Ph. Chapkovski (EUI)
T. Paskhalis (LSE)

Expectations of electoral fraud as a self-fulfilling prophecy?

Our goal here is to explain how the anticipations of a fraud in elections among voters may bring in the adversary results which are comparable with the fraud itself. Under certain conditions an incumbent can save efforts and instead of a real fraud he/she will be able to send a strong signal of a forthcoming fraud to discourage an oppositional electorate to come to ballot boxes.

In a model below there is a debatable assumption of proportional electoral system. After all, in semi-authoritarian regimes the elections which are the most contestable and fraught to manipulations are presidential ones which are by definition a winner-takes-it-all majoritarian elections. These formally majoritarian elections however are proportional by its symbolical nature because apart from winning a race an incumbent has to claim that he/she has a support of overwhelming majority - the more the better. That's why the scale of the fraud usually by far exceeds the needed 50% of electoral votes in (semi)-authoritarian regimes, reaching sometimes an absurdly high level of 99.9%.

Formal model

There are two parties: *G* (Governing) and *P* (oPposition)
Each member of a large population *N* is inclined to vote either for *G* or *P* (for the simplicity party preferences are ascribed fixed types here, and no shift in a voting behaviour is possible. Thus, a person can either vote for his/her party or abstain. We can get rid of this limitation later). There are n_p oppositional voters and n_g governmental voters ($n_p + n_g = N$)
N is so large that no vote is pivotal: that is, a marginal change of an extra vote is negligible from the point of view of a party.

The system is proportional (the model is easy to change to embrace majoritarian one).
That is:
there is a Common Pool (*CP*) to share. As a result of elections each party gets a share of *CP* proportional to a declared share of votes got by the party. If S_p - a number of votes ***declared*** to be voted for opposition, and S_g - a number of votes ***declared*** to be voted for governing party, then a share of CP for opposition is

$$CP\frac{S_p}{S_p+Sg}$$

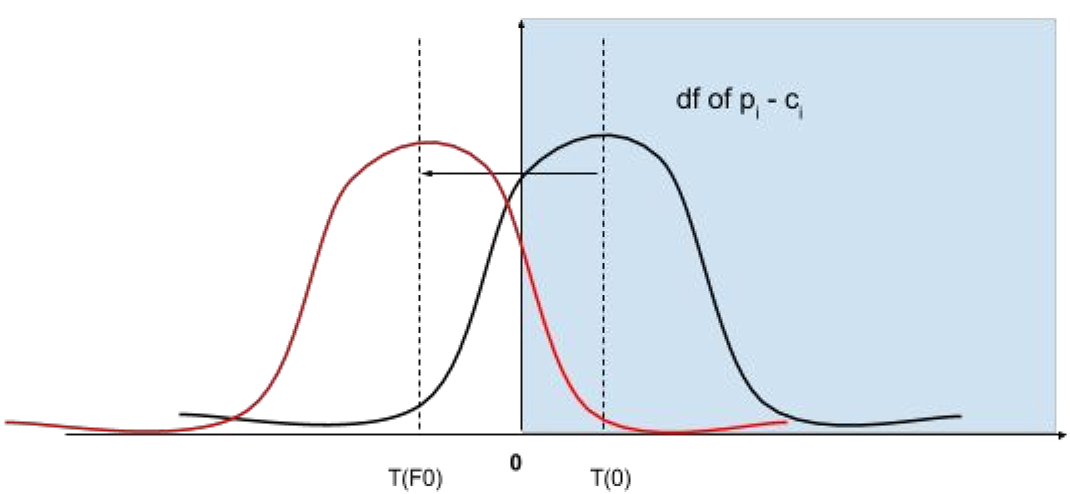
and a share of CP for government party is

$$CP\frac{S_g}{S_p+Sg}$$

The government can manipulate with election results transferring some votes casted for the opposition to the votes for the governing party (the model is adjustable for other manipulation techniques, such as ballot stuffing). For the simplicity let's consider the case of a simple vote transfer: a certain amount of ballots are transferred from *P* to *G*. Then a declared number of votes for the Governing party is a sum of transfers *F* and T_g, 'true' votes for the *G*. The opposite is true for the opposition:

$$S_g = T_g + F$$
$$S_p = T_p - F$$

Each voter has his/her own idiosyncratic costs of going to a ballot box c_i and utility derived from the act of voting for his/her party p_i
Voters have some expectations, *M* about the level of manipulation (fraud) at the forthcoming elections (we assume here that these expectations are the same across the population but the idiosyncrasy of such expectations does not change the formal analysis).
For the sake of simplicity let's assume that people expect that the expected fraud in period *t* will be the same as it was the last time *t-1*. $M_t = F_{t-1}$
so a voter goes to a ballot box if $p_i - c_i > 0$ where a utility $p_i = f(M)$, $dp_i/dM<0$
So the growth in expected fraud at the elections shifts the distribution of voters' net profits from the voting to the left (see the graph below), and this suppresses turnout - which can be measured at this graph as an area under the density function to the right of zero (green shaded area). That helps distinguishing between Simpser's *true* and *real* turnouts. A true turnout is a turnout without expectations of a fraud ($T_i \mid M = 0$), and real turnout is an actual number of voters who come to ballot boxes under the expectations of a fraud ($T_i \mid M = M_1$). Which again is different from declared turnout S_i.



Let's consider a linear dependence between utility from voting and expected fraud. If a share of manipulated votes is estimated by population as f_0, then

$$p_i = k_i\,(1-f_0)$$

and a person goes to vote if

$$k_i(1-f_0) - c_i > 0$$

A final profit of oppositional voter is

$$\pi_i = 1/n_p \frac{T_p-F}{T_p+T_g+F} CP + k_i(1-f_0) - c_i$$

Government and pro-government voters split the shares of elections as *q:(1-q)*. So the final profit of pro-governmental voter is

$$\pi_j = 1/n_g(1-q)\frac{T_g+F}{T_p+T_g+F} CP + l_j(1-f_0) - d_i$$

(here we assume that ceteris paribus pro-governmental voters feel disutility from the electoral fraud even if it is profitable for his/her party, but this assumption is not crucial and doesn't change the analysis).

The profit of the government is

$$\pi_G = q\frac{T_g+F}{T_p+T_g+F} CP - C(F)$$

where *C(F)* is a cost of producing a fraud. C is a twice differentiable function where *C'>0* and *C''>0* : a marginal cost of ballot manipulation grows with the size of the manipulation (which seems to be a realistic assumption - INSERT EMPIRICAL EVIDENCE HERE).

RQ1: Will an ‘optimal’ size of manipulation $F_{t,max}$ ever coincide with an expected size of manipulation M_t.
And for this model the answer is NO.

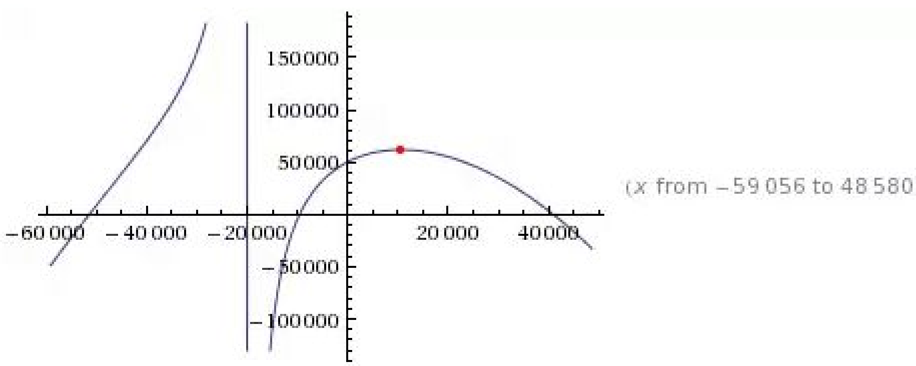
(by ‘optimal’ we mean ‘maximising the utility of governmental party”)
PROOF: We skip the formal proof at the moment, but the logic is pretty simple:
Profits of government π_G is a strictly concave function and has only one local maximum for $F>0$. $dF_{max}/dT_p>0$ thus if $T_{pt} \propto M \propto F_{t-1}$ then from $(T_{pt}<T_{t-1}) \rightarrow F_{tmax}<F_{t-1max}$

An example below shows an optimal size of a fraud when C is a quadratic function of $F=x$, and a turnout of 20k (10k of pro-governmental and 10k oppositional) voters divide a Common Pool of a value of 10^5.

Local maximum:

$$\max\left\{\frac{10^5\left(10^4+x\right)}{2\times 10^4+x}-0.5\times 10^{-4}\left(x^2+x\right)\right\}\approx 61701.9 \text{ at } x\approx 10646.7$$

Plot:



RQ2: If there were no expectations of manipulation would be the share of opposition higher? the answer is YES (for this specific model).

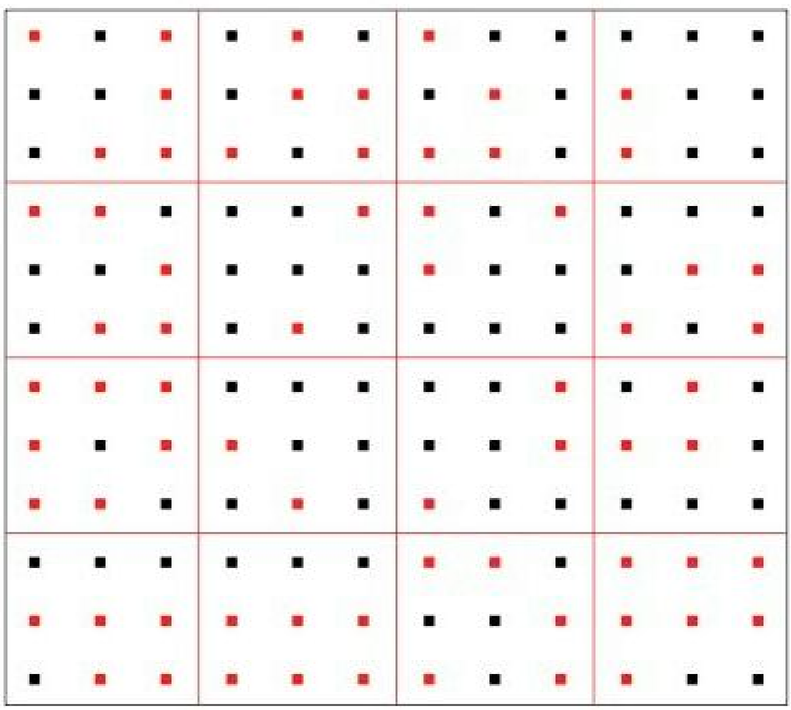
PROOF: again we skip the full proof here, but it’s quite simple: because of concavity of π_G and linearity of $p_i=k(1-f_0)$ the growth of S_p due to a decline in expectations of a fraud exceeds the growth of optimal F_{tmax} that are stuffed by a government as a response in growing oppositional turnout.

Experimental design

Summing up, we have two hypotheses to test:

1) *H1: due to a growing marginal cost of a fraud, an optimal amount of fraud by a governing party will always be lower than its expectations.*
2) *H2: ceteris paribus the lower expectations about forthcoming fraud the opposition voters have the higher share of the votes their party gets.*

The second RQ (and partly the first) can be tested via a following experimental design:
(All numbers are arbitrary, and for illustrative purposes only).
Assume that we have a population N=144 (so we can split them to 16 groups of 9). Each member is assigned to a type **Red** or **Black** (with a probability of ½). The groups are depicted below:



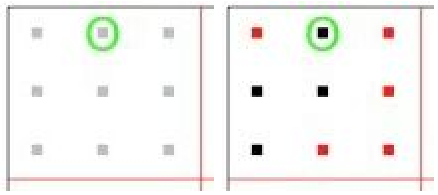
There is a common pool (*CP=1000*) to divide between participants.
The share of each group depends on share of votes *(S_i)* casted for each group:

$$CP\frac{S_i}{S_i+Sj}$$

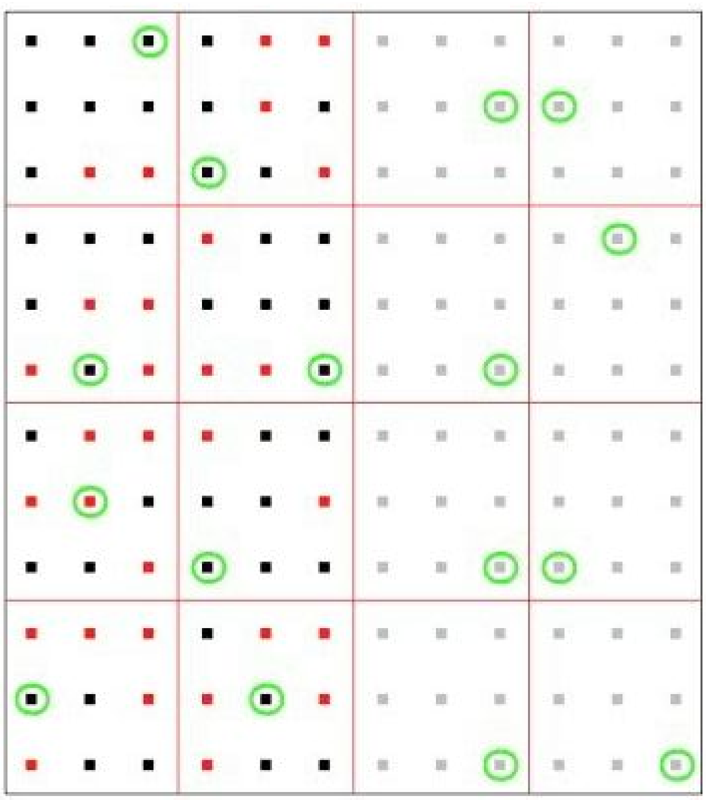
The voting is costly (let's say a cost is *C=1*).
So each member's profit is

$$\pi_i = 1/n_p CP\frac{S_i}{S_i+Sj} - (1|(he\ votes), 0|(abstain))$$

In each group one participant is randomly selected as an **electoral committee member**.
He/she reports the number of votes of his/her group to experimenters.
There are some groups where people cannot observe the type of their electoral committee member (see the picture to the left). In other groups the type of electoral committee member is observable (a picture to the right).



We claim that by dividing the population into two subgroups (see the graph below) with different amount of information about their electoral committees provided, this manipulation will change the level of their fraud expectations. And thus the turnout in the left subpopulation will be lower than in the right one compared to the left population:



<u>Counterintuitively more reliable information about probable fraud will decrease the turnout.</u>

The prediction from purely game-theoretical perspective is different: if we assume that the electoral committee members are pure rational profit-maximisers, without any intrinsic costs of misreporting they will report a maximum possible amount of votes for the group they personally belong to. Expecting this, all other members (whatever group they belong to) will have no incentive to vote. This consideration will be the same in both subgroups=treatments so a theoretical prediction is that there won’t be any difference between treatments at all as well as a zero real turnout and 100% declared turnout.