



SZKOŁA GŁÓWNA HANDLOWA W WARSZAWIE
WARSAW SCHOOL OF ECONOMICS

Collegium of Economic Analysis

Małgorzata Marcinkowska

Summary of doctoral dissertation:

“Political Business Cycle”

Dissertation written at Collegium of Economic Analysis

under the academic supervision of

dr hab. Robert Kruszewski, prof. SGH

Warsaw, February 2018

1 Justification for the choice of the topic

Democracy is the worst form of government except all those other forms that have been tried from time to time

W. Churchill

Democracy is one of the most widespread political system in the world. According to *The Economist Intelligence Unit's Index of Democracy*¹ 76 countries out of 167 were democratic in 2014, it means their governments have been chosen in democratic election².

Despite numerous advantages of democratic system, e.g. it allows the citizens to influence the way of governing, it has drawbacks that cannot be ignored.

The voters could impact the policy of the country by choosing the incumbents, who would govern the state on their behalf. However, they have little chance to supervise them. Their possibility to evaluate the government is limited to the day of the election, when they can support either the current incumbent or the opponent.

There is a serious threat that the politicians would benefit from the periodicity of the evaluation and manipulate the economy to improve their re-election chances directly before the poll.

Such economically unjustified intervention can lead to the politics-based economy fluctuations i.e. political business cycle (PBC).

The current political situation both in Poland and worldwide makes the topic of PBC particularly interesting. The globalisation, integration of European Union, financial problems of the

¹ *Democracy Index 2014, Democracy and its discontents A report from The Economist Intelligence Unit, The Economist Unit Limited 2015*

²The head of the country can be elected directly (e.g. in Poland, France) or indirectly (e.g. in Italy). According to OSCE, the rules of democratic elections are:

1. Elections are held in regular reasonable time period
 2. All deputies of at least one chamber of the Parliament are elected in the direct election.
 3. Universal and equal suffrage is guaranteed to all citizens.
 4. Voters choose their representatives in a secret ballot. The results of the election are announced publicly.
- Election Observation Handbook: Sixth Edition, Organization for Security and Co-operation in Europe 11.06.2010*

countries considered hitherto to be financially stable and the radicalisation of the society justify the concerns over the political based fluctuations in the country.

There is a considerable amount of literature on the political business cycle, in Poland the topic is barely known though. Therefore the dissertation delivers the PBC theory complemented with the factors characteristic for polish economy.

2 The aim of the dissertation and the main hypothesis

The main objective of the doctoral thesis is to examine if in the democratic economies we can observe the political business cycles and to explain the mechanism of such cycles.

In the dissertation two major hypothesis were verified:

1. *Politicians have strong incentive to manipulate the economy according to the electoral cycle.*

In democratic countries the government incumbents are evaluated periodically by the voters. In consequence, the politicians who wanted to increase the probability of re-election could try to improve the economic condition in the pre-voting period that results in opportunistic political business cycle.

2. *In Poland we can observe fiscal PBC on the municipal level.*

The evidence of the political business cycle can be found in fiscal policy since the expenditure and investment of the local governments rises. The intensity of this phenomena depends on the size, type and the wealth of the community.

3 Literature background

The first investigation of the business cycle based on politics was conducted by Michał Kalecki. In his paper "Political aspects of full employment"³ he described the relationship between fluctuation of the economy and the changes in balance of power between employers and employees. As one group of interest tried to get more privileges, the unemployment and inflation rate change.

Kalecki proved that recession is related to the attempts of diminishing the influence of the workers.

Nevertheless the first systematic study of the political business cycle was carried out in 1970s. There are two major streams of theories in the literature on PBC⁴ – electoral (opportunistic) business cycle and partisan business cycle.

William Nordhaus⁵ created the theory of opportunistic PBC in 1975. He assumes that the incumbents, who want to keep the office, will stimulate the economy in the periods preceding the elections in order to increase the probability of winning. Using the monetary policy the government moves on the Phillips curve. The voters evaluate them based on the retrospective review of the economy and adjust their inflation expectation (naive voters).

The research on political business cycle conducted also Lindbeck⁶ i McRae⁷. Their models are based on Keynesian theory, therefore they were vigorously challenged by classical economists.

³M. Kalecki, *Political aspects of full employment*, „Political Quarterly” No 14 1943, p 322-31.

⁴K. Piech K., *Polityczny cykl koniunkturalny w krajach rozwiniętej demokracji*, referat na konferencję naukową pt. „Transformacja systemowa w Polsce – oceny i perspektywy”, Krynica Górska, 11-14 czerwca 2000.

⁵W. Nordhaus, *The Political Business Cycle*, „Review of Economic Studies”, No 42, 1975, 169-90.

⁶A. Lindbeck, *Stabilization Policies in open economies with endogenous politicians*, „American Economic Review (papers and proceedings)” No 66 1976, p 1-19.

⁷D. McRae, *A Political Model of the Business Cycle*, „Journal of Political Economy”, No 85 1977, p 239-263

In response to the criticism there were an attempts to introduce classical elements into the models. Rogoff and Siebert⁸, Rogoff⁹ and Persson and Tabellini¹⁰ proved that political business cycle could be observed, even if the voters are not short-sighted.

The second theory of political business cycle partisan PBC. It is based on the assumption, that politicians choosing monetary and fiscal policy do not seek personal benefits, but follows the ideology of their party. According to this theory left-wing parties that concentrates on social aspects of the economy will choose lower unemployment and accept the higher inflation rate. On the other hand right-wing parties would allow employment rate to decrease in order to keep the prices stable. The research on partisan business cycle initialize Hibbs¹¹. He claims that a party choose each time the same combination of unemployment and inflation on the Philips curve. This combination reflects their ideology. The basic model has been developed further by Alesina¹² and Chappell and Keech¹³.

A recent review of the literature on political business cycle brought further enhancement in both partisan and opportunistic models.

One of the most interesting innovation is introducing to the traditional model of PBC the mechanism that could prevent the incumbent from manipulating the economy. Francisco Candel-Sánchez¹⁴ has implemented to the model a penalty system. It punishes politician's behaviour that leads to deviating from the optimal fiscal policy and discourages the incumbent from taking advantage of their superiority.

Gernot Sieg¹⁵ has proved that independent central bank can generate the political business cycle, even if the voters adjust their expectation to the observed politics.

⁸ K. Rogoff, A. Siebert, *Elections and macroeconomic Policy cycle*, „Review of Economic Studies”, No 55 1988, p 1-16.

⁹ K. Rogoff, *Equilibrium political budget cycles*, „American Economic Review”, No 80, 1990, p 21-36.

¹⁰ T. Persson, G. Tabellini, *Macroeconomic Policy, credibility and politics*, „Harwood Academic Publishers”, London 1990.

¹¹ D. Hibbs, *Political parties and macroeconomic policy*, „The American Political Science Review”, No 7, 1997, p 1467-1487.

¹² A. Alesina, *Macroeconomic Policy In two-party system as a repeated game*, „Quarterly Journal of Economics”, No 102 1987, p 651-67; A. Alesina, *Macroeconomics and politics*, „NBER Macroeconomic Annual”, MIT, Cambridge 1988, p 13-52.

¹³ H. Chappell, W. Keech, *Policy Motivation and Party Differences in a Dynamic Spatial Model of Party Competition*, „American Political Science Review” No 80, 1986, p 881-99.

¹⁴ F. Candel-Sánchez, *Incentives for budget discipline in the presence of elections*, „European Journal of Political Economy”, No 23, 2007, p 863-884.

¹⁵ G. Sieg, *A political business cycle with bloodedly rational agents*, „European Journal of Political Economy”, No 17, 2001, p 39-52.

Allan Drazen¹⁶ has proposed a model of active fiscal - passive monetary policy. (AFPM). He has described the situation, where there is a government using fiscal policy tools and the independent central bank conducting the monetary policy. By expansive fiscal policy the government forces the central bank to certain behaviour.

Sasakura¹⁷ draws our attention to another aspect of PBC. He has examined the economy where the different groups of interest try to force the incumbent to conduct the policy they would benefit from. He noticed, that the governmental expenditures can be easily increased and generally accepted; however the reduction of them is difficult due to the resistance of the citizens. In this situation, every attempt to generate the political business cycle by incumbent leads to the political chaos.

The review of the literature found numerous empirical evidences of PBC. Shi and Svensson¹⁸ have analysed the periodicity of fiscal policy. They have used data from both developed and developing countries. They confirmed the occurrence of political business cycle in governmental expenditures and in budget deficit. The PBC is more noticeable in developing countries. The evidences for political business cycle can be found in Brender and Drazen¹⁹, González²⁰, Alt and Lassen²¹, Block²² and Coelho, Veiga and Veiga²³.

The previous research has tended to focus on big economies, where the incumbent can use all tools of either monetary or fiscal policy. The author's model proposed in this doctoral dissertation complements the current literature of the factors typical for small local economies.

¹⁶ A. Drazen, *The AFPM Model of the Political Business Cycle*,

¹⁷ K. Sasakura, *Political economic chaos?*, „Journal of Economic Behaviour and Organization”, No 27, 1995, p 213-221.

¹⁸ M. Shi, J. Svensson, *Political Business Cycles in Developed and Developing Countries*, Working Paper, The World Bank, February 2000.

¹⁹ A. Brender, A. Drazen, *Political budget cycles in new versus established democracies*, „Journal of Monetary Economics”, No 52, 2005, p 1271-1295.

²⁰ M González, *On elections democracy and macroeconomic Policy cycles*, working paper, 2002.

²¹ J.E. Alt, D. Lassen, *Fiscal Transparency, political parties and debt In OECD countries*, working paper, Harvard University, 2003.

²² S. A. Block, *Political business cycles, democratization, and economic reform: the case of Africa*, „Journal of Development Economics”, No 67, 2002, p. 205-228

²³ C. Coelho, J. F. Veiga i L. Veiga, *Political business cycles in local employment: Evidence from Portugal*, „Economics Letters”, No 93, 2006, p 82-87.

4 Theoretical model

The aim of the model is to explain the mechanism of political business cycle and define how to fight against this phenomena. It justify the PBC when the government has no influence on monetary policy and can use fiscal policy tools only.

The approach is a variation on the model of democratic system developed by Hans Garsbach and Verena Liessem²⁴ which has been complemented by the elements of political business cycle.

The basic form of the model is a game of 3 periods. It reflects the situation, when the politician is allowed to hold his office only for two terms. In consequence they have no incentive to put an effort in his duties during the second term.

The first term of office consist of two periods:

- $t = 1$ - initial period
- $t = 2$ – pre-election period; when the incumbent runs an election camaign.

During the second term of office, the politician is not engaged in election, therefore it is not divided into two separate periods. The third period $t = 3$ has lenght equals to the sum of period 1 and period 2.

In his first term of office, in the period t , $t \in \{1,2\}$, the incumbent put an effort e_t and bear the costs $C(e_t)$. At the same time he benefits from ego rent R_t . Ego rent means all benefits (tangible and intangible), that politician receives from the fact of holding the office.

By putting the effort, the incumbent generates the goods for the voters y_t , where $e_t = y_t$.

The voters cannot observe the generated goods directly. They receive the signal that is a base for their opinion on politician's competence.

$$s_t = y_t + \varepsilon_t = e_t + \varepsilon_t$$

The voters utility U_t^w in a period t is defined by expected value of y_t subject to the signal s_t .

²⁴ H. Gersbach, V. Liessem, *Reelection threshold contracts in politics*, Social Choice Welfare, Vol 31, No 2,p253

$$U_t^w = E(y_t | s_t)$$

The total voters' utility from the game is defined as follows:

$$U^w = \sum_{t=1}^n E(y_t | s_t)$$

where n is a number of periods.

The voters decision whether to support the current incumbent in the election is based on maximisation of the utility from politician's performance. The citizens prefer the possibly highest effort of the incumbent because it means more goods for them.

The politician knows, that the recent signals are more intense for the voters than the signals from the past. Therefore they plan their tasks discounting the effort from the previous periods with discount factor δ , $\delta \in (0,1)$. This factor can be also explain with the generational change of the voters.

From the voters' point of view, the incumbent's total effort is:

$$\sum_{t=1}^{n-1} \delta^{n-1-t} e_t$$

Politician wants to be re-elected to increase his utility.

At the end of second period the poll take places and the politician is re-elected with the probability $q(e_1, e_2)$.

In case the politician is re-elected, he does not put any effort, since he does not want to bare additional costs without possibility to increase the total utility. In consequence $e_3 = 0$, $c(e_3) = 0$.

The voters do not receive additional goods, $y_3 = 0$, but they receive a signal equal to $s_3 = \varepsilon_3$.

The incumbent tries to maximise his utility at the end of the period 3: $U^p = U_1^p + U_2^p + U_3^p$.

The utility in period 3 depends on the ego rent and the probability of winning the elections.

In equilibrium the incumbent will choose such values of effort e_1 and e_2 , that give him the maximal utility from the holding the office.

The cost function is as follows:

$$C(e) = ce^2, c > 0$$

The function of politician's subjective probability of re-election is defined by:

$$q(e) = 1 - \frac{1}{1 + \delta e_1 + e_2}$$

The incumbent maximises his total utility subject to the effort e :

$$\max_{\{e_1, e_2\}} (R_1 - ce_1^2 + R_2 - ce_2^2 + \left(1 - \frac{1}{1 + \delta e_1 + e_2}\right) R_3) \quad (4.10)$$

Solving the necessary condition we get the relationship $e_1 = \delta e_2$. Since $0 < \delta < 1$ this result confirms that the incumbent increases the effort in the electoral period.

The basic model has been complemented with:

- Increasing the number of terms of the office that the politician can apply for.
- Introducing the possibility, that incumbent can increase his competences when he holds the office.

The analysis has revealed that those factors do not influence the incumbent's behaviour. In equilibrium the politician always rises an effort in the pre-election periods.

In each version of the model the intensity of political business cycle depends on subjective opinion of the incumbent, therefore there can occur in economies with different strength.

Additionally, the doctoral thesis provides the propositions of the mechanisms preventing the government from generating of political business cycle.

First proposition introduce the mechanism punishing the deviation from optimal fiscal policy. It has been proved that there exists such penalty that stops the incumbent from stimulating the economy before the elections. The penalty depends on discount factor δ and a standard costs of politician's effort.

Second proposition introduces to the model re-election threshold contracts. This solution originates from the paper of Hans Gersbach and Verena Lissemer "Reelection threshold

contracts in politics²⁵. The politician is obliged to fulfil the contract which he signed during the election campaign. Therefore he has no incentives to manipulate the economy in pre-election period.

Although both mechanisms effectively prevent the politicians from generating political business cycle, they have some major drawbacks. In order to reduce the risk of PBC the system changes are needed. Moreover it limits the decision of democratically elected governments and decreases their flexibility for the external shocks.

The presented model is useful tool that helps to explain the impact of the election on the policy run by the government. It explains the incumbents' behaviour by demonstrating the factors affecting their decisions.

5 Empirical model

In an attempt to verify the hypothesis of political business cycle in Poland on municipal level, the dynamic model of panel data has been used. The form of the model was proposed by Veiga and Veiga in "Political Business Cycles at the Municipal Level".²⁶

The model use generalised moment method for panel data designed by Arellano and Bond²⁷.

The estimation is based on the data of income, expenditures and population of the communities comes from Local Data Bank (Bank Danych Lokalnych).²⁸

The significant difference of the communities in Poland prevents from estimation the model for all of them. It required conducting the cluster analysis with k-median method based on population and income of the community in 1994-2014. In order to reflect the differences of

²⁵ H. Gersbach, V. Liessem, *op .cit.*

²⁶ F. Veiga, L. Veiga, *Political Business Cycles at the Municipal Level*, "NIPE Working Paper", WP-4/2004, p 1-26. *op cit.*, p 1-26.

²⁷M. Arellano, S. Bond (1991) *Some tests of specification for panel data: Monte carlo evidence and an application to employment equations*, "The Review of Economic Studies", No 58: p 277-297.

²⁸ Bank Danych Lokalnych, http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (dostęp 04.01.2016)

the local economies, the clusters were also divided based on the type of the unit and the region.

The final form of the model is as follows:

$$Investment_t = \alpha Investment_{t-1} + \beta_0 + \beta_1 Income_t + \beta_2 Election_t + \beta_3 EU_t$$

Where

Investment – Capital expenditures in the community per capita,

Income - Total income of the community in year *t* per capita

Election – Binary variable equals 1 in an election year and 0 when there is no election. This variable does not include the by-elections.

UE - binary variable equals 0 in 1994-2003 (before Poland has joined the EU) and 1 in 2004-2014.

The software used to analyse the data was GRET. The model was estimated with two-step GMM-SYS method with asymptotic standard errors.

The model has been tested with AR(1), AR(2), Wald test and Sargan test.

The results of the estimation confirm the hypothesis, that political business cycle occur in Poland for 9 out of 19 clusters. There was a statistically significant increase of investments in election years in following groups of communities:

- Small urban communes from Central, South and East region.
- Small urban-village communes from South North-West, South-West and North
- Village communes from the North
- Middle size urban and urban-village communes

In other clusters there is no evidence for political business cycle.

As anticipated the results differ for the clusters and depends on the type of the communities. The PBC does not occur in the biggest urban communities, where the distance between local government and the voters is relatively big. It is more difficult to notice the relationship between the economy and the specific politician. Therefore the incentives for the incumbents to manipulate the policy are decaying.

On the other hand in the villages the electorate is more traditional. They vote on the representative that they personally know and respect rather than evaluate politician's performance.

Nevertheless, there are evidences of the political business cycle in the small and middle-size town. The voters do not have the direct contact with the incumbents so they do not possess the complete information; however they are close enough to see the consequences of politician's efforts. At the same time the incumbents could easier improve their image by stimulating the economy before the election.

6 Summary

This doctoral dissertation has significant impact on the research on political business cycle and provides an additional support for the theory of opportunistic PBC.

The author's model provides innovative explanation of mechanism behind the PBC when the incumbent's decisions result from maximizing their personal utility and their performance is evaluated periodically, at the end of the term of office.

Additionally the author has proposed the ways of combating the problem by designing the mechanisms discouraging the politicians from manipulating the economy. The instruments used to prevent the incumbent from deviating the optimal policy could be the penalty mechanism and reelection threshold contracts.

The solution has clearly some limitations therefore there is a need for further research on this topic.

The empirical result has also supported the theory of political business cycle and provided the evidence for Poland.

The dissertation highlighted the importance of the research on political business cycle in present economy. Despite the changes in the world, such as globalisation, integration of the EU countries, democratisation of the societies, the problem of the fluctuation of the economy

caused by politicians is still up to date. Therefore the accurate study on this topic is crucial to limit its negative consequences.

Literature

1. Alesina A, *Macroeconomic Policy In two-party system as a repeated game*, „Quarterly Journal of Economics”, nr 102 1987, s. 651-67; A. Alesina, *Macroeconomics and politics*, „NBER Macroeconomic Annual”, MIT, Cambridge 1988, s. 13-52.
2. Alt J.E., Lassen D., *Fiscal Transparency, political parties and debt In OECD countries*, working paper, Harvard University, 2003.
3. Arellano M., Bond S. (1991) *Some tests of specification for panel data: Monte carlo evidence and an application to employment equations*, „The Review of Economic Studies”, Nr 58: s. 277–297.
4. *Bank Danych Lokalnych*, http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (dostęp 03.02.2018)
5. Block S. A., *Political business cycles, democratization, and economic reform: the case of Africa*, „Journal of Development Economics”, nr 67, 2002, s. 205–228
6. Brender A., Drazen A., *Political budget cycles in new versus established democracies*, „Journal of Monetary Economics”, nr 52, 2005, s. 1271-1295.
7. Candel-Sánchez F., *Incentives for budget discipline in the presence of elections*, „European Journal of Political Economy”, nr 23, 2007, s. 863–884.
8. Chappell H., Keech W., *Policy Motivation and Party Differences in a Dynamic Spatial Model of Party Competition*, „American Political Science Review” nr 80, 1986, s. 881-99.
9. Coelho C, Veiga J. F., Veiga L., *Political business cycles in local employment: Evidence from Portugal*, „Economics Letters”, nr 93, 2006, s. 82–87.
10. *Democracy Index 2014, Democracy and its discontents A report from The Economist Intelligence Unit*, The Economist Unit Limited 2015
11. Drazen A., *The AFPM Model of the Political Business Cycle*,
12. *Election Observation Handbook: Sixth Edition*, Organization for Security and Co-operation in Europe 11.06.2010
13. Gersbach H., Liessem V., *Reelection threshold contracts in politics*, Social Choice Welfare, Vol 31, nr 2, s.253
14. González M., *On elections democracy and macroeconomic Policy cycles*, working paper, 2002.
15. Hibbs D., *Political parties and macroeconomic policy*, „The American Political Science Review”, nr 7, 1997, s. 1467-1487.
16. Kalecki M., *Political aspects of full employment*, „Political Quarterly” nr 14 1943, s. 322-31.
17. Lindbeck A, *Stabilization Policies in open economies with endogenous politicians*, „American Economic Review (papers and proceedings)” nr 66 1976, s. 1-19.
18. McRae D, *A Political Model of the Business Cycle*, „Journal of Political Economy”, nr 85 1977, s. 239-263
19. Nordhaus W., *The Political Business Cycle*, „Review of Economic Studies”, nr 42, 1975, 169-90.
20. Persson T., Tabellini G., *Macroeconomic Policy, credibility and politics*, „Harwood Academic Publishers”, Londyn 1990.
21. Piech K., *Polityczny cykl koniunkturalny w krajach rozwiniętej demokracji*, referat na konferencję naukową pt. „Transformacja systemowa w Polsce – oceny i perspektywy”, Krynica Górská, 11-14 czerwca 2000.
22. Rogoff K, *Equilibrium political budget cycles*, „American Economic Review”, nr 80, 1990, s. 21-36.
23. Rogoff K., Siebert A., *Elections and macroeconomic Policy cycle*, „Review of Economic Studies”, nr 55 1988, s. 1-16.

- 24: Sasakura K., *Political economic chaos?*, „Journal of Economic Behaviour and Organization”, nr 27, 1995, s. 213-221.
25. Shi M., Svensson J., *Political Business Cycles in Developed and Developing Countries*, Working Paper, The World Bank, February 2000.
26. Sieg G., *A political business cycle with bloodedly rational agents*, „European Journal of Political Economy”, nr 17, 2001, s. 39–52.
27. Veiga L., Veiga F.J., *Political Business Cycles at the Municipal Level*, “NIPE Working Paper”, WP-4/2004, s. 1–26.

Margareta Mawinkowska