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IES Working Paper: 21/2011



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# Political Legislation Cycle in the Czech Republic

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## **Abstract:**

There is a wide range of theories that try to explain interactions between politics and economy that are referred as *political cycles*. Majority of these theories aims at analysis of changes in economic outcomes that are related to elections or other phenomena in the political reality. To induce at least some of these changes it is necessary to alter a country's legislation which leads to emergence of *political legislation cycles* – changes in legislation activity over time in an electoral term. The aim of this paper is to study political legislation cycle in the legislative system of the Czech Republic. Obtained results suggest that elections timing has an impact on legislation activity. As electoral term matures and upcoming elections are getting closer an increase is observed in the legislation activity.

**Keywords:** political business cycle, economic theory of legislation, voters

**JEL:** H61; H62; C49

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# 1 Introduction

One of the main building blocks of the political economy is the assumption that those who are in power usually control certain tools to influence economic conditions and usually want to keep this power on in their hands. As long as these economic tools raise incumbents' chances to hold his position, he will have incentives to do so.

In democratic systems where politicians are elected to office, those changes of economic outcomes when conditions are affected by politicians in order to raise their chances of being elected are called *political cycles*. Vast majority of studies has been trying to capture political cycle by measuring changes in economic outcomes so far, like changes in unemployment, inflation, public spending etc. To achieve these changes, however, it is necessary to introduce certain directions or laws that would in turn have the intended effect in practice. A different way to capture the presence of political cycle in its early form is therefore to measure *legislation activity*; for instance how many laws were approved over certain period of time. This idea was introduced in study by Lagona and Padovano (2007), who measured legislation activity on Italian data.

The purpose of this paper is to measure and explain a presence of a political cycle in legislation activity in the Czech Republic for the whole period of its modern existence, i.e. between 1992 and 2010. The analysis has been inspired by Lagona and Padovano (2007) who analyze legislation cycle in Italy. Compared to their study, we analyze elements such as laws that change multiple other laws and political legislation cycle both in the form of a number of introduced draft laws and a number of passed laws.

We are aware of the fact that the Czech Republic does not have a sufficiently long time series to get a strong conclusion about the existence of political cycle in the legislation activity. Moreover, given its transition nature over the 1990s, there might have been a number of transitory factors that influenced the legislation activity and were not directly related to a political cycle in a narrow sense. However, this paper analyzes legislation activity over the full existence of the Czech Republic as an independent and democratic country (1993-2010) and covers five electoral terms. Thus, the conclusions reached in this paper can be considered as a first step in this area of research given all available data.

The paper has the following structure. Chapter 2 provides a survey of relevant literature. Chapter 3 describes the dataset that is used in empirical analysis, the construction

of variables and presents some basic characteristics of the legislation activity. Chapter 4 includes the analysis of the legislation cycle using the presented draft laws, while Chapter 5 covers the same type of analysis albeit with data on passed laws. Chapter 6 concludes the paper via highlighting the main findings of the analysis.

## 2 Survey of literature

Economic analysis of political processes has been a proper subject of economics at least since 1940s. Surveys of relevant theoretical literature can be found in Franzese (2002), Drazen (2000), Nordhaus (1989) or Alesina, Roubini and Cohen (1997). Opportunistic political business cycle models with adaptive expectations has been pioneered by Nordhaus (1975) and Lindbeck (1976), but received some critics along the lines of voters' irrationality and the possibility of governments to influence monetary policy in the world of independent central banks (Drazen 2000). Rational expectations models (Rogoff and Sibert 1988; Persson and Tabellini 1990; Rogoff 1990) combine the idea of a party's *competence* together with an information asymmetry. Opportunistic models assume that parties which seek office are identical and pursue the same policies. This notion is supported by theoretical models developed successively by Hotelling (1929), Downs (1957) and Black (1958) which are based on the idea of median voter theorem. According to this theorem, under some reasonable assumptions<sup>1</sup>, politicians have incentives to pursue identical policies preferred by median voter.

Hibbs (1977) and Tufte (1978)<sup>2</sup> pioneered a line of political economy research opposing the median voter theorem and relying on the assumption that politicians act in partisan way: they pursue different policies according to preferences of their electoral platform (Alesina, Roubini and Cohen 1997). More advanced versions of this partisan model with rational expectations are represented by Alesina (1987, 1988) or Franzese and Jusko (2005). Their main idea is that fluctuations in economic outcomes appear because of electoral surprise. Both parties and voters have different preferences over inflation and unemployment and elected party is expected to introduce these preferred values after the elections. Electoral result is unknown, only probabilities that each party wins are known. Inflation expectations are based on parties' preferences weighted by the winning probabilities. After the elections,

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<sup>1</sup> Mueller (2003), p. 86

<sup>2</sup> Tufte's empirical studies cover both opportunistic and partisan aspects of political cycles.

expectations are adjusted to the party that wins. Speed of the adjustment is corresponds to the form of nominal contracting.

Empirical literature is surveyed in Franzese (2002). While most of earlier literature concerning political cycles focused mostly on developed countries, in recent years the area of interest has widened also to emerging markets and developing economies. One of the important differences between developed and developing countries is the institutional environment. The quality of institutions has important impact on the extent of incentives to manipulate economic conditions that politicians have. If institutions are not adequate there is a lack of control over politicians' behavior and it gives a rise to manipulative incentives.

Shi and Svensson (2002) make a cross-country comparison including both developed and developing countries from a data set containing 91 countries. They focus on existence of the political budget cycle, i.e. fiscal policy that is expansionary in election years. They find political budget cycle as universal phenomenon; in developing countries, however, the extent of such cycle is larger than in developed. It is explained by different institutional quality in studied countries, namely corruption indicators are taken, as they represent the incumbents' access to rents.

Akhmedovand and Zhuravskaya (2004) study political cycles, more precisely they target also on political budget cycle. They confirm the presence cycle, which size is conditioned however by the level of democracy, government transparency, media freedom, voter awareness and time.

Khemani (2004) finds a policy manipulation in India in favor of certain interest groups in return for campaign support, like tax breaks. These tax breaks include inter-state trade taxes and excises and they are interpreted as tax breaks provided to specific producers. Public investment cycle was also found here together with an increase in road construction.

More recently, attention in empirical literature has been devoted to the possibility of governments and other pressure groups to influence monetary policy even if central bank is independent via exerting political pressure on central banks. There have been several works studying pressure on central bank, namely Havrilesky (1993), introducing and using methodology which measures extent of pressure by the number of politicians' statements in newspaper reports about their preference over monetary policy. This methodology was later extended and used by Maier (2002), Geršl (2006) and Kukuk (2010).



The main source of inspiration of this work is a study by Lagona and Padovano (2007). They base their model on an idea that supplying laws to certain groups might be politically overall rewarding. Moreover, to raise their chances of being reelected, politicians should take into account the time when the laws are being supplied. Using data of Italian legislation from 1948 to 2001, they find that as electoral term of legislature matures and upcoming elections are getting closer, there is a rise in legislation activity in terms of number of laws approved.

Beside the time to upcoming elections, they use also other explanatory variables; *homogeneity* captures information about number of political parties in the government and in the opposition. *Majority* captures information about how strong is the position of parties in government. More other variables are added as the model is developed throughout the study.

### 3 The dataset on legislation activity

This paper estimates a shape of the political legislation cycle using time as an explanatory variable (Lagona and Padovano 2007). We focus only on certain parts of the Czech legislation, namely the categories of legislation which are assumed to be the most related to transfer payments. This is in line with Tufte (1978, p. 24) who states that

*“The key economic element in the electoral-economic cycle is real disposable income. The quickest way to produce an acceleration in real disposable income is for the government to mail more people the larger checks – that is, for transfer payments to increase.”*

All documents negotiated in the Parliament of the Czech Republic (in the following discussion just the “Parliament”) (called *parliamentary prints*) are publicly accessible from web pages of the Parliament and divided into different categories in subject index according to a topic to which they are related. In our model we are concerned only about topics that are mostly related to transfer expenditures. Thus we selected following five categories from the subject index: (1) allowances, (2) social necessity, (3) pensions, (4) social politics and (5) social security<sup>3</sup>.

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<sup>3</sup> Original czech names of categories are (1) *dávky*, (2) *potřeba sociální*, (3) *důchody*, (4) *politika sociální* and (5) *zabezpečení sociální*

Beside all the laws from categories (1)-(5), we included also all the amendments that amended these laws any time later. We made no difference between the weight of the original law from category (1)-(5) and the amendment law.

Our dataset includes data since the electoral period starting with elections in 1992. Until December 31, 1992, institution preceding the Parliament was called the Czech National Council. On January 1, 1993, the Czech National Council was transformed to the lower house of Parliament of the Czech Republic, the Chamber of Deputies, because of the dissolution of Czechoslovakia. Until March 2010, the end of our dataset there have been 5 electoral terms, as summarized in Table 3.1.

	Elections at the beginning of period
Period 1	June 5-6, 1992
Period 2	May 31-June 1, 1996
Period 3	June 19- 20, 1998
Period 4	June 14-15, 2002
Period 5	June 2-3, 2006
	May 28-29, 2010

Table 3.1 – Summary of electoral terms (elections to the Chamber of Deputies of the Parliament of the Czech Republic)

We consider two moments in the legislative process important for an analysis of the political legislation cycle. At first, it is the moment when the draft law is presented by an incumbent politician and the legislative process starts. At second, it is the moment when the law successfully passes the legislative process and is finally approved. These moments - names of variables used in analysis related to these moments - are referred as *Pre* and *Pass*.

Both these moments bear some importance in the analysis; there is some information for the electorate arising from both of these moments and so both of them take a share in what we call the political legislation cycle. Moreover, the mutual relationship between these two moments offers some implications and is taken into account in this work. One methodological remark concerning presented draft laws has to be added: for the sake of simplicity we are going to refer *draft laws* simply as *laws*. Also we are using verbs *to introduce* and *to present* in the same meaning which refers to the start of the legislative process.

A short description of the Czech legislative process follows. After a bill presentment, there can be up to three readings of the draft law in the Chamber of Deputies, depending on modifying proposals in the statutory text. Afterwards the draft law has to be either approved

by the Senate of the Parliament of the Czech Republic or returned back to the Chamber of Deputies again with modifying proposals. One way or the other, the draft law has to be than signed by the President of the Czech Republic or again returned back to the Chamber of Deputies, which may try to outvote the presidential veto. A date when the draft law is negotiated either in the upper or the lower house of the Parliament for the last time is referred as “Law from [date]” and in our study this date is used as the date of approval of the law.

The electoral system in the Czech Republic makes elections an exogenous event under normal circumstances. Incumbents are voted for 4 years long election period. Data are aggregated to quarters and it is because of two reasons. The first reason is that our study concerns only a certain part of the Czech legislation, as discussed below. Because there are not many laws among these sections, especially in earlier periods in 1990s, it causes that some periods have zero laws presented (or approved) even on quarterly-aggregated level. Therefore we would find more zero-values if the data were aggregated monthly and it would cause problems in interpretation of econometric results.

The second reason is that parliamentary sessions are not being held very often. For instance, in the third electoral cycle 1998 – 2002, there were 51 sessions. In average it is 1.06 sessions per month. Moreover, there are irregularities in timing of these sessions, so there are months without any session and other months when several sessions were held.

Other issue concerns years’ division into quarters. We decided not to use standard division of a year to quarters starting with January, but rather starting with December. First quarter thus includes months December, January and February; second quarter includes March, April and May and so on. The reason for this is that majority of elections took place in the first half of June or at the end of May, and we wanted to avoid the inclusion of the “blank” period just after the elections into the elections quarter.

We created variable  $Pre_t$  which represents percentage share of a number of draft laws presented in quarter  $i$  from the whole electoral period. Formally:

$$Pre_t = \frac{SumPre_t}{\sum_{j=PerStart}^{PerEnd} SumPre_j} \tag{3.1}$$

where  $SumPre_t$  tells how many draft laws there were presented in period  $i$ , and the

term  $\sum_{j=PerStart}^{PerEnd} SumPre_j$  expresses the total number of draft laws presented over the whole

election period which include quarter  $i$ . The reason why we use  $Pre_t$  variable in the model rather than plain  $SumPre_t$  is that there have been growing numbers of laws from period to period, which is show on Figure 3.1. It causes that  $SumPre_t$  has a growing variance over time which would cause heteroscedasticity of data if used in the model. Variable  $Pre_t$  can be thus interpreted as an influence of laws from quarter  $i$  to the whole electoral period.

For the second elections period 1996-1998 the formula is changed to

$$Pre_t = \frac{1}{2} \frac{SumPre_t}{\sum_{j=PerStart}^{PerEnd} SumPre_j} \tag{3.2}$$

because of irregularity in the elections timing (explained below). Elections period is the half of the standard 16 quarters length which causes that values of  $Pre_t$  would be two times higher if it was not taken into account.  $Pre$  variable is shown on Figure 3.2.

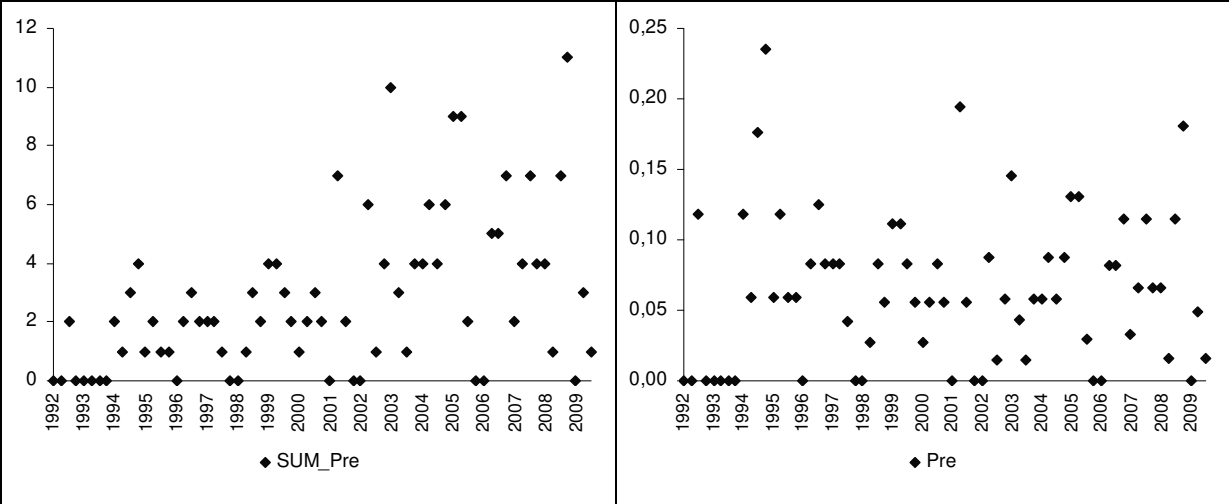


Figure 3.1 (a) – left – SumPre variable stands for number of laws presented in each quarter of the dataset. (b) – right – Pre variable reresents percentage share of number of laws in each quarter over the whole electoral term

Main explanatory variable used in the analysis is remaining time  $t$  until upcoming elections. We use, however, time to *expected* elections. The difference is that there might be irregularities in elections timing, but these irregularities are not known *ex-ante*. As a consequence, remaining time to expected elections might be different from the time that really remains in *ex-post* point of view. Construction of the variable is done similarly as in Khemani (2003). Further description of exact irregularities follows.

In 2 out of 5 periods, there have been irregularities in elections timing. The first such elections took place in 1998 after the fall of the government due to a government coalition break up because of growing economic problems of the country and scandals about financing one of the coalition parties. The second case is the fall of the government in 2009, as opposition successfully pronounced no-confidence to the government in voting that took place on March 24, 2009. After the government fall, it was announced that elections will be held on March 23, 2009. However, on September 10, 2009, the Constitutional Court of the Czech Republic assessed that premature elections would be a violation of the Constitution of the Czech Republic and decided that elections will be held at the end of the standard length of electoral period, i.e. at the end of May 2010. This caused another set of irregularities, as visible on Figure 3.2.

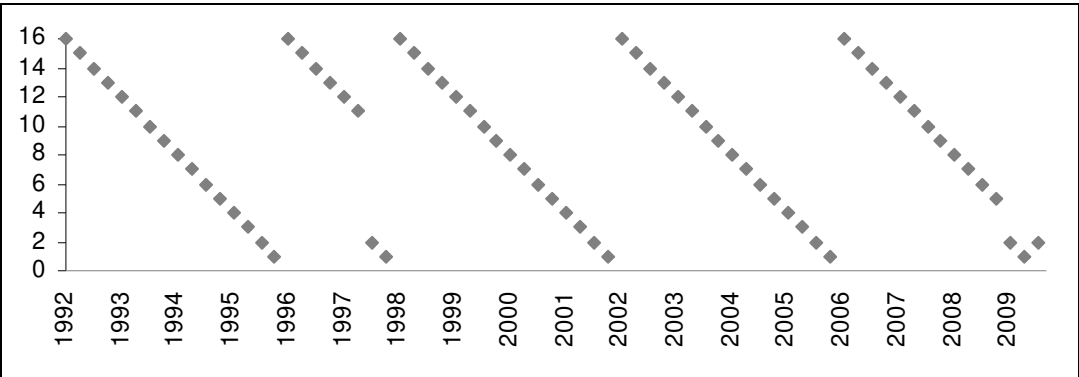


Figure 3.2 – Time to expected elections (vertical axis, quarters) in each quarter of the dataset (horizontal axis)

Another problem is related to these irregularities in elections timing, namely to the date when each law is passed. To build the dataset, it is necessary to decide for each law in which period of electoral cycle it was passed. For instance, law number 206/2009 Sb. was passed on June 17, 2009. This date would be assessed to be in the p2 period according to the construction of p1 to p16 variables described above and according to election timing irregularities. However, in case of law number 206/2009 Sb., the legislative process started by presenting the draft law on November 12, 2008. The course of this process is largely exogenous – politicians can hardly affect the exact date of approval once the process is started. So a question arises: should we connect the approval date to the period assessed *in the time of the law's approval*, i.e. p2? Or should we connect the approval date to p4 period, because it was originally expected that June 17, 2009 would be p4 period?

We decided for the latter, which has the following consequences for the dataset. There are four periods in which there is a majority of laws subject to the problem described in the

previous paragraph. These periods have different assessed position in electoral cycle, which is summarized in Table 3.2. This problem is related only to dataset with Pass variables<sup>4</sup>.

Period from	Originally	Changes to
March 1998	p1	p9
June 1998	p16	p8
June 2009	p2	p4
September 2009	p1	p3

Table 3.2 – Summary of changes in construction of explanatory dummy variables

### 4 The model and estimates

Our main hypothesis to be tested is that legislation activity expressed as a number laws presented or approved, is influenced by remaining time until upcoming elections. We expect to find that the remaining time influences the legislation activity in a way that activity raises as the elections are getting closer.

However, we are aware that this way of analysis might capture the rising activity, but does not explain reasons of the causality from time to activity. One reason can stem from the politicians’ interest to display vigour and to attract voters this way. But nature of legislation process itself provides another possible reason; preparation of a law proposal takes some time and because of limited bureaucratic capacities it is likely that more legislation activity in a sense we measure it in our analysis will be displayed towards later parts of an electoral cycle.

The two above stated determinants of amount of legislation activity are likely to be captured by the time variable we use, at least to some extent. Nevertheless, the legislation process is fairly complex procedure affected by a lot of aspects. Political reality affects strategic behavior in relation to voters and other political parties including coalition partners. This also has to be taken into account when trying to explain the way how legislation activity is formed.

In the following part we are going to estimate several models seeking to explain the shape of the legislation cycle by the time remaining until the expected elections. Models with dependent variable being quantities of both presented and passed laws are built. Beside the basic regression with remaining time in the first power as the explanatory

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<sup>4</sup> However, one might argue that this problem relates to some extent also to the date when a law is presented. It clearly takes some time to prepare a law for its presentment in the legislative process and it is unlikely that this law will be withdrawn after being prepared because of election timing irregularity.

variable, a polynomial regression up to the power four is used to capture more subtle variations in legislation activity over the cycle<sup>5</sup>. We admit that interpretation of such relationship is problematic; coefficients obtained for a dependent variable that is used in higher powers capture relationship that is difficult to interpret. On the other hand, such regression provides us a good visual interpretation. As estimated models exhibit heteroskedastic residuals, we are using heteroskedasticity-consistent standard errors to treat this problem.

#### **4.1.1 Presented laws**

In order to test for increasing legislation activity over the cycle, we regressed the variable Pre on variable that represents time remaining to the expected elections. As discussed above, variable Pre captures the legislation activity as a percentage of law proposals presented in a single period (quarter) of the whole electoral cycle.

Table 4.1 displays result of a regression of Pre on time, in the table labeled as “*Polynomial (1st degree)*”. This model is proven to be insignificant<sup>6</sup>. However, Figure 4.2 (a), which shows fitted line and observed values of Pre against t, suggests that there is a substantial decrease of the activity just before the elections (the left-hand side of the picture). We provide the following explanation and treatment of the problem.

In order to become a valid law, a law proposal has to be passed through a legislation process, as described in Chapter 3. Such legislation process takes time and it is plausible for a party that proposes the law that the law is approved before the upcoming elections. In other words, there has to be some time during which the legislation process can take place and it would not be optimal to present the law just before the elections, when there is a high risk that the time for the legislation process to take place is not sufficient. Figure 4.1 shows histogram of frequencies of legislative processes lengths and their relative cumulative frequency. We can see that about 47% of law proposals passed the legislation process within 180 days, i.e. two quarters (from which 10 percentage points correspond to the interval 150-180 days).

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<sup>5</sup> Brechler (2010) uses seasonal dummy variables for each of the 16 quarters in the electoral cycle to capture a shape of legislation activity. This method is in fact equivalent to estimation of activity in each period by taking an average value of activity from each observation in that period.

<sup>6</sup> p-value of the F-test is 0,3374

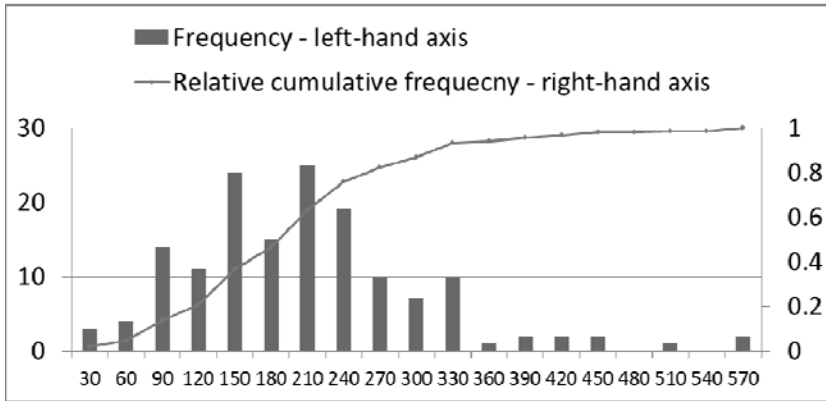


Figure 4.1 - Empirical distribution of lengths of legislative processes of monitored laws

We assume that the exact length of the legislation process is exogenous to some extent and so there should be a time reserve to minimize the risk of not passing the law. In the following model, we add a dummy variable  $BE_{it}$ , which is equal to one when time to the expected elections is one or two quarters, and zero otherwise. This variable should reflect a decrease in legislation activity (in terms of presented laws) two quarters before the elections.

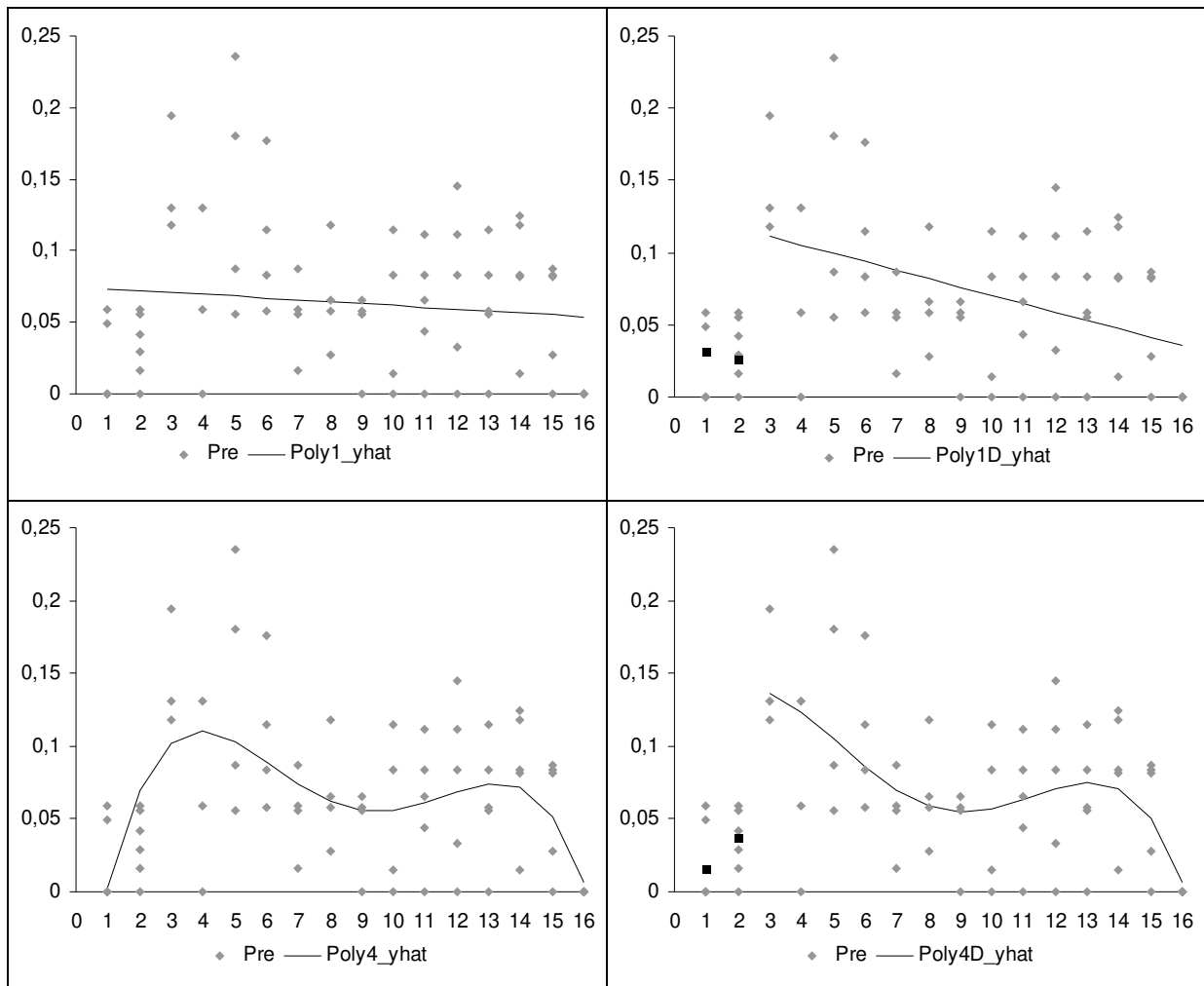




Figure 4.2 (a) – upper left – regression of Pre on time. (b) – upper right – regression of Pre on time and BEle dummy variable. (c) – lower left – polynomial fit of Pre on time. (d) – lower right – polynomial fit of Pre on time and Bele dummy variable.

Table 4.1 shows that after all variables are significant when BEle is included into the model. More importantly, variable t has negative coefficient, which in our setup corresponds to increasing activity over the cycle. The p-value is 1,32e-05 which is sufficiently low to reject the non-negativity hypothesis of one-tailed t-test. Figure 4.2 (b) depicts the trend line over time, omitting last two quarters before the elections. Adjusted R-squared value is 0,2186 for this model. This rather low value suggests that amount of legislation activity is determined largely by other factors than time (in its first power).

Next, we perform the analysis using polynomial regression. Higher powers of the time variable were added, up to the power four. Both models with dummy BEle and without BEle are used. By adding the t<sup>2</sup> and t<sup>3</sup> variables, results became worse in terms of variable significance, with exception of the 2nd degree polynomial estimate (nevertheless, explanatory power of this model is rather low). See Table 4.1 for summary of these models. Finally, adding the fourth degree to the polynomial function, coefficient estimates became significant, both for models with and without BEle dummy variable. Figures 4.2 (c) and (d) show result of these regressions against time t. Both models yield very similar results in terms of shape of the fitted curve.

We can see that the cycle starts with minimum activity in the quarter immediately after the elections (Over the dataset, observations with t = 16, i.e. 16 quarters to the expected upcoming elections, correspond to the quarter immediately after the elections). So far it has been observed in the Czech Republic that governments are not established immediately, but rather some time is needed. Moreover, we expect that preparation of a law proposal is also time-consuming process. Both these reasons provide possible explanation of low activity activity.

Starting with the second quarter, there is a substantial surge in activity, with a peak at about one year after the previous elections. A deeper analysis would be required to provide an explanation of this increase. We suggest that it might be connected with fulfilling some of the pre-elections promises. At about half-time of the electoral cycle, estimated legislation activity reaches its local minimum. Next, there is other increase in activity, which continues until the end of the cycle (i.e. until the third period before the upcoming elections, which is due to phenomenon discussed in connection with Figure 4.1). Results of the model with BEle

dummy suggest a sharper increase in activity compared to results of the model without BEle dummy. R-squared value is 0,3514 for the former model and 0,2938 for the latter model.

We are not going to provide a formal test of hypothesis of increasing legislation activity before upcoming elections. This is due to complexity of regression equation; solution of the task in a frame of the fourth degree polynomial goes beyond a scope of this paper. Based on rather anecdotic analysis in paragraphs above, we conclude that an increase in legislation activity before the elections can be found.

	<i>Polynomial (1st degree)</i>	<i>Polynomial (dummy) (1st degree)</i>	<i>Polynomial (2nd degree)</i>	<i>Polynomial (dummy) (2nd degree)</i>	<i>Polynomial (3rd degree)</i>	<i>Polynomial (dummy) (3rd degree)</i>	<i>Polynomial (4th degree)</i>	<i>Polynomial (dummy) (4th degree)</i>
	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>
<b>intercept</b>	0,0749 (0,0149) ***	0,1288 (0,0205) ***	0,0332 (0,0164) **	0,1443 (0,0375) ***	0,0064 (0,0215)	0,2219 (0,0573) ***	-0,1147 (0,0383) ***	0,0633 (0,0568)
<b>t</b>	-0,0013 (0,0014)	-0,0058 (0,0018) ***	0,0132 (0,0043) ***	-0,0097 (0,0084)	0,0305 (0,0143) **	-0,0421 (0,0207) **	0,1455 (0,0341) ***	0,0695 (0,0327) **
<b>t2</b>			-0,0009 (0,0002) ***	0,0002 (0,0004)	-0,0033 (0,0020)	0,0040 (0,0024) *	-0,0316 (0,0076) ***	-0,0203 (0,0068) ***
<b>t3</b>					0,0001 (0,0001)	-0,0001 (0,0001)	0,0026 (0,0006) ***	0,0019 (0,0006) ***
<b>t4</b>							-0,0001 (0,0000) ***	-0,0001 (0,0000) ***
<b>BEle</b>		-0,0916 (0,0195) ***		-0,1017 (0,0299) ***		-0,1388 (0,0344) ***		-0,0978 (0,0309) ***
<b>Observations</b>	71	71	71	71	71	71	71	71
<b>R<sup>2</sup></b>	0,0140	0,2409	0,1129	0,2434	0,1324	0,2638	0,2938	0,3514
<b>Adjusted R<sup>2</sup></b>	-0,0003	0,2186	0,0868	0,2095	0,0935	0,2191	0,2509	0,3015
<b>F</b>	0,9333	12,0367	6,6917	7,1832	4,3692	7,7198	12,1529	9,4989
<b>P-value (F)</b>	0,3374	0,0000	0,0022	0,0003	0,0072	0,0000	0,0000	0,0000

Table 4.1 – Estimated models with Pre as the dependent variable

**4.1.2 Approved (passed) laws**

Same analysis as in case of presented laws is performed for approved or passed laws. We expect to obtain similar pattern as in the former analysis, but with certain lag. This stems from the necessary length of the legislation process, i.e. time between presenting the law proposal and a moment of its approval, as discussed above in text related to the Figure 4.1 Based on the observed distribution of legislation process lengths, the mean value is 194 days and the median is 189. This suggests the lag in time between the two patterns approximately two quarter. Beside the time lag, analysis performed for approved laws is expected to exhibit less clear pattern. The reason is that length of the legislation process is assumed to be exogenous to a great extent and so the lag between the date of presenting a law and its approval should vary.

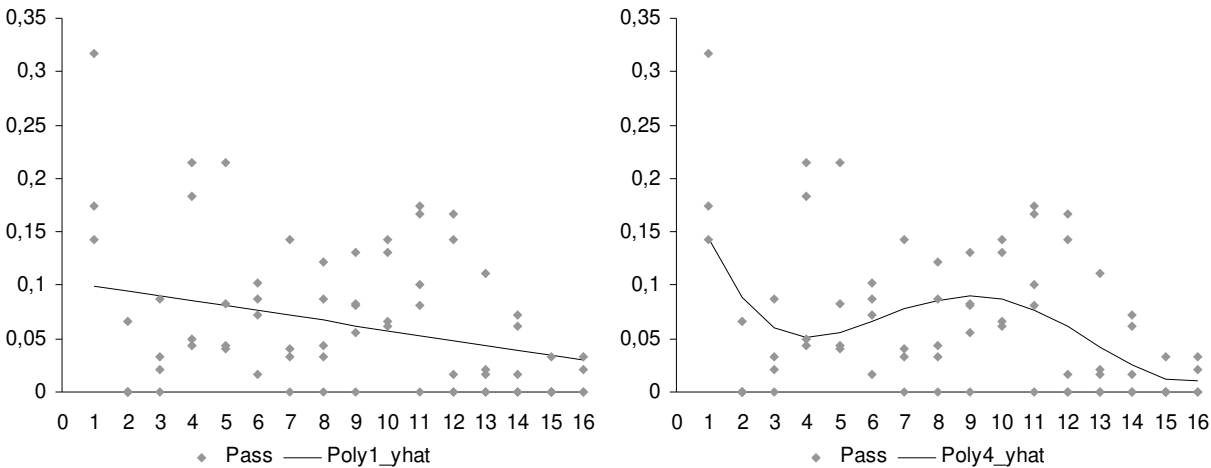


Figure 4.3 (a) –left – regression of Pass on time. (b) – right– polynomial fit of Pass on time

As before, we start with regression of Pass variable on variable t, which represents time remaining to the expected elections. In this case, we do not include any dummy variable as in the analysis of presented laws, as we expect the legislation activity to be exerted until the elections. Figure 4.3 depicts result of the regression and the fitted line. Again, we observe negative relationship between legislation activity (in terms of approved laws) and time remaining to the elections. However, the model does not pass a test for normality of distribution of residuals – p-value 0,0014, and so the significance tests might be biased.

Table 3.2 shows results of polynomial fit. Similarly to the above analysis which used Pre variable to capture legislation activity, the fourth degree polynomial has significant

estimates of coefficients. This significance is relatively weaker, which is a result we expected as we keep in mind that the length of the legislation process is exogenous to some extent. Normality of residuals' distribution has to be rejected anyway, so the significance results might be biased. We observe fairly different coefficients estimates compared to the previous part of the analysis. However, the resulting shape is rather similar; difference in coefficients would have observable impact for other values of  $t$  variable than considered. Again, we do not provide formal hypothesis test about the coefficients estimates, rather we conclude, based on the picture, that an increase in legislation activity can be observed. The explanatory power of the model is, however, even weaker than in the previous part of the analysis (Pre dependent variable) in terms of R-squared value.

	<b>Polynomial (1st degree)</b>	<b>Polynomial (2nd degree)</b>	<b>Polynomial (3rd degree)</b>	<b>Polynomial (4th degree)</b>
	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>	<i>estimate (standard error)</i>
<b>intercept</b>	0,1046 (0,0217) ***	0,0800 (0,0444) *	0,1435 (0,0676) **	0,2404 (0,0934) **
<b>t</b>	-0,0047 (0,0019) **	0,0032 (0,0100)	-0,0341 (0,0287)	-0,1186 (0,0620) *
<b>t2</b>		-0,0005 (0,0005)	0,0048 (0,0035)	0,0249 (0,0126) *
<b>t3</b>			-0,0002 (0,0001)	-0,0020 (0,0010) *
<b>t4</b>				0,0001 (0,0000) *
<b>Observations</b>	71	71	71	71
<b>R<sup>2</sup></b>	0,0997	0,1154	0,1618	0,2095
<b>Adjusted R<sup>2</sup></b>	0,0866	0,0894	0,1243	0,1616
<b>F</b>	6,0202	11,6642	10,3710	11,3761
<b>P-value (F)</b>	0,0167	0,0000	0,0000	0,0000

Table 4.2 – Estimated models with *Pass* as the dependent variable

## 5 Conclusion

A variety of different constituents might have an influence on the extent of legislation activity over an electoral term. The aim of this work is to empirically test and briefly describe one of the sources of this influence: the time to expected elections. We suggest that the time to expected elections is closely connected to politicians' incentives to shift a shape of the cycle in order to raise their chances to get reelected. Nevertheless, we remind that these incentives are not the only constituent of a shape of the cycle over time.

The analysis uses a dataset collected for the purpose of this paper. The data were collected from publicly accessible information provided on web pages of the Parliament of the Czech Republic.

The key findings are following. (1) Significant negative relationship is found between time to expected elections and legislation activity; the closer the elections are, the higher activity is observed. (2) This relationship is relatively stronger when presented laws are used for construction of the dependent variable. (3) Polynomial fit provided in the analysis shows graphically that legislation activity increases after the elections followed by decrease around the middle of electoral cycle. At the end of electoral cycle, we observe an increase of legislation activity. We interpret the two-peak pattern in legislation activity as a reflection of two incentives that members of parliament face: first, to honor their pre-election promises (the first peak after elections), and second, to maximize political support by voters (the second peak just before next elections).

Possibility of a clear interpretation of econometric results is deteriorated by several factors. At first, the short history of the Czech Republic offers only a limited scope of data for an interpretation. It has an impact on coefficient estimates in linear regressions. Analysis of variance would work better with larger dataset. At second, repetitive irregularities in elections timing have also a deteriorative effect on results interpretation. If we assume in our analysis that politicians plan their strategies about legislation activity *ex-ante*, information about the election timing is the key element in their planning. Any irregularities in timing have a negative impact on a politicians' possibility to rationally develop a correct strategy.

Further analysis might concern empirical testing in other countries and comparing the results. Such comparison might be however difficult due to institutional and legal traditions that differ among countries. Another room for further analysis is to use the same methodology for analysis of different parts of legislation. Here, we analyzed laws connected to transfer payments. Different shape of the cycle obtained from different part of legislation might imply unequal importance of such group of laws for incentives that form political legislation cycles, or a different time structure of such incentives.

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