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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 cycles) or aiming policy on certain constituency (partisan cycles). In this paper, we propose an alternative explanation of the phenomenon of political business cycle -- skills 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.

The model does not predict unambiguously effect of experience on performance. 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.

Key words: Elections, Governors, Experience, Incentives, Opportunistic Cycles, Russian Regions

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Классическая теория рассматривает политический бизнес-цикл как результат либо оппортунистического поведения правительства (оппортунистические циклы), либо преследования партийных интересов (партийные циклы). В этой статье предлагается альтернативное объяснение явления политического бизнес-цикла - навыки правителей. В статье рассмотрен пример, иллюстрирующий, что выборы могут приводить к циклам и без оппортунизма или идеологии. Также построена модель с эндогенной эго-рентой. Модель объясняет механизм влияния выборов на стимулы в отсутствие возможности взятия обязательств.

Модель не предсказывает однозначно зависимость благосостояния региона от опыта правителя. Используя помесячные данные бюджетов российских регионов, было показано, что наблюдается как положительное влияние опыта, так и циклы оппортунистического типа.

Ключевые слова: Выборы, Губернаторы, Опыт, Стимулы, Оппортунистические циклы, Российские регионы.

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 this government is unexperienced.

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 aims. 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.

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 showed their presence in Japan. Although Russian electoral system is based on exogenous dating, 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 2002. Elections, however, were shifted mostly exogenously (e.g. promotion of incumbent to the Federal Government; or his death).

Recently the theory got more focused on the factors that drive the cycles. Gonzalez (2000) and Shi and Svensson (2000) 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.

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

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; 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 principal (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 (2000) showed that there were fiscal cycles in developing countries.

There are two empirical papers devoted to cycles in Russia. Treisman and Gimpelson (2001) showed that there were cycles on the federal level, which are hardly distinguishable statistically, since different instruments are appropriate in different moments. Akhmedov and Zhuravskaya (2004) using a menu of fiscal and industrial indicators of the regions of Russia, showed that there were short 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 or signalling, since elections lead to changes of people in power. 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, and 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 shift 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 shifts of the incumbent due to costs of starting management of the region;[2] 2) long-term improvements in the case of shifts, since only badly performing governors are removed. We consider a term-limit setup, which takes place 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 observed skills (performance) depend on talent and efforts. Everything get observed only 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 of certain types. Even more - elections lead to non-monotonic influence of governor's talent on welfare of the public. The model is consistent with common wisdom saying that voters are quite inert to dismiss incumbents and consequently

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

incumbents ex-ante have better chances to be elected. The higher voters care about future, and the lower depreciation of accumulated skills, the higher priority of incumbents.

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

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 (2001) 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 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.[3]

The evidence is quite mixed. On the one hand, opportunistic nature of cycles was confirmed. On the other hand, we observed a positive trend in performance of governors, what is consistent with our model. The other hypotheses did not find 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.

[3] 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.[4]

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. Assume that skills depend on the governor's talent θ and her experience of being in the office τ. Each citizen has talent θ 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:

$$U_k = \sum_{t>k} \beta^t E_k[S_t] \qquad (1)$$

where β is the discount factor. The electorate votes for skills, and chooses between the incumbent's skills and those of a randomly chosen citizen.[5] The time-line of the model is presented in figure 1.

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

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

[4] This assumption coincides with Russian laws, but not always with its reality.
[5] Following the classical models we consider no way to signal for challengers.

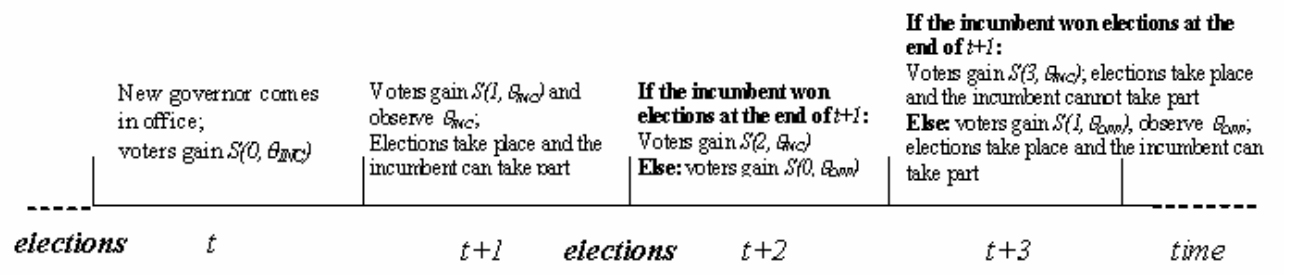

Figure 1. The time-line. The figure presents dynamics of skill, when a new governor with talent θ_{INC} is elected at the end of period $t-1$ and starts to run the region in period t. If she is not re-elected at the end of period $t+1$, then a new governor with random talent θ_{OPP} and no experience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

We abstract from the goals 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 she runs for re-election, and consequently there are neither ability, nor incentives to signal.[6]

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 Φ. Denote the observed talent of the incumbent, as θ_{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 $\beta^2\Phi$:

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

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,

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

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

$$\theta_{INC} \geq \bar{\theta} \qquad (5)$$

where $\bar{\theta}$ 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:

$$U_{INC}(\bar{\theta}) = U_{OPP} \qquad (6)$$

Equations (3), (4) and (6) give us relation between Φ and θ:

$$\Phi = \frac{\bar{\theta}}{1-\beta} \qquad (7)$$

[6] 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.

To complete the system we need to derive Φ directly using its definition. Φ 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 $1 - F(\bar{\theta})$, then

$$\Phi = \beta E[\theta] + \beta^2 \left((1 - F(\bar{\theta}))((1+\beta)E[\theta \mid \theta > \bar{\theta}] + \beta^2 \Phi) + F(\bar{\theta})\Phi\right) \qquad (8)$$

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

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

The left hand side of equation (9) corresponds to costs of dismissal of an incumbent with talent $\bar{\theta}$, 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.[7]

The threshold level of talent is an increasing function of the discount factor.[8] The result is quite intuitive -- the higher voters value the future, the more they win 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,[9] but it also gets an unexperienced 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 $E[\theta] - E[\theta \mid \theta < \bar{\theta}]$; if she is dismissed due to term limit, then voters' get negative benefit $E[\theta] - E[\theta \mid \theta > \bar{\theta}]$. 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.

2.2. Model

2.2.1. 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. The model is ideologically similar to the illustration. We consider situation, when skills are not

[7] 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.

[8] $$\frac{\partial \bar{\theta}}{\partial \beta} = \frac{\beta(2+3\beta)\int_0^{\infty} \theta dF(\theta + \bar{\theta})}{(1+\beta)(1+\beta^2(1-F(\bar{\theta})))}$$

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

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.[10]

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 θ and efforts e_1, e_2 exerted by the governor correspondingly in the first and in the second terms. For simplicity we 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 θ performing for the first term are represented by (10)

$$S_1 = \sqrt{\theta e_1} \qquad (10)$$

If incumbent with skills S_1 and talent θ 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

$$S_2 = \xi S_1 + \sqrt{\theta e_2} \qquad (11)$$

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

$$X_t = \delta S_t$$

where δ 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. δ can be considered either as a mirror of share of public finance used by the governor in private interests,[11] 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.[12] Thus, the governor's utility from being in power is represented by (12)

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

[10] The case, when only skills are observed is shortly considered in section 2.2.6.

[11] If to consider S_t as value of public goods that could be produced, and δS_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 in section 2.2.4.

[12] 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.

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

2.2.2. 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 a 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

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

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 Φ.[13]

Voters implicitly state the same requirement on future skills for all levels of talent:

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

In other words, public implicitly states a minimal level of future skills $\bar{S}_2$ 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 in the first term.

Condition (14) implies that voters re-elect if

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

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 $\bar{S}_1$ 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 $\bar{S}_2$. 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,[14] even though no party can commit. There is, however, a negative impact of elections: they cut horizon of planning of 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.

[13] Φ is defined in the same way as in the illustration.

[14] Note that some incentives are created directly by ego-rent even without elections institute. Thus, in our model elections increase, not create incentives.

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

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

one could find Φ, 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 $\bar{S}_2$, there could be governors of three types:

- not re-elected
- re-elected with $S_1 = \bar{S}_1(\Phi)$ (corner solution)
- re-elected with $S_1 > \bar{S}_1(\Phi)$ (interior solution)

Not re-elected governors are those, for whom rent of being in power for one term $\delta\sqrt{\theta\tilde{e}_2(\theta)} - C(\tilde{e}_2(\theta))$ is lower than utility from satisfaction to the rule of re-election: $\delta(1+\xi)\bar{S}_1 + \delta\sqrt{\theta\tilde{e}_2(\theta)} - C(\frac{\bar{S}_1^2}{\theta}) - C(\tilde{e}_2(\theta))$. Thus, they have talent lower than $\frac{\bar{S}_1}{2(1+\xi)\delta}$. Denote the upper border of talents of not re-elected governors as $\bar{\theta}$. Then

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

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 $\tilde{e}_1(\theta)$. Then $\tilde{e}_1(\theta) = (1+\xi)^2\delta^2\theta$. This solution starts working from level of talent $\tilde{\theta}$, and this border level is derived from

$$\sqrt{\theta\tilde{e}_1(\theta)} = \bar{S}_1(\theta, \Phi) \tag{18}$$

Thus,

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

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

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

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

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

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

If $\bar{S}_2$ is too large, then Φ_S equals to the first integral in (21) with upper border equal to 1 or to sum of the first two integrals in (21) with upper border in the second integral equal to 1. Φ_S is 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 $\bar{\theta}, \tilde{\theta}, \tilde{e}_1, \tilde{e}_2$ in (21) one gets Φ_S as a function of $\bar{S}_2$, and solving (16) one gets equilibrium level of Φ. There is an equilibrium, since $\Phi_S(0) > 0$, and Φ_S 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 $[0, \delta(2\xi(1+\xi)+1)]$.[15] Figure 2 represents graphically the solution of the model.

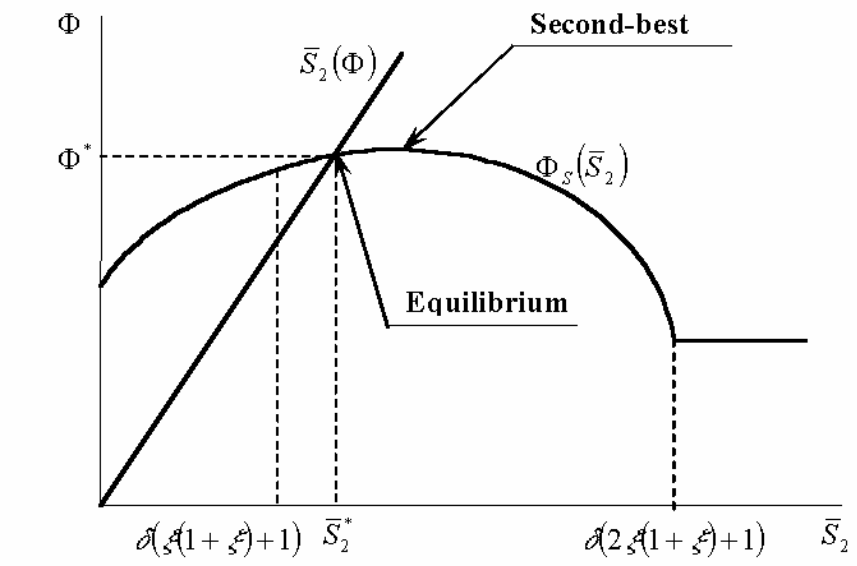

Figure 2. Equilibrium in the model. Figure presents equilibrium requirement on second term skills $\bar{S}_2^*$ and expected utility from choosing a governor randomly Φ^*. Voters get lower benefit than in the second best, since they cannot commit to certain re-election rule.

2.2.3 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 reflect 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,

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

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 θ, which perfectly related with re-election rate. We focus on affect of two parameters: discount rate of voters β and skill depreciation rate $1-\xi$.

Higher discount rate makes voters care more about present, what reduces their incentives to dismiss 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.

2.2.4. Welfare Analysis

The 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 θ. 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 ($\theta = \widetilde{\theta}$). 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).

Figure 3 shows how expected utility of voters depends on the governor's talent.[16] At low levels of talent ($\theta < \overline{\theta}$) voters get $\sqrt{\theta \widetilde{e}_2(\theta)} + \beta\Phi$, 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 $(1+\beta\xi)\sqrt{\theta \widetilde{e}_1(\theta)} + \sqrt{\theta \widetilde{e}_2(\theta)} + \beta^2\Phi$,

[16] 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 deliver to the public $\Phi - \sqrt{\theta \tilde{e}_2(\theta)}$, and this is a decreasing function of talent.

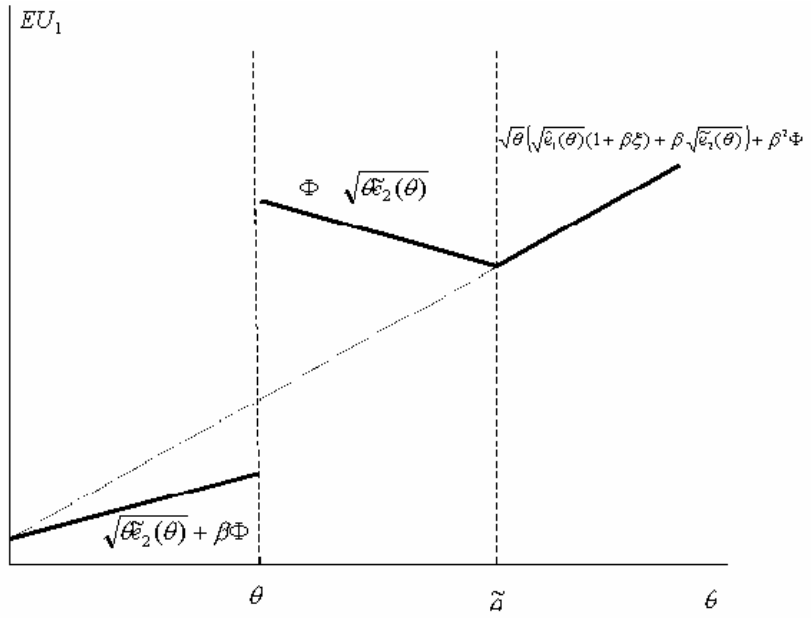

Figure 3. Expected utility of voters and talent of the governor. Utility monotonically increases with talent in the interval of dismissed governors ($\theta < \overline{\theta}$) and in the interval of re-elected governors with non-binding re-election rule ($\theta \geq \widetilde{\theta}$), since both marginal product and incentives 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.

Trade-off between Incentives and Grabbing

First note that cut-off levels of talent do not depend on δ, while Φ and $\overline{S}_2$ are proportional to δ. 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.

2.2.5. 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 ξS_1 to their second term investment. Second, they 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 governors don't care about elections in their last terms. 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 ($\xi \geq \sqrt{\frac{1}{2}}$).

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

2.2.6. 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 predicts influence of elections economic performance of regions, but it does not produce unambiguous predictions about the shape of the cycle. Changing assumptions about technology and timing one could get different predictions.

Logic of illustration is based on quite natural assumption of costs of start. This logic brings us to the first hypothesis:

H1: Elections are followed by recession if incumbent is dismissed.

The second hypothesis arises from ability of incumbents to transfer their investment in skills in future (with some depreciation). Thus, their performance should improve in time, if their skills do not depreciate much, i.e.

H2: Performance of governors gets improved with their experience.

Finally, limited horizon of planning makes governors care more about their skills at low experience (long horizon). Thus, they are motivated more at start of managing the region, and invest more in skills in this

period. Another argument for this conclusion is that rule of re-election like (14) makes some governors exert higher efforts. The corresponding hypothesis is

H3: Marginal effect of experience on performance decline with time.

We consider opportunistic rational cycle as the alternative.[17] Rogoff (1990) considered competence with MA(1) process, and assumed that voters do not observe pre-electoral shocks of competence. Thus, governors could produce signals in form of fiscal expansion, if they had positive shocks of competence, and they produce no signals and follow stationary 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 get re-elected. Otherwise, it should be a reverse dynamics. Rogoff's theory predicts no positive dynamics in average, what is not consistent with hypotheses 2 and 3.

3.2 Data, Sample, Measurement of Skills

We use two main data sources. The first dataset is the data of regional governor elections from the Central Electoral Committee. These data include election date and distribution of votes. The second source of the data is monthly regional budget statistics reported to the Ministry of Finance. The budgets include detailed information of 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.[18]

Detailed budgets are available since 1996 up to September of 2004. We abstract from regions that are involved in the war, these are republics Chechnya and Ingushetia. There were no governor elections in Dagestan. Thus, the panel consists of 86 regions of the Russian Federation and above hundred time points. The dataset covers 194 regional governor elections and about 163 governors, and incumbents participated approximately in 90% of them. They won in two thirds of elections, what is consistent with implication of the model of ex-ante advantage of incumbents.

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. Governors cannot directly affect on these indicators of welfare, and correspondingly indicators react with an ambiguous lag on actions/changed performance of governors. We alternatively measure performance of governors by fiscal policy results, which is quite 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 fixed public good. The first view would say nothing about relationship between budget expenditures and skills, since we do not observe real value of provided public goods. The second view would say that budget expenditures are adverse measure of

[17] We also control for partisan effects by including governor fixed effects in regression equations. Since 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).

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

performance. Russian reality is quite different from these 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 tax rates, they could change "real" tax rate by enforcement of tax payments. Huge tax arrears of early transition of Russia infer that it is not an easy task. 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 measure of skills.

Table 1. Summary statistics of fiscal policy indicators around elections.

		1st month	Pre-el. month	After-el. month	1st term	2nd term
Bud. Exp-s	Mean	-9.02	7.2	-4.34	-0.62	0.53
	SE	4.14	2.60	3.62	0.41	0.40
	#obs	80	101	86	3942	4604
Bud. Rev-s	Mean	-12.33	2.04	-7.30	-1.30	1.13
	SE	4.62	2.58	3.42	0.44	0.44
	#obs	80	101	85	3938	4520
Deficit	Mean	3.24	5.38	2.76	0.67	-0.58
	SE	2.77	1.91	1.78	0.34	0.32
	#obs	80	101	85	3855	4478
Social Exp-s	Mean	-0.75	22.56	14.33	-0.37	0.32
	SE	5.03	4.39	6.44	0.67	0.62
	#obs	80	101	85	4014	4606
Exp-s on Educ-n	Mean	-10.61	9.73	-2.55	-0.72	0.62
	SE	3.29	2.25	2.76	0.40	0.38
	#obs	80	101	84	4002	4628
Exp-s on Health	Mean	-8.03	9.35	-2.27	-0.93	0.80
	SE	3.74	2.77	3.19	0.42	0.42
	#obs	79	100	83	3996	4629

We also consider two alternative fiscal indicators as the measure - budget deficit and social transfers. Budget deficit in the case of limited ability to borrow is a signal of wrong planning of regional fiscal policy. Actually, there was a number of cases, when people lived in unheated apartments in winter, because their governors spent budgets in fall, while the federal government refused to cover budget wholes to avoid soft budget constraints for regional administration. Thus, public is likely to punish incumbents for long term running deficit.

Budget spending can be split in fixed and variable. Let's assume that administration has no choice whether to heat apartments or not, whether to supply water in building or not. It, however, could search for suppliers with cheaper services. It means that ability to increase variable part of the budget is to reflect ability of governors to provide fixed public goods efficiently. Social transfers also have certain fixed part, since they include payments regulated by federal laws, such as pensions or teacher wages. There are, however, multiple

examples of additional payments of pensions or wages of state employees, and social transfers could be considered as a part of variable public goods to some extend.[19]

Thus, we treat them as a measure of governors' performance. We consider three types of social transfers: social payments, which include mostly transfers to people with low incomes; spending on education and health care, which include mostly wages of teachers and doctors.

Table 1 presents summary statistics for the mentioned fiscal indicators with focus on pre- and post-electoral periods; and on term-differences. Means of deviations from federal trend net of governor fixed effects are presented in the table. Generally, summary statistics are consistent with a mix of the proposed approach and the alternative of rational opportunistic cycle. On the one hand, they illustrate significant term difference in performance. For example, budget revenues of the first term are lower in average by 2.5% than in the second term. On the other hand, the statistics also show that there are significant changes around elections even when governor is not changed.

3.3 Methodology and Results

As the first step, we look at the shape of dependence of performance from experience of governors. For this sake we estimate the following equation for the discussed fiscal policy instruments:

$$y_{it} = \sum_{j=1}^{k} \alpha_j y_{it-j} + \sum_{j \geq 0} \beta_j \tau_{it}^j + \delta_i + \varepsilon_{it} \qquad (22)$$

where i stands for the governor, and t stands for real time. y corresponds to log difference between a regional indicator and that of federal level.[20] We use lagged structure to account for autoregressive nature of the processes.[21] The number of lags k is chosen using standard methods.[22]

Experience of current governor is accounted by the set of dummies τ^j, where τ_{it}^j equals one if experience of governor i in period t equals j months. Governor fixed effects δ are used to account for unobserved regional heterogeneity and political orientation of regional leaders. Moreover, by mean of such fixed effects we account for personal characteristics of governors (their talents), what is crucial in light of the presented model.[23]

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[19] While social transfers are not public goods in their standard sense, they fight inequality, and correspondingly provide stability in regions, which is a public good. One should also to account that median voter praises redistribution, and governors seek for it, but with different succes, which is based on their ability to save on fixed public goods.

[20] We subtract federal trend to account for macro shocks, and for non-linear common time trend.

[21] We tested for unit roots separately for all regions and for autocorrelation of residuals. Hypothesis of presence of unit roots was rejected, while hypothesis of no serial correlation was not.

[22] Here lags are endogenous. Thus, the estimates are biased. Nickell (1981) shows that for typical panels (with low number of time points) estimates are inconsistent, and the inconsistency is O((1/T)), where T is the number of time points. It means that the estimates are consistent, when both sizes of a panel go to infinity. Our panel is quite large both in terms of the number of groups and in terms of time (experience) points, and the bias is quite low.

[23] Hausman test indicates that fixed rather than random effects are to be used.

Let us reinterpret our hypotheses in terms of the shape. According to hypothesis 1, we should observe performance below the trend at low experience, and initially growth of skills is to be negligible. In the same time the proposed theory predicts that there should be no deviations from trend, when incumbent tries to get re-elected, while opportunistic theory predicts boom before and contraction after elections. Thus, no significant deviations at experience close to duration of term give evidence pro the proposed approach. Hypothesis 2 says that there must be positive dependence of performance from experience, while hypothesis 3 says that function describing this dependence is to be concave in period, when costs of start are over.

There is a problem with testing cycles by estimation of equation (22) - Russian regions have different durations of terms; all regions, but Republic Kalmykia have either four or five year terms. Consequently, if opportunistic theory works, then we should observe peaks around τ divisible to 4 or 5, but the observed effect would be less significant then it is. There is a way out - to split the sample according to duration of terms. Another way to solve the problem is to measure experience in terms of term duration - T. There is another problem with measurement experience - many governors were initially appointed. If we directly include experience in the regression then the opportunistic effects would be smoothed, since their experience is often not divisible to term duration at date of elections. The most reasonable approach is to suppose that experience of appointed governors was equal to one term when the first elections were held in the regions, and restore it backwardly.

Figure 4 shows how budgetary policy changes with experience.[24] The graphs represent fitted values net of fixed effects aggregated by experience. Most of budgetary items are significantly below the average level at the beginning of the first term of a governor, but they jump significantly and almost reach the average level approximately for a half a year. At start of running a region budgetary expenditures are 7% below the trend. They have a positive trend with peaks at elections.[25] The peak at elections after the first term is more significant, what supports an idea that governors with higher experience have higher value for voters, and therefore they have lower incentives for pre-electoral expansion. There are alternative explanations proposed in Akhmedov and Zhuravskaya (2004) - cycles in Russia get reduced with time either due to maturity of democracy or due to tougher control of the federal center for the regional governments.[26]

Budgetary revenues are also below the average level in the regions with unexperienced governors, and they follow a pattern similar to that of budgetary expenditures. Lack of significance of expansion in revenues at elections, especially after the first term, is the main difference in the patterns. It could be explained by short-term running budgetary deficit, since shift of budgetary expenditures in time rather than increase of taxes looks a politically cheaper way to finance fiscal expansion. The results of estimation of budget deficit confirm this observation - elections at any term of performance of an incumbent are followed by running deficit. In the same time deficit declines with experience. Budget revenues have peaks in the middle of term, i.e. governors are biased to collect funds when it is less politically costly.

[24] We present the results of estimation on subsample with four year terms.
[25] Highly volatile behavior of indicators at large experience could be explained by larger standard errors for large experience (the number of observations declines with experience).
[26] Note that average experience increases with time.

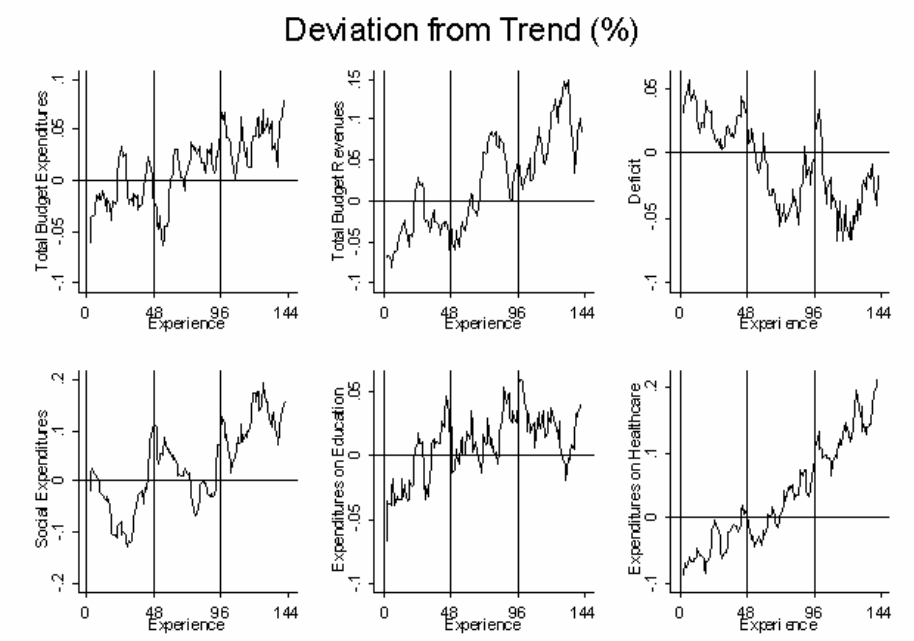

Figure4. Effect of experience on fiscal policy. The figure presents how deviation of fiscal policy (measured in %) changes with experience of governor (measured in months). Both positive trend and cycles of opportunistic nature are observed.

Separate items of budgetary expenditures behave similarly to total budgetary expenditures. Social expenditures experience especially profound shape - they decline after elections and are dramatically rising in pre-electoral year. The rise accounts about 10% for half a year before elections and above 15% for a year before elections. Alike budgetary expenditures, social expenditures exhibit a clear positive trend. Negative dynamics of social expenditures at the start of running a region could be explained by a significant shift of social spending on pre-electoral period by dismissed governors. Expenditures on education are more volatile, but one could easily observe pre-electoral expansion, and some positive trend. Spending on health care looks like a straight line. There are some peaks around elections, but they do not look as significant deviations from the experience trend.

Summing up, all the indicators have both positive experience trend, and cyclical deviations of opportunistic nature. Stagnation at low experience is not observed - while performance is actually the lowest at low experience, marginal effect of experience is relatively constant.

Below we propose a way to test the hypotheses. We estimate equation (23):

$$y_{it} = \alpha_1 y_{it-1} + \alpha_2 y_{it-2} + \tau Ex_{it} + \beta Term^1_{it} + \gamma Ex_{it} Term^1_{it} + \sum_{j=-3}^{3} \beta_j m_{jit} + \sum_{j=0}^{3} \mu_j m_{jit} Term^1_{it} + \delta_i + \varepsilon_{it} \quad (23)$$

where i stands for the governor, and t stands for real time. Ex is a governor's experience measured in decades. $Term^1$ 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.[27] δ_i are governor fixed effects. Since we include governor fixed effects, we get free of the effect of selection.[28]

Estimation of (22) allows us to conclude that long-term trend is linear, and we limit estimation by linear component. Non-linearity has short-term nature and represented by electoral dummies and their cross-terms with $Term^1$. According to human capital approach electoral dummies with negative j are to be insignificant, because the middle of term is a reference group, and costs of start are assumed to be zero on the eve of elections. Electoral dummies with positive j are to have negative effect on performance, since there is a contraction after elections on average. This contraction takes place only when challengers win, therefore, coefficients μ_j at cross-terms should be negative according to human capital approach, the contrast situation and the contrast predictions for μ_j are in the separating equilibrium under the rational opportunistic theory. Opportunistic theory predicts booms before elections and recession after them only in the case of re-election, and improvements if the challenger wins. According to this approach electoral dummies should have positive effect before elections (negative j) and negative effect after them (positive j); cross-terms are to have adverse to post-electoral dummies effect (positive), since there must be no contraction, if the challenger wins. Cross-term ExTerm¹ is included to test different marginal return on experience. Hypothesis 3 is supported if this term has positive impact in performance.

The results of estimation of equation (23) are presented in Table 2. They are partially consistent with the proposed approach of human capital, and partially with the alternative. First, the results show that total budgetary expenditures/revenues grow with experience: each year of experience gives .5% of budgetary expenditures and 1% of revenues with corresponding budget surplus. This result supports the basic idea of the paper.

Effect of experience on expenditures on education and health care looks not very strong on the first glance, since effect of linear component is hardly significant. Actually this is explained by including $Term^1$ and $ExTerm^1$ in the regression. These variables are highly positively correlated with experience and capture its significance.[29]

Thus, we deal with multicollinearity. Regressions without these two regressors indicate positive effect of experience on 1% significance level - a year of experience yields .5% and 1% increase of spending on education and health care correspondingly. Social expenditures also look not coinciding with the proposed theory - they do not change in the first term and decline in the next terms. Estimation without Term¹ and $ExTerm^1$ indicates that actually social expenditures grow and average marginal effect is .4% growth per year of experience.[30]

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[27] We take a quarter around election to account for short-run effects, since estimation of (22) shows that the most significant post-electoral dynamics takes in this period.

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

[29] Correlation coefficients are 0.59 and 0.77 correspondingly.

[30] This result is significant on 6% significance level.

Table 2. PBC: Opportunism vs. Human Capital

	Bud. Exp.	*Bud. Rev.*	*Deficit*	*Social Exp.*	*Exp. on Educ.*	*Exp.on Health*
Ex	.054*	.106***	−.120***	−.094**	.031	.048
	[1.87]	[3.53]	[4.95]	[2.15]	[1.11]	[1.64]
$Term^1$	.019	.008	.019	.009	.055***	.024
	[1.07]	[.41]	[1.21]	[.31]	[3.07]	[1.26]
$ExTerm^1$	.022	.015	−.011	.082**	.043*	.014
	[.89]	[.58]	[.53]	[2.20]	[1.81]	[.57]
m_0Term^1	−.002	−.016	.025	.075	.052	−.003
	[.05]	[.37]	[.73]	[1.20]	[1.80]	[.07]
m_1Term^1	−.021	−.065	.053	−.010	−.031	.051
	[.52]	[1.53]	[1.56]	[.16]	[.78]	[1.21]
m_2Term^1	.018	.053	−.033	−.122**	−.018	.099**
	[.46]	[1.25]	[.98]	[1.96]	[.45]	[2.37]
m_3Term^1	−.011	−.022	−.069**	−.009	.043	.054
	[.28]	[.57]	[2.13]	[.16]	[1.17]	[1.43]
m_{-3}	.037*	.019	.038**	.044	−.018	.013
	[1.82]	[.93]	[2.28]	[1.43]	[.94]	[.62]
m_{-2}	−.013	.017	.008	.097***	.015	.041
	[.64]	[.80]	[.45]	[3.16]	[.77]	[1.99]
m_{-1}	.076***	.029	.056***	.223***	.097***	.086***
	[3.78]	[1.40]	[3.31]	[7.33]	[4.96]	[4.15]
m_0	−.073**	−.071**	.001	.023	−.098***	−.052*
	[2.54]	[2.35]	[.04]	[.54]	[3.43]	[1.70]
m_1	−.038	−.016	−.035	−.074*	−.024	−.061**
	[1.34]	[.53]	[1.46]	[1.70]	[.86]	[2.05]
m_2	−.017	−.017	.001	−.055	.018	−.034
	[.60]	[.59]	[.01]	[1.28]	[.65]	[1.15]
m_3	.022	.026	−.041*	.065*	−.034	−.016
	[.82]	[.99]	[1.79]	[1.69]	[1.35]	[.62]
Const	−.034***	−.060***	.037***	−.043**	.037***	−.034
	[2.77]	[4.61]	[3.49]	[2.32]	[3.08]	[2.68]
Obs.	8141	8011	7720	8326	8337	8324
# of FE	157	159	157	160	159	159
R^2	.83	.82	.01	.57	.75	.72

Notes to Table 2: 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.

The other hypotheses do not find supportive evidence: returns on experience are quite invariant of term, i.e. incentives are more or less permanent. The only significant results are observed for spending on social programs and education. Significantly lower social spending in the second and third terms could be explained by higher power of incumbents after two terms in power. Dismissal of such governors has higher costs for public, what allows them to care less about median voter.[31]

Finally we did not found any evidence for significant stagnation at start of running a region. Cross-terms m_jTerm^1 are not significant. Moreover, $Term^1$ is significant only for spending on education. Electoral dummies m_j reflect booms before elections and contraction after. For example, budget spending changes by 10% for half a year around elections. This is much more than 2-3% that a term of experience gives.

[31] In terms of the presented model: some budget spending can be diverted, while some cannot be. Social transfers are more likely to be from the latter items, since perks more likely to go from contracts with outsiders. Thus, in the second terms incumbents don't care about social policy. If governors could get elected for the third term, they get entrenched more and can bias budget to higher diversion items.

The results infer that budget policy changes quite linearly with up and down dynamics around elections. This finding generally says that governors actually improve their skills either since elections stimulate them or just because of learning by doing. In the same time this entrenchment does not allow them to feel safely and makes incumbents run for fiscal expansion.

4. Conclusion

In this paper we proposed an alternative explanation for the phenomenon of political business cycle. We constructed an example showing that changes of governors could lead to short-term contraction even in absence of any motivation of politicians. 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 common pie, while the pie is directly related to their own talent and efforts. This model shows stimulating effect of elections in the case of no commitment from any party. The model discusses determinants of the incentives. First, It shows that the lower depreciation of skills, the higher chances of a randomly chosen governor to get re-elected. Second, the more voters care about future, the less eager they are to dismiss incumbents. Effects of the share given to the governor on welfare of the public is a standard result of moral hazard - optimal share lies between the two extremes. A specific result of the model is a trade-off between talent of governors and public's welfare. This 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 more talented governors need provide lower skills to ensure given future skills. In other words, voters ex-ante prefer more motivated governors to more talented.

The considered framework allowed us to make inference about shape of electoral cycle. We predicted the following shape: stagnation at start and positive trend with decreasing marginal return to experience and no significant deviations from trend around elections if the incumbent wins. Evidence from Russian data supported only prediction of positive trend. Russian governors actually improve their performance, but run for cycles to increase their chances.

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