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# Human Capital
# and Political
# Business Cycles

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Classical theory considers political business cycle as a result of either opportunistic behavior of government (opportunistic cycle) or aiming policy on certain constituency (partisan cycle). In this paper, we propose an alternative explanation of the phenomenon of political business cycle — experience of government. We propose an illustration that shows that elections infer cycles without any opportunism or ideology of incumbents. We also build a model with endogenous ego-rent. The model explains a channel to increase incentives, when none has commitment — governors need to develop skills to increase their value for public and increase probability to get re-elected.

Using fiscal monthly data of Russian regions from 1996 to 2004, we got evidence both of positive effect of experience on performance and opportunistic component of the cycle. We also got evidence of diminishing return on experience.

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# 1. INTRODUCTION

The theory of political business cycle (PBC) splits into two main streams: opportunistic and partisan, in which there are directions based on myopic or rational behavior of voters.[1] According to partisan theory politicians care about ideology of the parties to which they belong, while according to opportunistic theory they aim to get re-elected to get an ego-rent. In this paper, we propose an alternative explanation of the phenomenon of PBC — cyclical changes can take place just due to technology of elections without any opportunism or partisan goals. The underlying idea of this paper is that changes of governments imply changes of human capital, what affects provision of public goods. Temporary worsening can happen even if a more talented governor comes into power, since the new government is inexperienced.

In 2004 Russian Duma abolished elections of executive power in regions. One of the reasons was high costs of elections and low return from it due to capture of this institution on local level. High incumbent re-election rate was treated as evidence for capture of local elections. This paper illustrates how elections build incentives for governors even in absence of any monitoring from upper level government and any formal relations with public. It also analyzes governor bias and states that it is a natural phenomenon even under fair elections. It also tests whether governors improve performance during their terms, and whether cycles of opportunistic shape arose due experience effect or due to pre-electoral expansion.

Nordhaus (1975) was the first to formalize the phenomenon. He used Phillips curve framework with adaptive expectations of voters to show that industrial growth is to be prior to elections for the cost of growing inflation, and recession with decreased inflation is to follow elections. Nordhaus' theory is the origin of non-rational opportunistic theory.

Hibbs (1977) was the pioneer of partisan theory. He proposed that cycles can be a result of changes of governing parties, which have different goals. Frey (1978) and Frey and Schneider (1978) considered a mix of opportunistic and partisan theory — so called weak partisan theory.

Rogoff and Sibert (1988), Rogoff (1990), and Persson and Tabellini (1990) developed opportunistic cycle theory in the rational expectations framework. They assumed that there can be asymmetry of information between an incumbent and public. Consequently, the incumbent can send a costly signal about her competence. The costs of the signal are distortions of fiscal policy, what gives another name to this theory stream — theory of fiscal (budget) cycles.

Alesina (1987) proposed a model of rational partisan cycles, which is based on rigidity of wage contracts and uncertainty of tastes of the electorate. According to this theory even re-election of incumbent party can bring to real changes due to non-zero probability of change of leading party.

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[1] See Garrat (1998) for a detailed survey of the literature.

There is an alternative way to show opportunistically improvements prior to elections: to set the date of elections to the periods of economic growth instead of populist activity before a fixed date. Ito (1990) provided a model of endogenous cycles and illustrated their presence in Japan. Although Russian electoral system is based on exogenous timing, there were strategic shifts of the dates, *e.g.* some incumbents resigned, and then tried to get elected in a few months. There were about 15% of shifts of regional governor election dates in the period from 1996 to 2004. Elections, however, were shifted mostly exogenously (*e.g.* promotion of incumbent to the Federal Government; or his death).

Empirical evidence of cycles is quite mixed. It is mostly represented by cross-country studies. Alesina and Roubini (1992) found evidence for rational partisan and some evidence for rational opportunistic cycles in OECD countries; Andrikopoulos, Loizides, Prodromidis (2004) using filtering procedures documented that hardly cyclical policy was a goal of power in the EU; Berger and Woitek (1997) using monetary policy indicators got no evidence for cycles in Germany. Moreover, there were some contradictory results, *e.g.* Berlemann and Markwardt (2003) found no evidence of permanent partisan effects, but did find evidence of temporary partisan effects in OECD countries, while Alesina's (1987) approach states that temporary effects arise as a result of crucial (permanent) differences in policies of parties and uncertainty of voter tastes. Empirical evidence for cycles in developing countries is more convincing: Schuknecht (2000), Block (2001), Shi and Svensson (2001) showed that there were fiscal cycles in developing countries.

Recently the theory got more focused on the factors that drive the cycles to explain the puzzle of mixed evidence of cycles. Gonzalez (2000) and Shi and Svensson (2001) showed that transparency reduces incentives to run cycles. These approaches state that development of institutions reduces or even eliminates the costs of elections induced by opportunistic behavior.

There are two empirical papers devoted to cycles in Russia. Gimpelson and Treisman (2001) showed that there were cycles on the federal level, which are hardly distinguishable statistically, since different instruments were appropriate in different moments. Akhmedov and Zhuravskaya (2004) using a menu of fiscal and wealth indicators of the regions of Russia, showed that there were short-term opportunistic cycles in the regions and the cyclical changes were lower in the regions with higher transparency.

In this paper we claim that elections have costs even in the case of complete transparency of the government and no ways for manipulations of public opinion or signaling, since elections lead to changes of people in power. Positive influence of experience on performance was widely discussed in term limit literature.[2] It was shown that voters are inert to dismiss their representatives, since the latter improve their lobbing skill. Thus, districts play prisoner's dilemma, and term limits can resolve the problem. PBC literature, however, did not account for effect of experience. This paper is

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[2] See Dick, Lott (1993), Friedman, Wittman (1993), Bernhardt, Dubey, Hughson (2004).

based on quite strong assumption that governor experience is "directly" beneficial for voters and this benefit comes not from redistribution of resources shared with other regions.[3]

We propose that shape of the cycle depends on the result of elections, because dismissal of incumbents implies, on the one hand, dismissal of accumulated skills, on the other hand, it implies dismissal of incompetent governors, if it happens not due to term limits. The presented mechanism should be especially noticeable in young democracies like Russia, where institutions are just on the stage of formation and skills of people in power matter very much. We present a simple example illustrating the effect. In particular, we suppose that performance of an incumbent depends on her experience and managerial talent. The talent is observed only when a person gets power. Consequently, the electorate can replace the incumbent, if he performs relatively badly. This can bring to two basic types of cyclical changes: 1) short-term worsening in the case of replacement of the incumbent due to costs of starting management of the region;[4] 2) long-term improvements in the case of shifts, since only badly performing governors are removed. We consider a term-limit setup, which presents in Russia, and predictions are different for the case of dismissal of an incumbent due to term limit: if a governor has exhausted the limit, then the next elections bring to worsening both in the short and in the longer run.

We also develop a model in moral hazard framework. We consider the situation when skills (performance) depend on talent and efforts. Talent and efforts are observed when a person gets power. Skills are accumulative, what makes it unattractive to dismiss incumbents, and only quite incompetent incumbents are dismissed. In this model both governors and public gain from skills of governors. Choosing efforts governors not only increase the current benefit, but also invest in their future performance. Elections not only provide selection of governors, but also increase incentives of governors expecting strong competition. Even more — elections lead to non-monotonic influence of governor's talent on welfare of the public, since less talented governors exhibit stronger competition. The model is consistent with common wisdom saying that voters are quite inert to dismiss incumbents and consequently incumbents ex-ante have better chances to be elected. The higher voters care about future, and the lower depreciation of accumulated skills, the higher advantage of incumbents.

The model predicts influence of elections on performance. Playing with assumptions about technology, one could get slightly different shape of the cycle. We proposed that there must be stagnation at start of running a region; positive trend with diminishing marginal return to experience, and no significant dynamics around elections if the incumbent wins. If human capital story were the only

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[3] There are many alternative views on experience of rulers. For example, the higher experience of the governor, the more likely that he "privatized" the region, and more resources are diverted from the public. Another argument comes from corporate governance literature — alike managers, who could inefficiently invest in projects that are attached to their specific skills and artificially increase their value for the firm, the incumbents could manage the regions so, that their dismissal would bring to collapse in the region just because none could work in existing bureaucratic system or restructure it. We cannot neglect such arguments, and simply assume that the net effect of experience is positive.

[4] All the predictions are to be interpreted in terms of expectations.

channel of effect of elections, one would get positive effect of pre-electoral period and negative effect of post-electoral in estimation without control for experience, and could wrongly interpret this result as governor's opportunism.[5] For example, Khemani (2004) documented almost linear dependence of fiscal policy from time to the next elections, and interpreted this result as opportunism. One of the messages of this paper is that while such a result could be interpreted as opportunism, one needs to control for governor's experience to make a valid conclusion.

Real PBC includes features of different theories. The basic goal of the empirical part of the paper is to test presence of features that are consistent only with the proposed theory. The predictions of human capital approach are tested on the basis of elections of governors in Russian regions. The specificity of the data is that only opportunistic cycles can be an alternative to the proposed theory, since there were quite few changes of political orientation of regional leaders. In estimation we use governor fixed effects, what allows us to control for talents and political orientation of governors, and differentiate opportunistic theory and the proposed approach.

There are several basic technical problems with testing cycles. First, many studies use annual or quarterly data, what increases error of measurement of the dates of elections. Thus, some data corresponding to post-electoral period are treated as pre-electoral data and vice versa. Second, many studies look at quite few characteristics such as growth and inflation, and often do not care about fiscal instruments. Drazen (2000) stresses that both theoretical and empirical investigations abstracting from fiscal instruments are unconvincing. Third, it is necessary to control for time trend, what *e.g.* is usually done in cross-country studies with help of mean of an indicator by the countries. Such a measure suffers from heterogeneity of countries. Berlemann and Markwardt (2003) show that it is not enough to subtract G7 levels to get stationary series for OECD countries. Moreover, different countries can have too different trends and autoregressive structures, what makes questionable poolability of the regions. This problem looks softer for regions of one country, than for different countries. In this paper, we use monthly data of fiscal instruments of Russian regions that are more homogeneous than different countries.[6]

The evidence is quite mixed. On the one hand, opportunistic nature of cycles was confirmed. On the other hand, we observed a positive experience trend in performance of governors with diminishing return on experience, what is consistent with our model. Evidence of sharp post-electoral fall due to disorganization caused by incumbent's loss got no evidence.

The paper is organized as follows. In Section 2, we provide a framework to get predictions of human capital approach to cycles. In Section 3, we present empirical methodology for testing the basic model and results. Section 4 concludes.

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[5] Note that experience trend is not the same as time trend, and including time trend in corresponding regression would solve nothing.

[6] This is an updated version of the dataset used by Akhmedov and Zhuravskaya (2004).

## 2. THEORETICAL FRAMEWORK

### 2.1. Illustration of Costs of Elections — Lost Investment in Skills

We provide quite technical explanation of PBC, which was not considered in the literature. The argument is based on development of skills of a governor during running an economy. As a benchmark we propose a simple story, in which there is no room for opportunistic or partisan cycles, but cycles still can arise due to mechanism of elections per se. In particular, elections lead to sinking accumulated person specific skills of an incumbent in the case of dismissal of the incumbent.

Consider the following situation: an economy is inhabited by homogenous population that elects a governor at the end of each other period. There are term limits — no one can be in the office more than for two terms.

Assume that performance of the governor depends on her skills $S_t$, and the citizens correspondingly gain from skills of governors. Skills could affect quality of public good provision with a fixed budget, or taxes needed to collect from the public to provide a fixed public good.
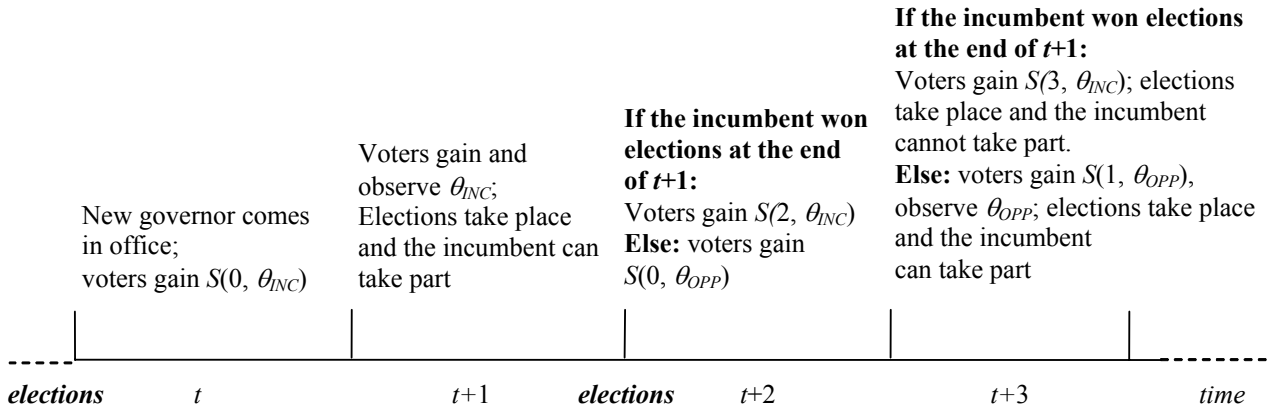


**Fig. 1.** The time-line. The figure presents dynamics of skill, when a new governor with talent $\theta_{INC}$ is elected at the end of period $t-1$ and starts to run the region in period $t$. If she is not re-elected at the end of period $t+1$, then a new governor with random talent $\theta_{OPP}$ and no experience comes in the office

Assume that skills depend on the governor's talent $\theta$ and her experience of being in the office $\tau$. Each citizen has talent $\theta$ to manage the region distributed with cdf $F(\cdot)$, and has right to try to get elected at no costs. The talent of the incumbent is observed, as only she gets the power, while the talents of her opponents are not observable.

We consider a reduced form of the game and assume that voters maximize expected utility function represented by (1), when vote at the end of period $k$:

$$U_k = \sum_{t>k} \beta^t E_k[S_t], \tag{1}$$

where $\beta$ is the discount factor. The time-line presented on Fig. 1 closes the setup.

The electorate votes for skills, and chooses between the incumbent's skills and those of a randomly chosen citizen.[7] The incumbent's chances are higher in average than chances of his opponent, since the incumbent has higher experience.

Consider the following simple technology — each new governor needs one period to create a team and then her talent gets realization, but further skills do not grow, *i.e.* he delivers nothing to the public in the first period of governance and $\theta$ in any other period of her governance. Formally, skills are represented by (2), where $I$ is the indicator function.

$$S(\theta, \tau) = \theta I(\tau \geq 1) .$$ (2)

We abstract from objectives of the incumbent and assume that there is an ego-rent that creates incentives to try to get elected. There is no asymmetric information between the public and the incumbent when he runs for re-election, and consequently there are neither ability, nor incentives to signal.[8]

Denote the expected utility of a voter in period $t$, choosing a governor at the end of period $t-1$, conditional on absence of the incumbent among the candidates (*e.g.* due to the term limit or at the first elections), as $\Phi$. Denote the observed talent of the incumbent, as $\theta_{INC}$. If the incumbent is re-elected at the end of period $t-1$, then a voter's expected utility $U_{INC}$ is a present value of the term right after elections under the rule of the incumbent $(1+\beta)\theta_{INC}$ plus present value of utility of all other future periods $\beta^2 \Phi$:

$$U_{INC} = (1+\beta)\theta_{INC} + \beta^2 \Phi .$$ (3)

Voting against the incumbent gives the same utility (let us denote it as $U_{OPP}$) as in the case when the incumbent is forced to go out of the office. Thus,

$$U_{OPP} = \Phi .$$ (4)

Evidently, the higher $\theta_{INC}$, the higher costs to remove the incumbent, what implies that the voters re-elect the incumbent iff

$$\theta_{INC} \geq \overline{\theta} ,$$ (5)

where $\overline{\theta}$ is a threshold level of the incumbent's talent. The threshold level is determined by condition (6) of indifference of voters between voting pro or contra the incumbent:

$$U_{INC}(\overline{\theta}) = U_{OPP} .$$ (6)

Equations (3), (4) and (6) give us relation between $\Phi$ and $\theta$:

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[7] Following the classical models we consider no way to signal for challengers.

[8] If we supposed that the incumbent cares about social welfare, then it would lead to self-selection of the candidates. Thus, the voters would "require" higher skills of the incumbent to get re-elected, but it would bring to no qualitative changes the story.

$$\Phi = \frac{\overline{\theta}}{1-\beta}. \tag{7}$$

To complete the system we need to derive $\Phi$ directly using its definition. $\Phi$ is a sum of present value of utility got in the closest of future terms $0 + \beta E[\theta]$ and the present value of all the other future terms. Since a randomly chosen citizen satisfies (5) with probability $1 - F(\overline{\theta})$, then

$$\Phi = \beta E[\theta] + \beta^2 \big( (1 - F(\overline{\theta}))((1 + \beta)E[\theta \mid \theta > \overline{\theta}] + \beta^2 \Phi) + F(\overline{\theta})\Phi \big). \tag{8}$$

Substituting (7) in (8) we get equation (9) that allows us to derive the threshold level of talent:

$$\overline{\theta} + \beta(\overline{\theta} - E[\theta]) = (1 - F(\overline{\theta}))\beta^2 (1 + \beta)(E[\theta \mid \theta > \overline{\theta}] - \overline{\theta}). \tag{9}$$

The left hand side of equation (9) corresponds to costs of dismissal of an incumbent with talent $\overline{\theta}$, *i.e.* expected loss in the term coming right after elections. The right hand side of this equation corresponds to expected benefits of such a dismissal, *i.e.* expected gains in the second term after the considered elections.[9]

The threshold level of talent is an increasing function of the discount factor:

$$\frac{\partial \overline{\theta}}{\partial \beta} = \frac{\beta(2 + 3\beta)\int\limits_{0}^{\infty} \theta dF(\theta + \overline{\theta})}{(1 + \beta)(1 + \beta^2 (1 - F(\overline{\theta})))}.$$

The result is quite intuitive — the higher voters value the future, the more they gain from dismissal of an incompetent governor. If $\beta = 0$, then voters never dismiss incumbents, since their gains are much less than costs caused by stagnation during building a team by a new governor.

In the considered example elections lead both to short term and long term changes. When the public dismisses the incumbent, it not only gets a more talented, in average, governor,[10] but it also gets an inexperienced governor. Under the considered technology of skill generation dismissal leads to short-term decline of skills. If the incumbent gets re-elected, then nothing happens in the short run. Long term effects of elections depend on the result of elections: if the incumbent wins, then nothing changes; if she loses, then voters gain $E[\theta] - E[\theta \mid \theta < \overline{\theta}]$; if she is dismissed due to term limit, then voters' get negative benefit $E[\theta] - E[\theta \mid \theta > \overline{\theta}]$. Cycles in this story are a result of technology of elections and effect of experience on skills. Below we propose a more realistic setup with endogenously chosen skills to show how experience affect benefits of the agents and bring to cycles.

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[9] Voting at any elections has no effect on benefits got in periods standing more than in two terms after the considered elections. This is the result of term limits.

[10] It is the case, if the incumbent could run for re-election.

## 2.2. Model

**Setup.** In this section, we propose a model of moral hazard, which illustrates how elections provide incentives to governors even in the absence of any commitment by any party. The model also shows that elections bring to cycles. We consider situation, when skills are not automatically driven by experience, but governors exert efforts to increase skills. For illustrative reason we consider situation, when voters observe both skills and talents of governors.[11]

The setup is similar to that of the illustration. Consider a region where elections are held each period and all agents can try to get elected. There are term limits — the number of terms is limited by two. Voters benefit from skills of governors $S_t$ and their utility is represented by (1). Skills are affected by talent $\theta$ and efforts $e_1, e_2$ exerted by the governor correspondingly in the first and in the second terms. For illustrative reasons we completely specify the problem.

Suppose that talent is distributed uniformly on [0,1]. Efforts are costly, and exerting $e_t$ in period $t$ a governor bears cost

$$C(e_t) = e_t / 2 .$$

Suppose that skills of the governor with talent $\theta$ performing for the first term are represented by

$$S_1 = \sqrt{\theta e_1} . \tag{10}$$

If incumbent with skills $S_1$ and talent $\theta$ is re-elected, then his skills $S_1$ depreciate in the second term with depreciation rate

$$1 - \xi \in (0,1) ,$$

but he adds

$$\sqrt{\theta e_2}$$

to skills in the second period, *i.e.* his skills in the second term are represented by

$$S_2 = \xi S_1 + \sqrt{\theta e_2} . \tag{11}$$

Formula (11) says that efforts have an accumulative effect on skills. Thus dismissing an incumbent, voters lose his investment in skills. This makes them more inert to dismiss incumbents.

Each governor gets an endogenous ego-rent $X_t$. We do not consider possibility of free choice of sharing public finance (resources) between private governor consumption (bribing/grabbing) and public consumption. We assume that if the society gets a benefit of $S_t$, then the governor gets each period a benefit of

$$X_t = \delta S_t ,$$

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[11] The case, when only skills are observed is shortly considered below.

where $\delta$ is exogenous. In other words, the higher skills of the governor, the wealthier the region; the wealthier the region, the higher benefit of the governor. $\delta$ can be considered either as a mirror of share of public finance used by the governor in private interests,[12] or as a mirror of her honor for regional prosperity. For simplicity of calculations we assume no discounting by governors, and ignore benefits of the governor got by him as a part of the society.[13]

Thus, the governor's utility from being in power is represented by (12)

$$U_G = X_1(\theta, e_1) - C(e_1) + I(\text{re-election} \mid S_1, \theta)(X_2(\theta, e_1, e_2) - C(e_2)). \qquad (12)$$

Below we derive perfect sub-game equilibrium in the game with rational expectations.

**Equilibrium.** Strategies, when incumbent cannot get re-elected due to term limits are obvious —all try to get elected, and voters choose a new governor randomly. Therefore, we widely consider the choice of voters when an incumbent do take part in elections. Let us start from the end of game of society and the governor, *i.e.* from the choice of the governor in the second term.

Since utility function of the governor is separable, he chooses in the case of re-election

$$\widetilde{e}_2(\theta) = \arg\max(X_1(\theta, e_1) - C(e_1)) = \delta^2 \theta. \qquad (13)$$

The next stage to consider is the choice of voters. Since voters observe not only skills, but also talents of governors, they perfectly foresight skills of the incumbent in the next term (conditional on his re-election). When voters decide whether to re-elect the incumbent they compare payoff from re-election $S_2 + \beta\Phi$ and payoff from his dismissal $\Phi$.[14] Voters implicitly state the same requirement on future skills for all levels of talent:

$$S_2 \geq \overline{S}_2(\Phi) \equiv (1 - \beta)\Phi. \qquad (14)$$

In other words, public implicitly states a minimal level of future skills $\overline{S}_2$ needed for re-election for a given expected utility from win of a randomly chosen governor. Note that any promises of the incumbent to provide high level of skills in future are ignored, if they are not supported either by high talent or by high investment in future skills made in the first term.

Condition (14) implies that voters re-elect if

$$S_1 \geq \overline{S}_1(\theta, \Phi) = \frac{1}{\xi}\left((1 - \beta) - \sqrt{\theta\widetilde{e}_2(\theta)}\right), \qquad (15)$$

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[12] If to consider $S_t$ as value of public goods that could be produced, and $\delta S_t$ as resources transferred by the governor in private consumption, then public gets $(1 - \delta)S_t$ in each period, and its choice does not change. See discussion of such a setup below.

[13] In reality the weight of such benefits is likely to be much lower than the weight of ego-rent. Moreover, accounting for this point is just a question of normalization.

[14] $\Phi$ is defined in the same way as in the illustration.

what means that the higher level of talent the lower requirement of public on skills of the first term. It in turn means that if incumbent chooses the lowest skill $\overline{S}_1$ needed for re-election, then the lower his talent the higher benefit of the public.

An important point is that public does not maximize its utility by committing to some re-election rule like (14), it just compares two numbers, when makes the choice. Thus, it cannot commit to deviate from rule (14) with equilibrium level of $\overline{S}_2$. Governors know how voters make decision and perfectly foresight the outcome of elections for any level of skills in the first term. Thus, elections in this game provide additional incentives to governors, even though no party can commit.[15] There is, however, a negative impact of elections: they cut horizon of planning of governors, especially for losing governors. Thus, the total effect of elections is a "sum" of increased incentives to those who pursue to get re-elected plus negative effect of cut horizon plus positive effect of selection more talented governors.

Obtaining best response of governors on re-election rule $\{\hat{e}_i(\theta, \overline{S}_2)\}$ one could calculate expected utility $\Phi_S(\overline{S}_2)$ from choosing a challenger for a given level of $\overline{S}_2$. Solving

$$\overline{S}_2(\Phi) = \Phi_S^{-1}(\Phi),\tag{16}$$

one could find $\Phi$, and restore the equilibrium backwardly.

Let us turn to the choice of governors, when they run the economy for the first term. Note that for any positive $\overline{S}_2$, there could be governors of three types:

— not re-elected;

— re-elected with $S_1 = \overline{S}_1(\Phi)$ (corner solution);

— re-elected with $S_1 > \overline{S}_1(\Phi)$ (interior solution).

Not re-elected governors are those, for whom rent of being in power for one term

$$\delta\sqrt{\theta\widetilde{e}_2(\theta)} - C(\widetilde{e}_2(\theta))$$

is lower than utility from satisfaction to the rule of re-election:

$$\delta(1+\xi)\overline{S}_1 + \delta\sqrt{\theta\widetilde{e}_2(\theta)} - C(\frac{\overline{S}_1^2}{\theta}) - C(\widetilde{e}_2(\theta)).$$

Thus, they have talent lower than

$$\frac{\overline{S}_1}{2(1+\xi)\delta}.$$

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Denote the upper border of talents of not re-elected governors as $\bar{\theta}$. Then

$$\bar{\theta} = \frac{\overline{S}_2}{(2\xi(1+\xi)+1)\delta}. \tag{17}$$

Governors with $\theta \geq \bar{\theta}$ get re-elected, and the set of re-elected governors splits into sets with interior and corner solutions. Denote interior solution of first term governor's problem

$$\delta(1+\xi)\sqrt{\theta e_1} - C(e_1) \to \max_{e_1}$$

as $\hat{e}_1(\theta)$. Then

$$\hat{e}_1(\theta) = (1+\xi)^2 \delta^2 \theta.$$

This solution starts working from level of talent $\tilde{\theta}$, and this border level is derived from

$$\sqrt{\theta \hat{e}_1(\theta)} = \overline{S}_1(\theta, \Phi). \tag{18}$$

Thus,

$$\tilde{\theta} = \frac{\overline{S}_2}{(\xi(1+\xi)+1)\delta}. \tag{19}$$

Summing up, the first term choice of governors is represented by

$$\tilde{e}_1 = \begin{cases} \delta^2\theta & ,if\ \theta < \bar{\theta} \\ (\overline{S}_2 - \delta\theta)^2/(\xi\theta) & ,if\ \theta \in [\bar{\theta}, \tilde{\theta}) \\ (1+\xi)^2\delta^2\theta & ,if\ \theta \geq \tilde{\theta} \end{cases}. \tag{20}$$
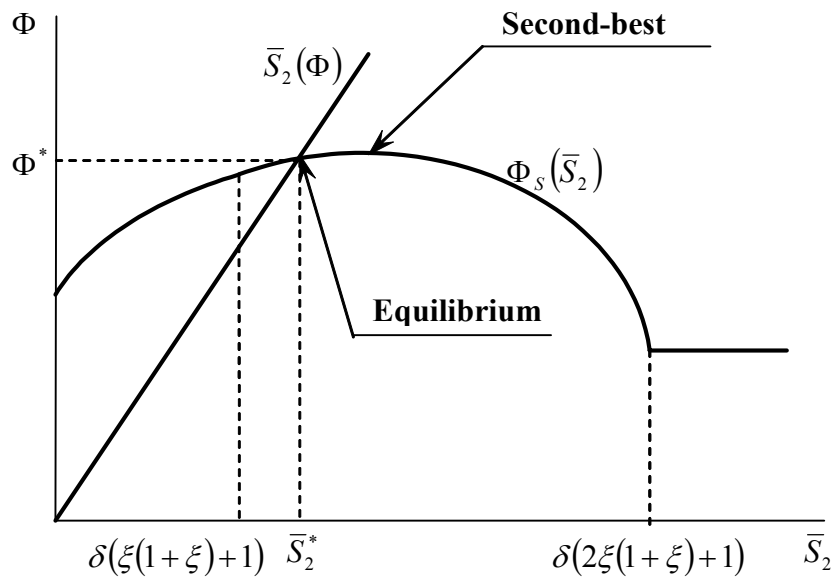


**Fig. 2.** Equilibrium in the model

Figure presents equilibrium requirement on second term skills $\bar{S}_2^*$ and expected utility from choosing a governor randomly $\Phi^*$. Voters get lower benefit than in the second best, since they cannot commit to certain re-election rule.

Substituting best response of governors in utility function of a representative voter we get $\Phi_S$. For the case of realization of all three strategies of governors it is represented by (21):

$$\Phi_S = \int_0^{\bar{\theta}} (\sqrt{\theta\tilde{e}_2(\theta)} + \beta\Phi)d\theta + \int_{\bar{\theta}}^{\tilde{\theta}} \left( (\frac{1}{\xi} + \beta)\bar{S}_2 - \frac{1}{\xi}\sqrt{\theta\tilde{e}_2(\theta)} + \beta^2\Phi \right)d\theta +$$

$$+ \int_{\tilde{\theta}}^1 \left( (1+\beta\xi)\sqrt{\theta\tilde{e}_1(\theta)} + \beta\sqrt{\theta\tilde{e}_2(\theta)} + \beta^2\Phi \right)d\theta . \tag{21}$$

If $\bar{S}_2$ is too large, then $\Phi_S$ equals to the first integral in (21) with upper border equal to 1 (if $\bar{S}_2 > \delta(2\xi(1+\xi)+1)$) or by sum of the first two integrals in (21) with upper border in the second integral equal to 1 (if $\bar{S}_2 \in (\delta(\xi(1+\xi)+1), \delta(2\xi(1+\xi)+1)))$.[16] $\Phi_S$ is a non-monotonic function, since an increase of $\bar{S}_2$ leads to two effects: higher incentives to those, who get re-elected, and lower incentives to get re-elected, *i.e.* shrinking of the set of highly motivated governors.

Substituting $\bar{\theta}, \tilde{\theta}, \hat{e}_1, \tilde{e}_2$ in (21) one gets $\Phi_S$ as a function of $\bar{S}_2$, and solving (16) one gets equilibrium level of $\Phi$. There is an equilibrium, since $\Phi_S(0) > 0$, and $\Phi_S(\bar{S}_2)$ is a bounded function, while $\bar{S}_2(\Phi)$ is a linear increasing function with $\bar{S}_2(0) = 0$.

Moreover, the equilibrium is unique, since $\Phi_S(\bar{S}_2)$ is a concave function on the interval $[0, \delta(2\xi(1+\xi)+1)]$.[17] Fig. 2 represents graphically the solution of the model. Evidently there cannot be an equilibrium, when any incumbent is dismissed ($\bar{S}_2 > \delta(2\xi(1+\xi)+1)$).[18] Moreover, all three types of governor strategies get realized in the equilibrium, since otherwise the right hand side of (21) would be less than $\Phi$.[19]

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[16] More formally one needs to replace $\bar{\theta}$ and $\tilde{\theta}$ by $\min(\bar{\theta}, 1)$ and $\min(\tilde{\theta}, 1)$ in (21) to get a general formula.

[17] This is the interval, on which at least some governors have incentives to invest in skills sufficiently to get re-elected, *i.e.* $\theta \le 1$.

[18] Formally, if it were the case, then

$$\Phi = \frac{\delta}{2(1-\beta)},$$

what is lower than

$$\bar{S}_2 /(1-\beta) \text{ for } \bar{S}_2 > \delta(2\xi(1+\xi)+1).$$

[19] Note that expression in the first two integrals in (21) are less than $\Phi$.

**Reluctance of voters to dismiss incumbents.** Possibility to transfer certain investment in skills in future creates extra incentives to keep incumbents. There are several ways to measure reluctance of voters to dismiss incumbents, but not all of them are applicable. For example, does lower "requirement" on future skills reflects higher reluctance? On the one hand, the answer is "yes", because it means that for given other parameters the public requires more from incumbents. On the other hand, skills could themselves depend on the considered parameter. For example, decreasing depreciation rate it is quite natural to expect tougher re-election rule (higher $\overline{S}_2$), and higher re-election rate, since productivity of efforts of the first term increases. Thus, we consider comparative statics of threshold level of talent $\overline{\theta}$, which perfectly related with re-election rate. We focus on effect of two parameters: discount rate of voters $\beta$ and skill depreciation rate $1 - \xi$.

Higher discount rate makes voters care more about present, what reduces their incentives to replace incumbents. Formal calculation supports this view and

$$\frac{d\theta}{d\beta} > 0 .$$

Governors correspondingly have higher ex-ante probability to get re-elected. Generally, this result could be interpreted in the following way: the less politically active young (who have longer horizon of planning, and care less about next day), and correspondingly the higher bias of the result of elections to the tastes of old part of population, the softer constraints of the governors.

Less trivial effect of depreciation rate $1 - \xi$ on probability of re-election. On the one hand, here works the same logic as for discount rate — the lower depreciation, the higher costs of dismissal. On the other hand, the lower depreciation, the higher incentives of challengers, and the higher benefit of dismissal. Calculations, however, show that the first effect dominates, and the higher depreciation, the lower ex-ante advantage of incumbents.

**Welfare analysis.**

*Effect of talent.* A specific result of this model is that both efforts and skills not monotonically depend on talents. The result is even more striking: among those who has

$$S_1 = \overline{S}_1(\theta, \Phi) ,$$

the less talented the incumbent, the greater expected utility of the voters. Actually $S_2$ for such governors is the same, while

$$\overline{S}_1(\theta, \Phi)$$

is decreasing with $\theta$. Even more — the least talented governors with corner solution ($\theta = \overline{\theta}$) bring to higher utility of voters than the least talented governors with interior solution that get re-elected ($\theta = \tilde{\theta}$). In other words, the public ex-ante prefers governors with good incentives and average talents to more (not much more) talented governors with poor incentives. Inability of voters to commit to be hard ex-post to governors creates soft budget constraints for them, and the more talented the

incumbent, the softer the constraint. The considered story has an effect similar to entrenchment effect described by Shleifer and Vishny (1988, 1989), but entrenchment here has a positive sense.
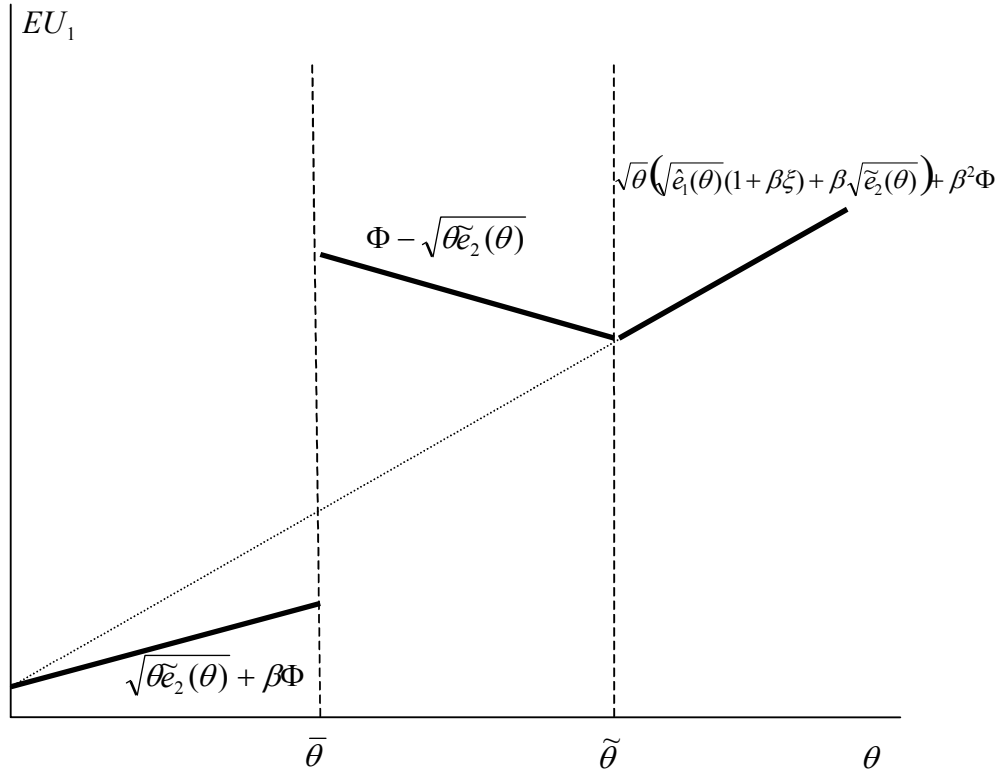


$EU_1$

$\sqrt{\theta}\left(\sqrt{\hat{e}_1(\theta)}(1+\beta\xi)+\beta\sqrt{\tilde{e}_2(\theta)}\right)+\beta^2\Phi$

$\Phi-\sqrt{\theta\tilde{e}_2(\theta)}$

$\sqrt{\theta\tilde{e}_2(\theta)}+\beta\Phi$

$\overline{\theta}$      $\widetilde{\theta}$      $\theta$

**Fig. 3.** Expected utility of voters and talent of the governor

Utility monotonically increases with talent in the interval of dismissed governors ($\theta<\overline{\theta}$) and in the interval of re-elected governors with non-binding re-election rule ($\theta\geq\widetilde{\theta}$), since both marginal product and incentives are positively related to talent in this range. Utility decreases with talent at the interim level of talent due to dominating negative effect of talent on incentives for such governors.

Fig. 3 shows how expected utility of voters depends on the governor's talent.[20] At low levels of talent ($\theta<\overline{\theta}$) voters get $\sqrt{\theta\tilde{e}_2(\theta)}+\beta\Phi$, and their benefit increases with talent, since among dismissed governors the more they are talented, the greater marginal product of efforts, and the higher efforts they exert. Benefit got from highly talented governors ($\theta\geq\widetilde{\theta}$) equals to

$$(1+\beta\xi)\sqrt{\theta\hat{e}_1(\theta)}+\sqrt{\theta\tilde{e}_2(\theta)}+\beta^2\Phi,$$

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[20] Note that due to term limits present value of benefits starting from the third term is $\beta^2\Phi$ for any level of talent (and correspondingly for any result of elections at the end of the first period).

and it increases due to the reason considered above. Finally, governors with intermediate talents ($\theta \in \left[\overline{\theta}, \widetilde{\theta}\right)$) deliver to the public

$$\Phi - \sqrt{\theta \widetilde{e}_2(\theta)} ,$$

and this is a decreasing function of talent.

*Trade-off between Incentives and Grabbing*. First note that cut-off levels of talent do not depend on $\delta$, while $\Phi$ and $\overline{S}_2$ are proportional to $\delta$. This brings to expected results: the higher incentives of the governors to invest in skills, the more voters' benefit; the more competitors of incumbent are interested in their skills, the tougher re-election rule. The effect becomes non-monotonic, when δ is interpreted as a share of resources grabbed by governors. Then voters expected utility function is multiplied by $1-\delta$, and correspondingly only efforts change in equilibrium, but not the choice of voters. Thus welfare of voters is proportional to $\delta(1-\delta)$ with minimums at $\delta = 0$ (no incentives for governors) and $\delta = 1$ (complete grabbing), and maximum at the middle. The result is quite standard for moral hazard story — at some point an increase of share of principal reduces his benefit.

**Moral hazard and cycles.** The presented model predicts difference of performance between terms. There are three mechanisms driving skills. First, in the second term governors get addition $\xi S_1$ to their second term investment, and in case of the same efforts in each term skills are higher in the second term. Second, governors have lower incentives in the second term, since first term investment gives benefits in both terms, while second term investment gives benefits only in the second term. Third, incentives could go down, because elections have no stimulation effect in the second term. The total effect has ambiguous sign and for a given re-election rule it depends on talent of governor and depreciation rate. Relatively talented governors (with interior solution) are not bound by re-election rule, and their second-term performance is higher:

$$S_2 = \left(1 + \frac{\xi^2}{1+\xi}\right) S_1 .$$

The situation is different for governors bound by re-election rule. The maximal difference $S_1 - S_2$ among such governors is reached at $\theta = \overline{\theta}$, since these governors have the same level of $S_2$ and incentives in the first term are adversely related to talent. Thus, second term performance is better for any talent iff it is the case for governors of type $\overline{\theta}$, what implies relatively low depreciation

$$\xi \geq \sqrt{\frac{1}{2}}$$

(in the considered setup).

Prediction of short-term effects, *i.e.* changes right around elections needs expansion of the model to continuous timing with discrete timing of elections. The resulting predictions would very much de-

pend on assumptions about technology of skill formation. For example, assumption of fixed costs (costs of start) would lead to poorer performance at start.

**An extension: unobservable talent.** Assumption of observable talent of governors is quite artificial, and it is more natural to assume that only skills are observable. It, however, would not change the model much. In this case incumbents' investment also provides information about their types, and voters adjust their expectations about future skills of incumbents. In other words, governors both entrench and signal. There would be three types of governors in the equilibrium of such a game: governors with relatively high or low talents would reveal their types and play the same strategies, as in the case of observable talent. Governors with intermediate talent would have the same skills in the first term and get re-elected. Thus, relation between benefits of public and talent would be positive in the case of unobservable talent. One could also extend the model to the case, when voters get knowledge about talent of governor directly with some exogenous probability, which is a measure of transparency of state, and study how transparency affects social welfare.

# 3. ESTIMATION STRATEGY

## 3.1. Hypotheses

The presented model and illustration predict influence of elections on economic performance of regions. The model did not explicitly exploit the idea of "costs of start", but we still test this suggestion and our first hypothesis is

**H1:** Elections are followed by fall of performance if incumbent is dismissed.

Alternatively, if performance depends only on talent of governor, then there should be an opposite prediction, since expected talent of challenger should be higher to win on elections.

The second hypothesis arises from ability of incumbents to transfer their current skills in future skills (with some depreciation).

**H2:** Performance of governors gets improved with their experience.

Finally, limited horizon of planning and motivating role of elections make governors care more about their skills at low experience (when they have longer horizon and are motivated by elections). Thus, they are motivated more at start of managing the region, and invest more in skills in this period. The corresponding hypothesis is

**H3:** Marginal effect of experience is lower in the second term.

We consider opportunistic rational cycle as the alternative.[21] Rogoff (1990) considered competence with MA(1) process, and assumed that voters do not observe pre-electoral shocks of competence.

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[21] We also control for partisan effects by including governor fixed effects in regression equations. Since official changes of partisan orientation of governors were very rare, public belief in this changes could be considered as quite low. Thus, we could neglect rational partisan cycle described by Alesina (1987).

Thus, governors could produce signals in form of fiscal expansion, if they had positive shocks of competence, and they produce no signals and follow steady policy (with under average level of budget spending), otherwise. Therefore, this theory predicts that there should be up and down dynamics of budget spending around elections if incumbent gets re-elected. Otherwise, it should be a reverse dynamics. Rogoff's theory predicts no positive dynamics in average even for re-elected governors, what is opposite to hypotheses 2 and 3.

### 3.2. Data, Sample, Measurement of Skills

First, we use data on regional governor elections that is provided by the Central Electoral Committee. The second source of the data is monthly regional budget statistics reported to the Ministry of Finance. The budgets include detailed information about budget revenues and expenditures. It is very important that the main data are monthly, since they allow us to determine quite precisely which and whose governance the data describe.[22] Detailed budgets are available since January, 1996 to December, 2004. Finally we use data on growth, inflation and wage level from Goskomstat and this data cover the same period.

We removed all autonomous okrugs, and kept only regions with 4 year term to measure experience properly. Thus, the panel consists of 58 regions of the Russian Federation and above hundred time points. The dataset covers 114 regional governor elections and 98 governors.

An important point of testing hypotheses is measurement of skills/performance. Economic indicators of regional industrial performance or welfare, such as regional growth rate or income level, look quite reasonable. They, however, very imperfectly reflect skills of governors. These indicators indirectly represent current regional policy and often react with an ambiguous lag on actions/changed performance of governors. We look at these indicators, but an alternative instrument, budget policy, looks more reasonable, since it is controlled by governors. This measure, however, suffers from not straightforward interpretation. Actually, do higher budget expenditures/revenues infer higher skills and better performance? Models typically look at competence of governors from two views: 1) ability to provide public goods with fixed resources; and 2) ability to minimize budget to provide a fixed public good level. The first view would say nothing about relationship between budget expenditures and skills, since we do not observe real value of provided public goods.[23] The second view would say that budget expenditures are adverse measure of performance. Russian reality is quite different from these two approaches. The role of Russian governors is not only to provide public goods, but also to collect taxes. While, most of taxes paid by Russian firms are of federal level, and formally Russian governors are quite limited in changing local tax rates, they could change "real" tax rate by enforcement of tax payments by pressing

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[22] See Akhmedov and Zhuravskaya (2004) for discussion and illustration of importance of this point.

[23] We could use some indicators of quality/quantity of provided public goods, such as capacity of public services (*e.g.* number of built public schools/hospitals or number of hospital beds per capita), but this data is available only on annual basis, what is insufficient for identification short opportunistic cycles. Khemani (2004) investigated PBC in road construction in Indian states with annual data, but did not find a strong effect of elections on road construction.

on tax agencies. The second main way of governors to increase budget is to bargain with the center for federal transfers, which is surely rewarded by all local voters. Since under typical income distributions median voter prefers higher redistributions, ability to collect taxes is also rewarded by median voter. Finally, rational opportunistic cycle is considered in the framework of manipulations of fiscal policy, and correspondingly our alternative is formulated in terms of fiscal policy. Thus, we treat budget revenues and expenditures as a main measure of skills.

We also consider two alternative fiscal indicators as the measure of skills — budget deficit and socially oriented spending. Budget deficit in the case of limited ability to borrow is a signal of wrong planning of regional fiscal policy. Actually, there were a number of cases in Russia, when people lived in unheated apartments in winter, because their local governments spent budgets in fall, while the federal government refused to cover budget holes to avoid soft budget constraints for regional administration. Thus, public is likely to punish incumbents for long term running deficit.[24]
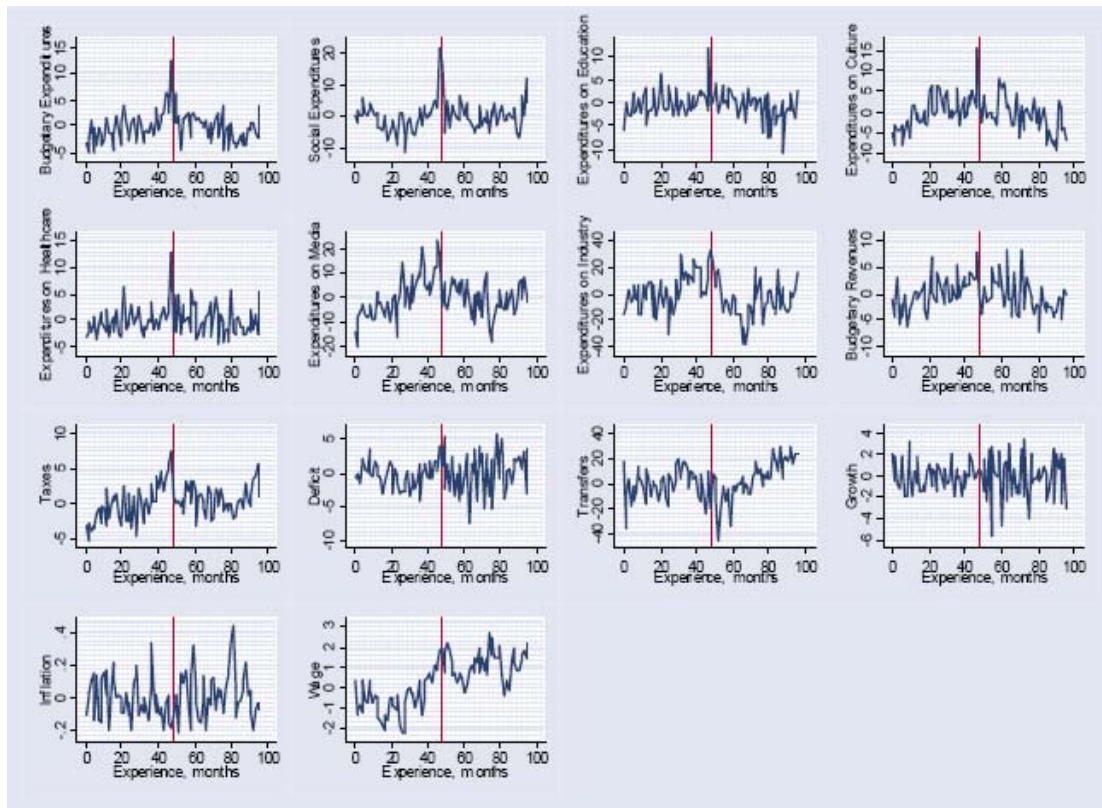


**Fig. 4.** Dynamics of fiscal instruments and wealth indicators net of governor and time fixed effects

There are two basic ways to increase social spending for a given budget. One way is just to save money on other types of budget spending, *i.e.* shift spending. Since there are certain limitations to such saving (for example, cutting spending on heating or cleaning the streets would lead to lower

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[24] Peltzman (1992), Brender (2003), Brender and Drazen (2005) provide evidence that running deficit could reduce chances of incumbents on re-election.

chances on re-election), an alternative way could work — provision of the same services could be cheaper if to improve a procedure of choosing the supplier.[25] The corresponding budget surplus could be used to increase social spending. Opportunistic PBC theory says that higher cycles are to be in more visible spending. Akhmedov and Zhuravskaya (2004), and Veiga and Veiga (2004) support this prediction. Thus, both views predict stronger effects in social transfers, but with different timing. To keep parallel with Akhmedov and Zhuravskaya (2004) we consider the same types of socially oriented spending: social transfers, expenditures on education, culture, healthcare, media, and industry.

Fig. 4 represents dynamics of the considered measures of skills. The graphs represent dynamics of variables net of governor and time fixed effects aggregated by experience. The graphs clearly support opportunistic cycle theory — all budgetary spending/revenue items have clear peak around elections (at experience of 4 years). Experience trend is less prominent: some types of budget expenditures, including total expenditures, have a positive trend in the first term with almost no trend in the second term. The same picture is for taxes and budgetary revenues. Industrial growth and inflation have no experience trend, while wage does, and the main growth of wage takes place in the second half of the first term.

### 3.3. Results

We estimate the following equation to test the hypotheses:

$$y_{it} = \sum_{j=1}^{4} \alpha_j y_{it-j} + \beta_1 Ex_{it} + \beta_2 Term_{it}^1 + \beta_3 Ex_{it} Term_{it}^1 +$$

$$+ \sum_{j=-3}^{3} \gamma_j m_{jit} + \sum_{j=0}^{3} \mu_j m_{jit} Term_{it}^1 + \delta_i + \tau_t + \varepsilon_{it}, \tag{22}$$

where $i$ stands for the governor, and $t$ stands for real time measured in months. $Ex$ is a governor's experience measured in terms, *i.e.* a unit of $Ex$ corresponds to 4 years.

$Term^1$ is a dummy, that equals one if the governor is for the first term in the office. $m$ is a set of dummy variables, and $m_{jit}$ equals one, if there were elections at period $t-j$ (negative $j$ means that elections will take place at period $t-j$); we use symmetric set of dummies, since predictions of opportunistic theory are quite symmetric. $\delta_i$ are governor fixed effects, $\tau_t$ — fixed time effects. Since we include governor fixed effects, we get free of the effect of selection.[26]

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[25] This could work, for example, if to increase competition among suppliers.

[26] Equality of $Term_{it}^1$ to one implies that corresponding observation with higher probability is represented by failing governors (*e.g.* with low talent).

According to the proposed version of political cycle, experience should have positive effect on performance, and $\beta_1$ should be positive. $\beta_3$, which is the difference between marginal effects of experience on skills in different terms, is to be positive, since we expect lower incentives to invest in human capital in the second term. If to account disorganization, which could happen, when new governor is elected, then there should be a decline in performance at low experience and $\mu_j$ are to be negative, while all electoral dummies are to be insignificant if experience trend is accounted properly.

Opportunistic theory predicts booms before elections and reverse policy after them only in the case of re-election, and improvements if the challenger wins. According to opportunistic cycle theory electoral dummies should have positive effect before elections (negative $j$) and negative effect after them (positive $j$); according to human capital approach, cross-terms are to have adverse to post-electoral dummies effect (positive), since there must be no contraction, if the challenger wins and total effect after re-election should zero. Cross-term should be insignificant if cycle has only opportunistic nature.

The results of estimation of equation (22) are presented in Tables 1–2. Total budget expenditures grow by 18% during the first term and by 12% in the next term. They also grow by 8.5% in the pre-electoral month. Akhmedov, Zhuravskaya (2004) observed decline of budget spending after elections, what is not observed in our results. This could be explained by accounting for experience in estimating (22).[27] Generally different types of budget spending have similar shape, but they have certain specific too. Social expenditures have the highest return on experience among the considered items — they grow by 13% per term, but the difference in marginal effects of experience is insignificant. Social expenditures fall after elections only in case of re-election what is consistent only with opportunistic cycle theory. Healthcare expenditures have a similar shape with a bit smaller effect of experience and smaller pre-electoral expansion. After-electoral decline also happens only in case of re-election, but it is smaller than decline in social spending and it is hardly significant. Spending on education and culture grow mostly in the first term; the growth rate in the first term is higher by 7% and 12% correspondingly. These types of spending grow by 10–11% before elections and decline not very significantly (statistically) after elections. Extremely high growth rate in the first term was observed in media spending — it grows more than by 20% in the first term and has no significant growth in the second term. This result infers that media spending is very important instrument to get votes, while the incumbent did not entrench. Moreover, incumbents do not decline media financing even in the second term. Media spending grows two months before elections by 12% and sharply falls right after elections. Stronger after electoral decline is in the case of challenger's win. Subsidies to industry do not have any prominent experience trend. They have the largest growth in the pre-electoral month — 22.5% and the largest fall, when a challenger wins.

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[27] Note that experience after elections is lower than the average experience, and experience has positive effect on budget spending.

**Table 1.** PBC: Opportunism vs. Human Capital

| | Budget Expenditures | Social Expenditures | Expenditures on Education | Expenditures on Culture | Expenditures on Healthcare | Expenditures on Media | Subsidies |
|---|---|---|---|---|---|---|---|
| Exp | 0.123*** [2.79] | 0.132** [2.19] | 0.065* [1.73] | 0.077 [1.50] | 0.098** [2.52] | −0.053 [0.41] | −0.199 [1.29] |
| $Term^1$ | −0.037 [1.15] | −0.016 [0.31] | −0.065** [1.98] | −0.107** [2.16] | −0.015 [0.44] | −0.189*** [2.61] | 0.060 [0.45] |
| $ExpTerm^1$ | 0.061** [2.34] | 0.031 [0.75] | 0.067** [2.55] | 0.122*** [3.14] | 0.021 [0.78] | 0.264*** [4.54] | 0.104 [0.97] |
| $m_{-3}$ | 0.012 [0.48] | 0.004 [0.09] | −0.002 [0.09] | −0.017 [0.54] | −0.008 [0.32] | 0.036 [0.66] | −0.044 [0.42] |
| $m_{-2}$ | −0.022 [0.88] | −0.002 [0.06] | −0.0032 [1.28] | −0.029 [0.90] | 0.015 [0.59] | 0.119** [2.18] | 0.018 [0.17] |
| $m_{-1}$ | 0.085*** [3.39] | 0.179*** [4.36] | 0.116*** [4.57] | 0.104*** [3.20] | 0.126*** [4.81] | −0.005 [0.08] | 0.225** [2.11] |
| $m_0$ | −0.034 [0.97] | 0.125** [2.23] | −0.027 [0.79] | −0.030 [0.65] | −0.042 [1.19] | −0.171** [2.27] | 0.174 [1.24] |
| $m_1$ | 0.016 [0.48] | −0.074 [1.34] | −0.029 [0.85] | −0.087* [1.90] | 0.007 [0.21] | −0.025 [0.34] | 0.038 [0.27] |
| $m_2$ | −0.010 [0.28] | −0.146*** [2.66] | −0.012 [0.35] | 0.005 [0.10] | −0.053 [1.52] | −0.056 [0.75] | −0.031 [0.22] |
| $m_3$ | 0.019 [0.56] | 0.010 [0.19] | 0.022 [0.65] | −0.007 [0.14] | 0.029 [0.85] | −0.074 [1.00] | 0.250* [1.83] |
| $m_0 Term^1$ | −0.003 [0.08] | −0.129* [1.86] | −0.035 [0.82] | −0.016 [0.28] | 0.005 [0.10] | 0.008 [0.09] | −0.358** [2.01] |
| $m_1 Term^1$ | −0.063 [1.50] | 0.031 [0.46] | 0.011 [0.26] | 0.021 [0.36] | −0.052 [1.21] | −0.177* [1.91] | −0.189 [1.08] |
| $m_2 Term^1$ | −0.007 [0.17] | 0.165** [2.46] | 0.013 [0.32] | 0.001 [0.001] | 0.030 [0.70] | −0.023 [0.25] | −0.074 [0.43] |
| $m_3 Term^1$ | 0.027 [0.65] | −0.015 [0.22] | −0.021 [0.50] | −0.003 [0.05] | −0.040 [0.93] | 0.104 [1.14] | −0.20 [0.12] |
| Obs. | 4980 | 5035 | 5064 | 4507 | 5046 | 4858 | 4428$ |
| #Govs | 95 | 98 | 98 | 91 | 98 | 95 | 97 |
| $R^2$ | 0.71 | 0.64 | 0.71 | 0.62 | 0.64 | 0.37 | 0.63 |

*Notes*: All regressions include lags. All dependent variables are in logs and all but deficit are measured in real terms per capita. Absolute values of t-statistics are in parentheses. ***, ** and * denote significance at 1, 5 and 10% level, respectively.

**Table 2.** PBC: Opportunism vs. Human Capital

| | Budget Revenues | Taxes | Deficit | Transfers | Growth | Inflation | Wage |
|---|---|---|---|---|---|---|---|
| Exp | 0.078*** [2.00] | 0.047 [1.46] | 0.025 [0.71] | 0.042 [0.19] | 0.007 [0.31] | −0.001 [0.41] | 0.008 [1.11] |
| $Term^1$ | −0.026 [0.77] | 0.005 [0.17] | 0.014 [0.54] | 0.369*** [2.65] | 0.002 [0.12] | 0.001 [0.31] | −0.006 [0.91] |
| $ExpTerm^1$ | 0.046* [1.73] | 0.011 [0.48] | −0.018 [0.87] | −0.207* [1.87] | 0.004 0[.25] | −0.002 [1.45] | 0.005 [0.88] |
| $m_{-3}$ | −0.016 [0.64] | 0.028 [1.30] | 0.040** [2.09] | −0.059 [0.70] | 0.004 [0.28] | 0.001 [0.32] | 0.001 [0.03] |
| $m_{-2}$ | −0.017 [.67] | 0.012 [0.57] | 0.016 [0.83] | −0.010 [0.12] | 0.006 [0.38] | −0.002 [1.30] | 0.004 [0.75] |
| $m_{-1}$ | 0.037 [1.47] | 0.021 [0.99] | 0.065*** [3.37] | 0.089 [1.06] | 0.005 [0.35] | −0.002 [1.41] | 0.011** [2.01] |
| $m_0$ | −0.022 [0.65] | −0.015 [0.50] | 0.003 [0.11] | −0.138 [1.14] | 0.025 [1.22] | −0.002 [1.11] | 0.002 [0.32] |
| $m_1$ | −0.055 [1.61] | −0.022 [0.75] | 0.022 [0.82] | 0.254** [2.06] | 0.001 [0.06] | −0.001 [0.66] | −0.008 [1.09] |
| $m_2$ | −0.005 [0.15] | −0.016 [0.55] | −0.030 [1.11] | 0.308** [2.46] | −0.025 [1.07] | −0.001 [0.50] | 0.005 [0.67] |
| $m_{-3}$ | 0.006 [0.18] | 0.002 [0.08] | 0.013 [0.50] | 0.024 [0.20] | 0.040* [1.72] | −0.003** [1.98] | 0.001 [0.19] |
| $m_0 Term^1$ | 0.024 [0.56] | 0.006 [0.18] | −0.023 [0.68] | 0.278* [1.66] | −0.003 [0.10] | 0.001 [0.06] | −0.002 [0.23] |
| $m_1 Term^1$ | 0.003 [0.07] | −0.041 [1.13] | −0.038 [1.16] | −0.304* [1.80] | 0.002 [0.08] | 0.001 [0.06] | −0.004 [0.44] |
| $m_2 Term^1$ | 0.018 [0.43] | −0.006 [0.17] | 0.004 [0.11] | −0.202 [1.17] | 0.043 [1.62] | 0.001 [0.06] | −0.006 [0.71] |
| $m_3 Term^1$ | 0.048 [1.12] | −0.014 [0.41] | −0.022 [0.69] | −0.048 [0.28] | −0.029 [1.08] | 0.003* [1.68] | −0.005 [0.57] |
| Obs. | 4739 | 5082 | 4499 | 2731 | 4655 | 5311 | 5330 |
| #Govs | 98 | 98 | 95 | 82 | 97 | 98 | 98 |
| $R^2$ | 0.74 | 0.76 | 0.39 | 0.63 | 0.43 | 0.89 | 0.95 |

*Notes*: All regressions include lags. All dependent variables are in logs and all but deficit are measured in real terms per capita. Absolute values of t-statistics are in parentheses. ***, ** and * denote significance at 1, 5 and 10% level, respectively.

Budget revenues have a shape similar to budget expenditures, but with smaller return on experience — 12% in the first term and 8% in the second term. Despite different growth rates in expenditures and revenues budget deficit has no experience trend. Positive dynamics of revenues before elections with negative dynamics after elections is hardly significant, while deficit significantly grows by 6.5% in pre-electoral month. Tax revenues and wage grow significantly only in the first term and have no significant growth in the second term.[28] They grow in the first term by 1% and 6% correspondingly. Tax revenues have no opportunistic component, while wage grows by 1% in pre-electoral month. Effect of experience on transfers is insignificant in both terms.[29] No electoral cycle was observed in growth, while 0.3% decline was observed in inflation in the first term.[30]

Summing up we got a evidence both for opportunistic cycle and for positive effect of experience, while no evidence for "costs of start" was obtained. One term of experience leads to increase of budget spending, which is of the same order as pre-electoral deviation.

## 4. CONCLUSION

In this paper we proposed an alternative explanation for the phenomenon of electoral cycle. We constructed an example showing that elections could lead to short-term contraction due to disorganization that could happen if a challenger wins. Long-term effect depends on the mechanism of dismissal of the incumbent — if it happens due to incumbent's loss on elections, then in average there should be long-term improvement, while worsening is to take place, if dismissal happens due to term limits.

We also proposed a model with endogenous ego-rent — governors could get a fixed part of a common pie, while the size of the pie is directly related to their own talent and efforts. It has been shown that:

1) Elections build incentives for governors even in the case of no commitment from any party.

2) Incentives are higher in the first term.

3) The lower depreciation of skills, the higher chances of a randomly chosen governor to get re-elected.

4) Optimal share of the pie given to the governor is not trivial (standard moral hazard result).

5) There is a trade-off between talent of governors and public welfare.

The last result goes from inability of voters to commit to make decision on the basis of past. Since voting public cares only about the future, it bases its decision on predicted future performance, and

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[28] Tests show that $\beta_1 + \beta_3 > 0$ for estimation of (22) for both variables.

[29] Even though $\beta_3$ is significantly less than zero, $\beta_1 + \beta_3$ is not significantly different from zero.

[30] The result is significant on 10% significance level.

more talented governors need provide lower skills to ensure given future skills. As a result of this effect, voters ex-ante prefer more motivated and less talented governors (to some extent).

The predicted shape of cycle was tested with Russian regional data from 1996 to 2004. The results show that experience improves governors' performance and marginal return on experience decreases. There was also observed opportunistic component and return on one term of experience is comparable to short-term pre-electoral improvements.

Positive effect of experience still does not infer that it is a result of elections, since it could be a result of coincident interests of governors and public. The presence of the effect, however, makes think about positive relations between elections and incentives. We could test whether it is the case only by comparison of the presented findings with the results of the same exercise for 2005 and future years using Russian data.

## REFERENCES

Akhmedov, A. and E. Zhuravskaya (2004) Opportunistic Political Cycles: Test in a Young Democracy Setting, *Quarterly Journal of Economics* **19** (4).

Alesina, A. (1987) Macroeconomic Policy in a Two-Party System as a Repeated Game, *Quarterly Journal of Economics* **102**, 651–678.

Alesina, A. and N. Roubini (1992) Political Cycles in OECD Economies, *The Review of Economic Studies* **59** (4), 663–688.

Andrikopoulos, A., I. Loizides, and K. Prodromidis (2004) Fiscal Policy and Political Business Cycles in the EU, *Journal of Political Economy* **20**, 125–152.

Berger, H. and U. Woitek (1997) Searching for Political Business Cycles in Germany, *Public Choice* **91** (2), 179–197.

Berlemann, M. and G. Markwardt (2003) Partisan Cycles and Pre-Electoral Uncertainty, *Dresden DP in Economics* No. 1/03.

Bernhardt, D., S. Dubey, and E. Hughson (2004) Term Limits and Pork Barrel Politics, *Journal of Public Economics* **88**, 2383–2422.

Block, S. (2001) Elections, Electoral Competitiveness, and Political Budget Cycles in Developing Countries, Fletcher School of Law and Diplomacy, WP of Tufts Univ.

Brender, A. (2003) The Effect of Fiscal Performance on Local Government Election Results in Israel: 1989–1998, *Journal of Public Economics* **87**, 2187–2205.

Brender, A. and A. Drazen (2005) Political Budget Cycles in New Versus Established Democracies, *Journal of Monetary Economics* **52** (7), 1271–1295.

Dick, A. and J. Lott (1993) Reconciling voters' behavior with legislative term limits, *Journal of Public Economics* **50**, 1–14.

Drazen, A. (2000) The Political Business Cycle After 25 Years, *NBER Macroeconomic Annual* (Cambridge, MA: MIT Press).

Frey, B. (1978) Politico-economic Models and Cycles, *Journal of Public Economics* **9**, 203–220.

Frey, B. and F. Schneider (1978) A Model of Politico-economic Behavior in the UK, *The Economic Journal* **88**, 243–253.

Friedman, D. and D. Wittman (1993) Why Voters Vote for Incumbents but against Incumbency: a Rational Choice Explanation, *Journal of Public Economics* **57**, 67–83.

Garratt, D. (1998) An Analysis Of Political Business Cycle Theory and its Relationship with the New Political Macroeconomics, *Discussion papers in Economics series* 98/4 (Department of Economics, University of Leicester).

Gimpelson, V. and D. Treisman (2001) Political Business Cycles and Russian Elections, or the Manipulations of "Chudar", *British Journal of Political Science* **31** (2), 225–246.

Gonzalez, MdlA. (2000) On Elections, Democracy, and Macroeconomic Policy: Evidence from Mexico, *WP Dept. of Economics* (Princeton University).

Heckelman, J.C. and H. Berument (1998) Political Business Cycles and Endogenous Elections, *Southern Economic Journal* **64** (4), 987–1000.

Hibbs, D. (1977) Political Parties and Macroeconomic Policy, *The American Political Science Review* **7**, 1467–1487.

Ito, T. (1990) The timing of elections and political business cycles in Japan, *Journal of Asian Economics* **1** (1), 135–156.

Khemani, S. (2004) Political Cycles in a Developing Economy: Effect of Elections in the Indian States, *Journal of Development Economics* **73**, 125–154.

Nickell, S. (1981) Biases in Dynamic Models with Fixed Effects, *Econometrica* **49**, 1417–1426.

Nordhaus, W. (1975) The Political Business Cycle, *Review of Economic Studies* **42**, 169–190.

Peltzman, S. (1992) Voters as Fiscal Conservatives, *Quarterly Journal of Economics* **107**, 327–361.

Persson, T. and G. Tabellini (1990) *Macroeconomic Policy, Credibility and Politics* (Switzerland: Harwood Academic Publishers).

Reid, B.G. (1998) Endogenous Elections, Electoral Budget Cycles and Canadian Provincial Governments, *Public Choice* **97** (1–2), 35–48.

Rogoff, K. (1990) Equilibrium Political Budget Cycles, *American Economic Review* **80**, 21–36.

Rogoff, K. and A. Sibert (1988) Elections and macroeconomic policy cycles, *Review of Economic Studies* **55**, 1–16.

Schuknecht, L. (2000) Fiscal Policy Cycles and Public Expenditure in Developing Countries, *Public Choice* **102** (1–2), 115–130.

Shi, M. and J. Svensson (2001) Conditional Political Budget Cycles, *WP University of Wisconsin and Institute of International Economic Studies* (Stockholm University).

Shleifer, A. and R. Vishny (1988) Value Maximization and the Acquisition Process, *Journal of Economic Perspectives* **2** (1), 7–20.

Shleifer, A. and R. Vishny (1989) Management Entrenchment: The Case of Manager-Specific Investment, *Journal of Financial Economics* **25**, 123–139.

Veiga, L.G. and F.J, Veiga (2004) Political Business Cycles at the Municipal Level, *NIPE WP* no. 4/2004.