousand Oaks, CA: SAGE Publications.

Ragin, Charles C., Kriss A. Drass and Sean Davey. 2006. *Fuzzy-Set/Qualitative Comparative Analysis 2.0*. Tucson, Arizona: Department of Sociology, University of Arizona

Rihoux, Benoît. 2006. Qualitative Comparative Analysis (QCA) and Related Systematic Comparative Methods: Recent Advances and Remaining Challenges for Social Science Research. *International Sociology* 21: 679-706.

Rihoux, Benoît, and Ragin Charles C. 2009. *Configurational Comparative Methods. Qualitative Comparative Analysis and Related Techniques*. Thousand Oaks, CA: SAGE Publications.

Rihoux, Benoît, and De Meur, Gislèle. 2009. Crisp-Set Qualitative Comparative Analysis (CSQCA). In *Configurational Comparative Methods. Qualitative Comparative Analysis and Related Techniques*, Rihoux, Benoît, and Ragin Charles C (eds.). Thousand Oaks, CA: SAGE Publications.

Schedler, Andreas. 2002. The Menu of Manipulation. *Journal of Democracy* 13(2): 36-50.

Skaaning, Svend-Erik. 2011. Assessing the Robustness of Crisp-Set and Fuzzy-Set QCA Results. *Sociological Methods & Research* 40(2):391-408

Wagemann, Claudius, and Schneider, Carsten Q.. 2010. Qualitative Comparative Analysis (QCA) and Fuzzy-Sets: Agenda for a Research Approach and a Data Analysis Technique. *Comparative Sociology* 9: 376-96.

Simpser, Alberto. 2004. *Making Votes Not Count: Strategic Incentives for Electoral Corruption*. Stanford University.

Simpser, Alberto. 2008. Unintended Consequences of Election Monitoring. In R. Michael Alvarez, Thad E. Hall, and Susan D. Hyde, *Election Fraud. Detecting and Deterring Electoral Manipulation*. Washington D.C.: The Brookings Institution.

data / cases	type of election	political rights score	vote/seat share of pro-regime candidate or main pro-regime party	vote/seat share of opposition candidates or main opposition candidate	number of polling stations	number of OSCE observers	number of CIS observers	share of SMD seats	percentage of positive assessments of voting procedures	percentage of positive assessments of counting procedures	electoral malpractice
Armenia 1998	presidential	4	38.5	30.4	1600	180	0	n.a.	84	84	16
Armenia 1999	legislative	4	41.5	12.0	1610	168	0	75/131	87	78	17.5
Armenia 2003	presidential	4	49.5	28.2	1865	233	65	n.a.	90	80	15
Armenia 2003	legislative	4	23.5	11.4	1885	205	51	56/131	90	67	21.5
Armenia 2007	legislative	5	33.9	13.2	1923	411	239	41/131	94	83	11.5
Armenia 2008	presidential	6	52.8	21.5	1923	333	193	n.a.	95	84	10.5
Azerbaijan 2000	legislative	6	62.3	11.0	5000	200	0	100/125	74	48	39
Azerbaijan 2003	presidential	6	76.8	14.0	5146	600	150	n.a.	74	45	40.5
Azerbaijan 2005	legislative	6	48.8	4.0	5053	617	640	125/125	87	59	27
Azerbaijan 2008	presidential	6	87.3	2.8	5326	440	394	n.a.	94	77	14.5
Azerbaijan 2010	legislative	6	57.6	0.0	5175	405	352	125/125	89	68	21.5
Belarus 2004	legislative	6	100.0	0.0	6659	270	248	110/110	90	38	36
Belarus 2006	presidential	7	82.6	6.0	6586	546	467	n.a.	90	50	30
Belarus 2008	legislative	7	100.0	0.0	6525	449	410	110/110	95	52	26.5
Belarus 2010	presidential	7	79.7	2.4	6390	452	249	n.a.	94	54	26
Georgia 1999	legislative	3	41.9	7.8	2580	177	0	150/225	79	76	22.5
Georgia 2000	presidential	4	78.8	16.7	2580	147	0	n.a.	84	52	32
Georgia 2003	legislative	4	21.3	18.8	2893	389	70	150/225	81	69	25
Georgia 2004	presidential	3	96.0	1.9	2850	450	80	n.a.	76	68	28
Georgia 2004	legislative	3	67.6	7.6	2860	440	86	150/225	79	67	27
Georgia 2008	presidential	4	53.5	25.7	3511	495	0	n.a.	92	77	15.5
Georgia 2008	legislative	4	59.2	17.7	3558	550	74	75/150	92	78	15
Kazakhstan 2004	legislative	6	60.6	12.0	9480	305	424	67/77	87	72	20.5
Kazakhstan 2005	presidential	6	91.0	6.6	9580	411	420	n.a.	92	72	18
Kazakhstan 2007	legislative	6	88.1	4.6	9727	449	448	0/98	94	61	22.5

Kazakhstan 2011	presidential	6	95.6	1.9	9725	380	426	n.a.	90	76	17
Kyrgyzstan 2000	legislative	6	21	11	2050	115	0	90/115	90	74	18
Kyrgyzstan 2005	legislative	5	69	6	2157	175	108	75/75	89	89	11
Kyrgyzstan 2005	presidential	5	88.9	3.8	2150	299	282	n.a.	93	65	21
Kyrgyzstan 2007	legislative	5	47.0	5.1	2274	270	145	0/90	91	67	21
Kyrgyzstan 2009	presidential	6	76.1	8.4	2330	200	136	n.a.	89	50	30.5
Kyrgyzstan 2010	legislative	5	8.0	8.9	2289	266	111	0/120	93	67	20
Moldova 2005	legislative	3	46.0	28.5	1970	500	0	0/101	97	78	12.5
Moldova 2009 (April)	legislative	3	49.5	13.1	1977	400	74	0/101	97	91	6
Moldova 2009 (July)	legislative	3	44.7	16.6	1986	300	66	0/101	97	94	4.5
Moldova 2010	legislative	3	29.4	39.3	2037	339	74	0/101	98	91	5.5
Russia 2003	legislative	5	37.6	12.6	95000	480	200	225/450	95	73	16
Russia 2004	presidential	6	71.3	13.7	95000	336	233	n.a.	95	76	14.5
Tajikistan 2005	legislative	6	64.5	14.0	2953	150	0	41/63	80	46	37
Tajikistan 2006	presidential	6	79.3	6.2	3059	167	236	n.a.	80	33	43.5
Tajikistan 2010	legislative	6	71.0	8.2	3102	242	160	41/63	74	44	41
Ukraine 2002	legislative	4	11.8	23.6	33113	390	200	225/450	94	86	10
Ukraine 2004	presidential	4	39.3	39.9	33000	636	635	n.a.	94	91	7.5
Ukraine 2006	legislative	3	22.3	32.1	34039	900	0	0/450	92	78	15
Ukraine 2007	legislative	3	30.7	34.4	33974	803	0	0/450	98	95	3.5
Ukraine 2010	presidential	3	25.0	35.3	33695	800	259	n.a.	97	96	3.5

Table 1. Raw data table

case	type of election	competitiveness	competition	osceobservers	cisobservers	majoritarian	elecmalpractice
Armenia 1998	presidential	0.8	0.89	0.7	0.05	n.a.	0.34
Armenia 1999	legislative	0.8	0.41	0.65	0.05	0.6	0.42
Armenia 2003	presidential	0.8	0.75	0.75	0.51	n.a.	0.3
Armenia 2003	legislative	0.8	0.67	0.67	0.35	0.4	0.62
Armenia 2007	legislative	0.45	0.57	0.97	0.98	0.24	0.17
Armenia 2008	presidential	0.17	0.59	0.91	0.95	n.a.	0.14
Azerbaijan 2000	legislative	0.17	0.2	0.18	0.05	0.86	0.98
Azerbaijan 2003	presidential	0.17	0.2	0.72	0.39	n.a.	0.98
Azerbaijan 2005	legislative	0.17	0.09	0.69	0.99	0.95	0.82
Azerbaijan 2008	presidential	0.17	0.06	0.52	0.86	n.a.	0.28
Azerbaijan 2010	legislative	0.17	0.05	0.48	0.82	0.95	0.62
Belarus 2004	legislative	0.17	0.05	0.19	0.53	0.95	0.96
Belarus 2006	presidential	0.05	0.09	0.52	0.84	n.a.	0.89
Belarus 2008	legislative	0.05	0.05	0.4	0.79	0.95	0.8
Belarus 2010	presidential	0.05	0.06	0.42	0.56	n.a.	0.79
Georgia 1999	legislative	0.95	0.22	0.4	0.05	0.73	0.66
Georgia 2000	presidential	0.8	0.25	0.3	0.05	n.a.	0.92
Georgia 2003	legislative	0.8	0.92	0.79	0.29	0.73	0.75
Georgia 2004	presidential	0.95	0.06	0.81	0.37	n.a.	0.84
Georgia 2004	legislative	0.95	0.12	0.8	0.41	0.73	0.82
Georgia 2008	presidential	0.8	0.66	0.82	0.05	n.a.	0.32
Georgia 2008	legislative	0.8	0.43	0.87	0.24	0.5	0.3
Kazakhstan 2004	legislative	0.17	0.23	0.14	0.62	0.9	0.57
Kazakhstan 2005	presidential	0.17	0.09	0.2	0.61	n.a.	0.45
Kazakhstan 2007	legislative	0.17	0.07	0.22	0.63	0.95	0.66
Kazakhstan 2011	presidential	0.17	0.06	0.18	0.61	n.a.	0.39
Kyrgyzstan 2000	legislative	0.17	0.7	0.29	0.05	0.84	0.45
Kyrgyzstan 2005	legislative	0.45	0.08	0.51	0.67	0.95	0.15
Kyrgyzstan 2005	presidential	0.45	0.07	0.81	0.99	n.a.	0.59
Kyrgyzstan 2007	legislative	0.45	0.12	0.73	0.8	0.05	0.59
Kyrgyzstan 2009	presidential	0.17	0.12	0.54	0.75	n.a.	0.9
Kyrgyzstan 2010	legislative	0.45	0.95	0.9	0.65	0.05	0.55
Moldova 2005	legislative	0.95	0.79	0.99	0.05	0.05	0.2
Moldova 2009 (April)	legislative	0.95	0.35	0.95	0.53	0.05	0.06
Moldova 2009 (July)	legislative	0.95	0.54	0.86	0.48	0.05	0.04
Moldova 2010	legislative	0.95	0.95	0.9	0.52	0.05	0.05

Russia 2003	legislative	0.45	0.51	0.06	0.06	0.5	0.34
Russia 2004	presidential	0.17	0.22	0.05	0.06	n.a.	0.28
Tajikistan 2005	legislative	0.17	0.27	0.25	0.05	0.71	0.82
Tajikistan 2006	presidential	0.17	0.09	0.28	0.88	n.a.	0.99
Tajikistan 2010	legislative	0.17	0.13	0.48	0.69	0.71	0.98
Ukraine 2002	legislative	0.8	0.95	0.07	0.08	0.5	0.13
Ukraine 2004	presidential	0.8	0.95	0.09	0.21	n.a.	0.08
Ukraine 2006	legislative	0.95	0.95	0.12	0.05	0.05	0.3
Ukraine 2007	legislative	0.95	0.95	0.11	0.05	0.05	0.03
Ukraine 2010	presidential	0.95	0.95	0.11	0.09	n.a.	0.03

Table 2. Fuzzy-set membership scores

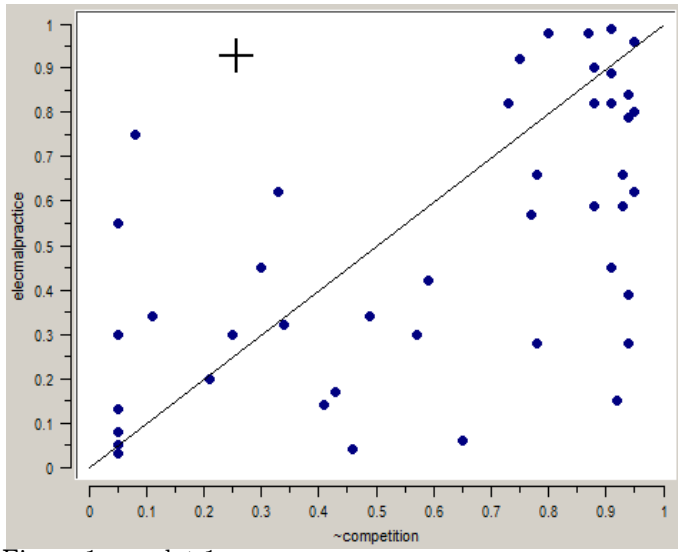| competitiveness	competition	osceobservers	cisobservers	number	elecmalpractice	consistency
0	0	0	1	10	1	0.904584
0	0	1	1	7	1	0.880687
1	1	1	0	6	0	0.692229
1	1	0	0	5	0	0.592975
1	0	1	0	4	0	0.827859
0	0	0	0	3	1	0.909465
0	1	1	1	3	0	0.829828
0	1	0	0	2	1	0.890183
1	0	0	0	2	1	0.941576
1	1	1	1	2	0	0.718944
0	0	1	0	1	1	0.966276
1	0	1	1	1	0	0.802341

Truth table 1. Legislative and presidential elections.
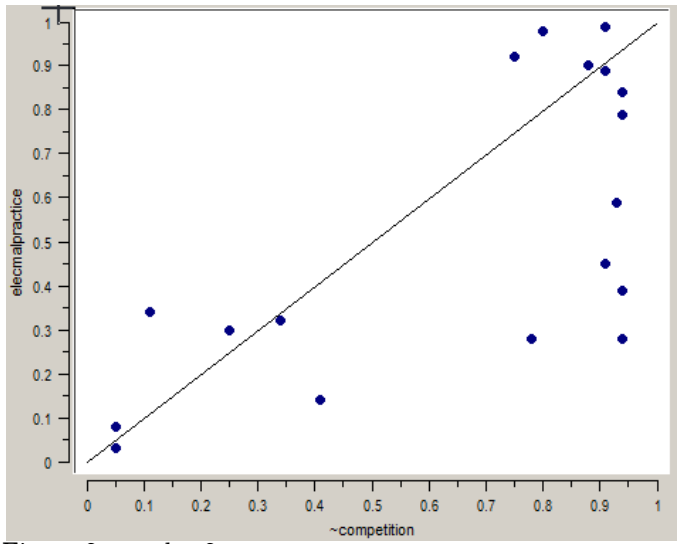
Figure 1. xy-plot 1

Figure 2. xy-plot 2

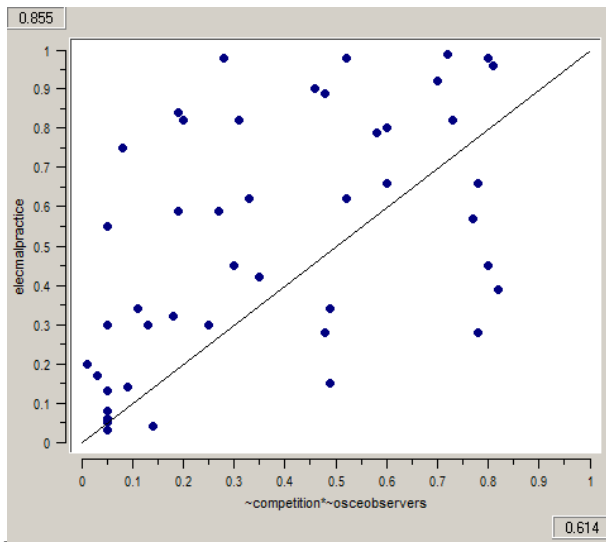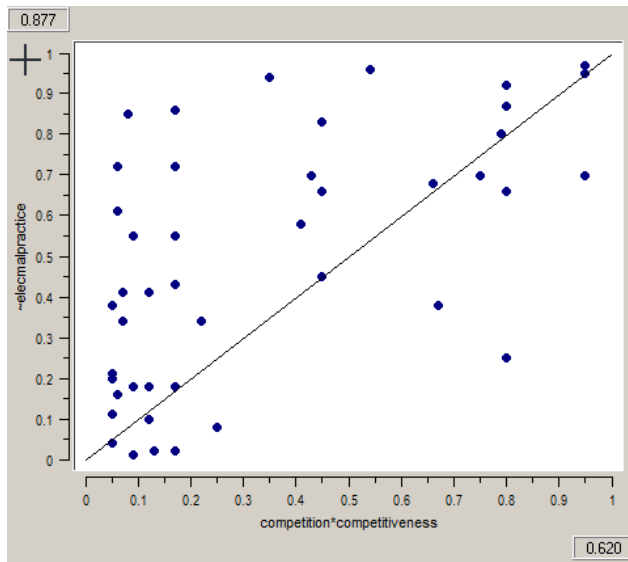Figure 3. xy-plot 3

Figure 4. xy-plot 4

competitiveness	competition	osceobservers	cisobservers	number	elecmalpractice	consistency
0	0	0	1	6	1	0.925664
1	1	1	0	4	0	0.693354
0	0	1	1	3	1	0.878049
1	0	1	0	3	0	0.75126
1	1	0	0	3	0	0.607616
0	0	0	0	2	1	0.938671
0	1	0	0	2	1	0.865979
0	1	1	1	2	1	0.872274
1	0	0	0	1	1	0.910088
1	0	1	1	1	0	0.707753
1	1	1	1	1	0	0.671053

Truth table 2. Legislative elections.

competitiveness	competition	osceobservers	cisobservers	majoritarian	number	elecmalpractice	consistency
0	0	0	1	1	6	1	0.922652
1	1	1	0	0	3	0	0.66611
0	0	0	0	1	2	1	0.936842
0	0	1	1	1	2	1	0.900862
0	1	1	1	0	2	1	0.866883
1	0	1	0	1	2	1	0.877637
1	1	0	0	0	2	0	0.629032
0	0	1	1	0	1	1	0.900344
0	1	0	0	1	1	1	0.864
1	0	0	0	1	1	1	0.925926
1	0	1	1	0	1	0	0.70529
1	1	1	0	1	1	1	0.959287
1	1	1	1	0	1	0	0.659864

Truth table 3. Legislative elections with additional condition (*majoritarian*)
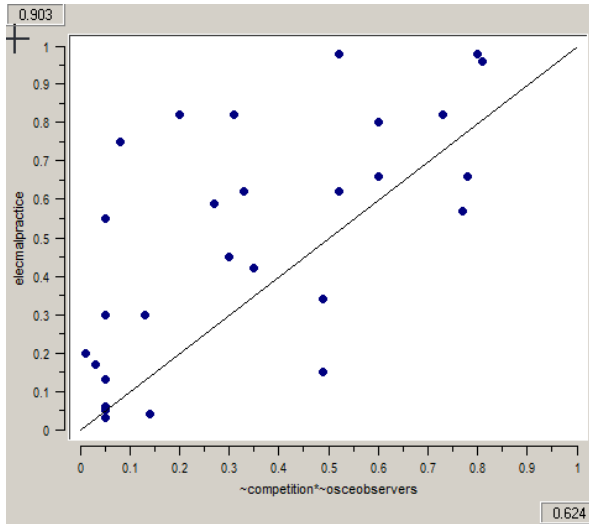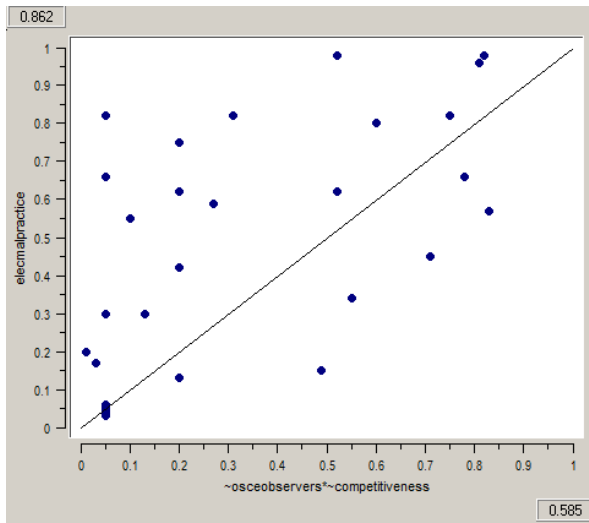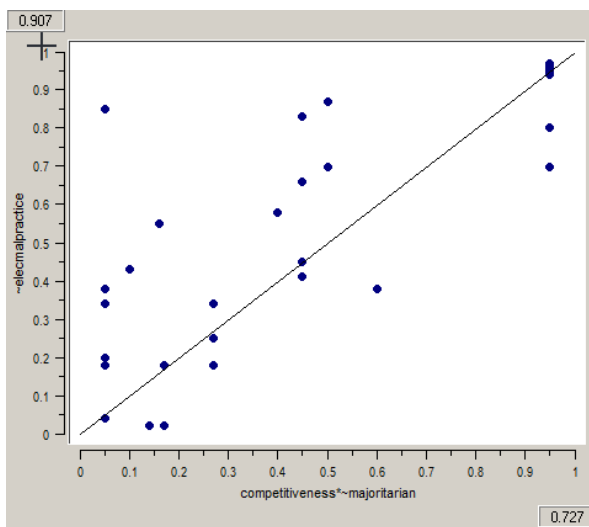
Figure 5. xy-plot 5

Figure 6. xy-plot 6

Figure 7. xy-plot 7

competitiveness	competition	osceobservers	cisobservers	number	elecmalpractice	consistency
0	0	0	1	4	1	0.880952
0	0	1	1	4	1	0.883772
1	1	0	0	2	0	0.568681
1	1	1	0	2	0	0.689873
0	0	0	0	1	1	0.864935
0	0	1	0	1	1	0.993443
0	1	1	1	1	0	0.762376
1	0	0	0	1	1	0.992857
1	0	1	0	1	1	0.986111
1	1	1	1	1	0	0.835106

Truth table 4. Presidential elections

cases / value	all elections (n=46)	legislative elections (n= 28)	legislative elections (n=28); inclusion of additional condition *majoritarian*	presidential elections (n=18)
0.80		˜competition*˜osceobservers (coverge 0.62, consistency 0.90)		
0.85	˜competition*˜osceobservers (coverage 0.61, consistency 0.86)	˜competition*˜osceobservers (coverage 0.62, consistency 0.90)		
0.90	˜competition*˜osceobservers (coverage 0.61, consistency 0.86)	˜competition*˜osceobservers (coverage 0.62, consistency 0.90)	˜competition*˜osceobservers (coverage 0.62, consistency 0.90) ˜competitiveness*˜competition (coverage 0.67, consistency 0.86) majoritarian*˜oscoeobserevrs*˜competition (coverage 0.61, consistency 0.91)	

Table 3. Solution paths with different consistency cutoff value (positive outcome)

cases / value	all elections (n=46)	legislative elections (n= 28)	legislative elections (n=28); inclusion of additional condition *majoritarian*	presidential elections (n=18)
0.80				competition (coverage 0.64, consistency 0.88)
0.85	competition*competitiveness (coverage 0.62, consistency 0.87)		competitiveness*~majoritarian (coverage 0.73, consistency 0.91)	
0.90			competitiveness*~majoritarian (coverage 0.73, consistency 0.91) competition*~majoritarian (coverage 0.63, consistency 0.87)	

Table 4. Solution paths with different consistency cutoff value (negated outcome)