Business Cycles, Political Incentives and the Macroeconomy: Comparison of Models

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Abstract

Politicians and political parties are faced with the problem of being elected to power, and later, of being re-elected. These political ambitions are often fuelled by policies that affect the entire economy and business cycles. The purpose of this paper is to compare the various models used to describe how political decision-making may affect business cycles. Both opportunistic and partisan models, and exchange rate manipulation are examined, and empirical evidence is used to view the validity of the models.

1. Introduction

Traditionally, business cycles have been explained by economic fluctuations caused by random shocks and structural instability of economy. They move in a cyclical manner, each boom followed by a bust, each expansion of the economy traced by an anticipated and inevitable downturn. Although there have been those who believe in mankind's ability to come up with tools to break the cycles (e.g., Irving Fisher's claim on the eve of the 1929 crash that stock prices had reached a "permanent and high plateau"), such methods have not been developed (De Long, 1999). Expansions always end. They are followed by recessions in which patterns of real, nominal and financial variables closely resemble the ideal type of "recession". In this sense, business cycles follow a cyclical motion.

An alternative way of viewing business cycles is to consider them being politically determined. According to this view, the root cause for some of the business cycles lies in political motivation. First formalized by Nordhaus (1975), the theory of political business cycles assumes that politicians, once in power, are eager to stay in power. To do this, they may be tempted to manipulate economic policy instruments for electoral gains.

To describe the phenomenon, several models have been developed. These models can be divided into two main groups, the opportunistic and partisan models (Alesina & Roubini, 1992). In *opportunistic models*, policy makers maximize their popularity or their probability of being re-elected. This is assumed to be the only thing they care about, and they will go to great lengths to appear more competent than their opposition, resulting in being re-elected. According to Nordhaus (1975), a common way to do this is by changing the location on the Phillips curve, where there is a trade-off between unemployment and inflation. Voters form expectations of what is usual behaviour of political parties. This is based on past behaviour. The expectation is then compared to the behaviour and performance of the incumbent party, and the voter then decides who to vote for. In *partisan models*, different political parties vary in their policy options and priorities, and make decisions that are more favourable to some groups than others. Alesina and Roubini (1992) suggest that left-wing parties are more concerned with solving the unemployment problem whereas the right-wing parties focus more on inflation issues. Traditional examples include the Democrats versus Republicans in the United States, and Labour versus Conservatives in the United Kingdom.

Developments in the study of political business cycles have taken place in phases. The first phase started in the 1970s and was led by Nordhaus (1975) and Lindbeck (1976) on opportunistic cycles, and Hibbs (1977) on partisan cycles. Due to research trends in macroeconomics, political business cycles were forgotten for some years. In the mid-80s, interest in them was renewed, and through the use of game theory new approaches were developed. During this second phase, rational political business cycle models were developed by Cukierman and Meltzer (1986), Rogoff and Sibert (1988), Rogoff (1990), and Persson and Tabellini (1990). These models are of opportunistic nature, i.e., they assume that incumbent policy makers want to stay in power. Formulated at around the same time, the so-called rational partisan theory developed by Alesina (1987) takes a partisan approach.

In addition to these models, some attention has been given to the use of exchange rates in meeting political goals. Exchange rates can be manipulated in a similar way as the inflation rate and unemployment as mentioned above. However, the exchange rates have some benefits as the effects tend to be more immediate. For instance, an appreciation of the exchange rate immediately cuts import prices and consumers' prices, thus immediately boosting real income (van der Ploeg, 1989). Dornbusch (1987) suggests this is one of the best tricks in the bag of an incumbent policy maker, and that there exists empirical evidence of this.

The purpose of this paper is to introduce and compare the most important models regarding political business cycles. The next section describes the opportunistic (political business cycles and rational business cycles) and partisan (partisan and rational partisan) models as well as the exchange rate policy. In section 3. attention is given to some empirical evidence of various countries. Section 4. summarizes the paper.

2. Theories n Political Business Cycles

2.1 Political Business Cycles

The framework introduced in this section follows Nordhaus (1975). Conventional wisdom states that there is a trade-off between the rates of inflation and unemployment (as in the Phillips curve). The reason for this is that a low unemployment rate means higher demand relative to the labour force and a higher cost of strikes. Because of this, workers are prepared to settle for a higher than average increase in wage rates. In addition, the trade-off is larger in the short term than in the long

term. Higher inflation leads to an expectation of even higher inflation in the future. Nordhaus assumes that inflation is a control or policy variable of the economic system and that policy are able to set it at any desired level. Therefore, the problem is to determine what that desired level is. The economy is described by a Phillips curve (Alesina & Roubini, 1992):

$$u_t = \bar{u} + \alpha u_{t-1} + \gamma(\pi_t - \pi_t^e) + \varepsilon_t \qquad \text{with} \qquad 0 < \alpha < 1, \ \gamma < 0, \qquad (1)$$

where u is unemployment, $\bar{u}/(1-\alpha)$ is the steady state "natural" level of unemployment, π is inflation, π^e is expected inflation; ε is a random shock with zero mean, α and γ are parameters. The autoregressive term in (1) captures the sources of persistence. It is worth noting that it is possible to use output growth, y_t, instead of unemployment. This is due to Okun's law.

Individual decision-makers have included the aggregate inflation and unemployment rates in their preference functions, and prefer lower rates of each to the higher ones. Individuals care about the aggregate unemployment rate because their own experiences are closely linked to the cyclical movements of the economy. Rising unemployment rates often mean decreasing income for many families. Although not as obvious, individuals are also averse to inflation. Nordhaus lists three common reasons for this. First, inflation may cause balance of payments problems. Second, it leads to inefficient allocation of resources. Third, inflation introduces an arbitrary redistribution of income.

As individuals are unable to say whether or not political decision-makers are performing well relative to objective possibilities, they rely on past experience and observations when deciding who to vote. Nordhaus claims, that voters do not take the platforms of parties seriously when voting. Instead, they form a set of expectations of what is the usual behaviour of political parties. In Nordhaus' model, a great amount of importance is placed on the assumption that voters are ignorant to the structure of the economy. They only look back at the incumbent party's performance and decide whether to vote for them (improved economic conditions) or against them (deteriorated conditions). Thus the expectations on inflation are adaptive:

$$\pi_t^e = \pi_{t-1} + \lambda(\pi_{t-1}^e - \pi_{t-1}) \qquad 0 < \lambda < 1. \qquad (2)$$

Knowing this, the incumbent party makes decisions regarding the economy. It is important to point out that policymakers are directly in control of the inflation. According to Nordhaus' model, the incumbent is myopic in that it does not care about the future generations. It only aims to stay in power by pleasing the present voters. In a two-party system with periodic voting, the short-term economic policies are chosen by the incumbent party. The incumbent eliminates the inflationary effects at the beginning of its new term with the use of a recession (Alesina & Sachs, 1988).

2.2. Rational Political Business Cycles

The original model was proposed by Rogoff and Sibert (1988) but later revised and simplified by Persson and Tabellini (1990). The approach used here can be found in Carlsen (1997a). The rational political business cycle model is a two-period signalling game in which the policymaker sets the inflation π_t for each period $t = 1,2$. Given the inflation, output x_t is

$$x_t = \pi_t - \pi_t^e + \mu_t, \qquad t = 1,2, \tag{3}$$

where μ_t is the policymaker's "competence". Instead of using the adaptive inflation expectations, as in Nordhaus (1975), the rational political business cycle model uses rational expectations:

$$\pi_t^e = E(\pi_t \mid I_{t-1}) \tag{4}$$

I_{t-1} includes all the necessary information except the level competence of the policymakers. This implies asymmetric information between the candidates and the voters (Alesina & Roubini, 1992). The former are aware of their own type (or competence) whereas the latter do not. Here competence is understood to mean the ability to reach and maintain a low unemployment level together with a relatively low inflation rate. Politicians attempt to appear as competent as possible before elections, eventually leading to a situation that resembles Nordhaus' political business cycles. High (low) competence politicians have a higher (lower) willingness to spend. Competence itself is not observable before the elections but the spending is observable. The rationality of the voters and the two period setting limit the politicians' opportunistic behaviour, which causes the cycles to be shorter and less regular than in Nordhaus' model.

The policymaker of period 1 is referred to as the incumbent who will face competition at the elections before period 2. The winner will be in power thereafter. In order for the incumbent to have an incentive to manipulate the economy, the output x_1 must be observable to the voters whereas inflation π_1 remains unobserved by the electorate until the beginning of period 2. The competences of both parties are drawn from a uniform probability distribution:

$$\mu^c = \begin{cases} \mu^H > 0 \\ \mu^L < 0 \end{cases}, \quad (5)$$

with μ^H occurring with probability ρ and μ^L with probability $1 - \rho$, with $0 < \rho < 1$. Neither the voters nor the other candidate observe the competence of a candidate. The ability of the voters to determine if x_1 reflects the incumbent's true competence depends on whether the equilibrium is of the separating or pooling type. In the separating equilibrium, competent and incompetent incumbents choose different output levels in the first period. In the event of a pooling equilibrium, incumbents of both levels of competence will choose the same level of output in the first period. However rational and forward-looking voters vote for the candidate that maximizes their utility in period 2. For the incumbent, the optimal policy reflects the trade-off between a higher probability of re-election and a reduced social welfare by generating a political business cycle. It is important for the incumbent to consider the consequences of the manipulation of its policies. If they are excessive, the incumbent may end with a reputation of being cynical and irresponsible, thus harming its attempts to be re-elected.

2.3. The Partisan Model

The partisan model by Hibbs (1977) is also concerned with the Phillips curve (1) and views that political parties are placed on different parts of the curve, depending on their policies. In fact, as opposed to the political business cycle model, the partisan model states that politicians maximise different objective functions. This is in contrast with the political business cycle model in which politicians are opportunistic and only aim to stay in office. Out of all the differences between the two models, this is the most significant.

According to Hibbs, left-wing parties traditionally focus on unemployment whereas right-wing parties are more concerned about the inflation rate. The parties are seen to represent different constituencies with different preferences. The right-wing party tends to please the upper middle class, the business and financial community. The left-wingers, on the hand, serve the needs of the lower middle class and the unions. Inflation and unemployment have distributional consequences that help explain these differences.

In the partisan model, voters are aware of the differences between the parties and vote according to how closely the parties' policies resemble their own preferred outcome. Knowing this, policymakers choose their policies deterministically depending on the voters' demands (Alesina et al., 1997).

2.4. Rational Partisan Model

Alesina (1987 and 1988) adopts a view that different parties have different preferences regarding the intristic properties of their economic policies, in a similar way as in the partisan model by Hibbs. In other words, the parties are policymakers with separate objective functions:

$$W^i = \sum_{t=0}^{T} \delta^t [-(\pi_t - c^i)^2 - b^i(u_t - K^i)^2], \qquad 0 < \delta < 1, \qquad (6)$$

where $i = L, R$ identifies the political tendency of the party (i.e., left or right). Some generalizations of the parties' political motivations can be characterised by at least one of the following inequalities:

$$c^L > c^R \geq 0; \qquad b^L > b^R \geq 0; \qquad K^L < K^R \leq \frac{\bar{u}}{1-\alpha}. \qquad (7)$$

It is assumed that the parties care about the effects of their policies and that the parties have differing objectives and incentives.

In Alesina's model there are two parties that alternate in office, and unlike in the partisan model by Hibbs, analysis is done in the context of game theory, similar to that of Kydland and Prescott (1977), and Barro and Gordon (1983). The two parties treat unemployment and inflation as

economic "bads" – the weights depending on the objectives of the party. Equilibrium results from the fluctuations in output and inflation connected with the political cycle. The two parties are short-sighted. However, it differs from Nordhaus' model in that it does not rely on backward looking expectations or misinformation of voters. Voters are assumed to be rational. The central idea of the rational partisan model is that in an economy with sluggish wage adjustments, the changes in the inflation rates associated with changes in government create temporary deviations of real economic activity from its natural level. One of the underlying assumptions is that labour contracts are signed at discrete intervals. Another assumption is that shocks to voters' preferences can cause upsets in elections (Alesina and Roubini, 1992).

Costly economic fluctuations can be minimised by cooperation – with or without binding contracts – between the two parties. This cooperation makes both better off in the long term. A party that has been voted into power has therefore two options: first, maximise short-term benefits for its constituency, or second, cooperate with the other party for long-term benefits. The equilibrium with cycles is suboptimal. If the two parties decide to follow an identical policy, the cycle is avoided, i.e. the fluctuation of output and inflation would diminish, resulting in both constituencies being better off. This can be beneficial especially when frequently or drastically changing policies due to new administrations.

In practice, this can be seen as a bargaining process in which the more popular party gets to suggest and get accepted a policy closer to its own view. Alesina shows that through repeated, closer cooperation between the two parties, volatility of policies can be reduced. This complete or partial convergence of the two parties' policies can be the result of political competition if the interaction between the parties and voters is seen as an infinitely repeated game (Alesina, 1988). Complete convergence can be explained by the fact that if the candidates have concave objective functions, the welfare-maximising policy rule will cause complete convergence. This cooperation may or may not be sustainable, depending on the discount rates of the two parties, the degree of polarization of their preferences, and the relative popularity of the parties.

2.5. Exchange Rate Manipulation

In addition to the more common models described above, attention has been given to the role of exchange rate policies. As stated by van der Ploeg (1989), the political business cycle models often

unrealistically assume that output-inflation trade-off levels can be adjusted almost instantaneously. However according to one point of view, an appreciation of the exchange rate cuts import prices and consumer prices immediately, and thus boosts real income immediately. If the government achieves high levels of output and real consumers' wages, it is going to be popular at the polls. An appreciation of the exchange rate just before the election is an effective way to gain popularity since it quickly cuts inflation and increases income, while leaves undesirable effects on net exports, output and employment to be dealt with after the election (Dornbusch, 1987). As voters place more importance in the recent history, the sudden improvements in economic conditions make it appealing to vote for the incumbent.

3. Some Empirical Evidence on Economic Policies and Business Cycles

3.1 The Political Business Cycles

The model of Nordhaus (1975) makes the following predictions: (i) the politically determined policy choice will have lower unemployment and higher inflation than is optimal, and (ii) the optimal policy will lead to a political business cycle, with unemployment and deflation in early years followed by an inflationary boom as elections approach. He states that prediction (i) is difficult to test, however, (ii) is more obtainable. In Nordhaus (1975), nine countries were selected: Australia, Canada, France, Germany, Japan, New Zealand, Sweden, United Kingdom and the United States. These countries satisfy three important conditions set by Nordhaus: (a) that the government be chosen in periodic competitive elections, (b) that the government have sufficient economic control and sophistication to move the economy in the desired direction, and (c) that the voting function be myopic.

Thereafter, the following hypothesis was tested: during an electoral period of length θ, the unemployment rate should rise in the first $\theta/2$ years and fall in the second $\theta/2$ years. Annual data (1947 to 1972) was gathered for the nine countries. Nordhaus (1975) found that for four countries – Australia, Canada, Japan and the UK – the political business cycles appears to be an implausible description. For two countries – France and Sweden – there seems to be some modest indications of the existence of political business cycles. Finally, for three countries, namely Germany, New Zealand and the United States, there are significant signs of the existence of political business cycles.

Nordhaus (1975) offers a concrete example of the existence of policies that seem to be aimed at keeping the incumbent party in power. During the Nixon administration in the United States, unemployment rose from 3.4 percent in the late 1968 to 6.0 percent in the late 1970 due to the fact that the Nixon "game plan" "called for a recession in the early part of the administration". Then the administration announced it would curb the unemployment rate to 4.5 percent by late 1972. Although it did not fully succeed in this (since inflation was more stubborn than expected), it was a demonstration of the incentives to remain in power through the use of political tools.

Alesina and Roubini (1992) test Nordhaus' model on growth and unemployment by constructing a political dummy. They consider all the OECD countries which have been democracies in the sample period (1960 to 1987): Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Japan, Ireland, Italy, the Netherlands, New Zealand, Norway, Sweden, Switzerland, United Kingdom, and the United States. In four countries – Germany, Japan, United Kingdom and New Zealand – at least one of the dummy coefficients is significant. In addition to these four countries, and two others (Australia and France, which have coefficients with an inconsistent sign, but are nevertheless significant), all other countries have insignificant coefficients. Alesina and Roubini also performed regressions on inflation. Following this, they conclude that only two countries, Germany and New Zealand, follow Nordhaus' predictions both in the level of economic activity and the inflation rate.

Paldam (1979) finds rather inconclusive evidence of the existence of the Nordhaus-styled political business cycles. McCallum (1978), Golden and Poterba (1980), Abrams et al. (1980), Beck (1982, 1984), and Hibbs (1988) have all rejected the political business cycles theory. Alesina and Sachs (1988) argue that the above-mentioned Nixon administration case is the only one clearly supporting Nordhaus' political business cycle model. In general, the political business cycle model by Nordhaus has been criticized for often being inconsistent in estimating real-life election outcomes.

3.2. Rational Political Business Cycles

Galli and Rossi (2000) study both opportunistic and ideological cycles in 11 Western German Länder. They restrict their analysis to the period 1974-1994. Several budgetary variables are used: total expenditure, surplus/deficit, public administration, health care, education, roads and social

security. While partisan differences seem to play a very small role, the opportunistic model is supported to a degree.

Veiga and Veiga (2007) test rational political business cycles models on data covering all Portuguese mainland municipalities for the period 1979-2001. They aim to reveal whether incumbent politicians reduce taxes and increase municipal spending prior to elections in order to appear competent. Tax reductions and greater investments are observable during the incumbent's tenure. However, budget deficits are not. This leads to informational asymmetry, which the incumbent is able to take advantage of. Thus, according to the model, mayors can appear more competent by omitting the state of local finances. Their findings support the rational political business cycles model. Municipal taxes decrease a year or two prior to election time, and are returned back to normal levels after the elections. The opposite happens with budget deficits and municipal spending. The magnitude of the cycle does not appear to depend on how much the municipal assembly supports the mayor. However, left-wing incumbents are prone to be more opportunistic than right-wing incumbents.

3.3. The Partisan Model

In Hibbs (1977), a dynamic country-by-country time-series analysis is used to support the claims that partisan variation plays a role in a nation's unemployment and inflation rates. He uses time-series analyses of post-war United States and United Kingdom. The British political system is more useful for dynamic analysis due to the fact that the working class-based Labour party and middle class-based Conservative party are more distant ideologically than their American counterparts, the Democrats and the Republicans. However, the Democratic Party is known to be linked to organized labor, and lower income and occupational status groups, whereas the Republican Party concentrates more on the business world and higher income and occupational status groups. Hibbs expects to observe that there exists a downward movement in the unemployment rate during the tenures of the Labour and Democratic parties, and an upward movement in the unemployment rate during Conservative and Republican governments.

Hibbs uses the Box-Jenkins approach to ARMA-model to estimate the hypothesized effects of government macroeconomic policies on the unemployment rate, net of trends, cycles and stochastic fluctuations in the unemployment time-series observations. The intervention-induced changes are

compared to the ARMA-specification, which serves as a benchmark. The hypothesis states that a shift in the political orientation in the United States and the United Kingdom brings about gradual changes in the unemployment levels – rising under Conservative and Republican, and declining under Labour and Democratic governance. Hibbs uses data on the unemployment rate from the beginning of 1948 to the end of 1972. The results are similar for both countries: there are clear differences in the policies of the competing parties. However, in the United States the effects of government macroeconomic policies in the unemployment rate are processed more slowly than in the United Kingdom. Hibbs states that the results are reasonable considering the fact that the economic and political environment in the United States is more decentralized and heterogeneous. A factor that is not taken properly into account in Hibbs' model – which he admits – is the impact of the Korean and Vietnamese civil wars. During both of these wars, there was an increased amount of domestic fiscal stimulus that lowered the unemployment rate. In addition, thousands of men (many of whom were previously unemployed) were withdrawn from the civilian labour force to fight in the war. Since American participation in both wars took place during Democratic administrations, Hibbs added a "war" term to take the effects of it into account.

Alesina and Roubini (1992) run regressions using a "permanent" partisan dummy and obtain results that indicate that a permanent difference in the inflation rate is linked to temporary deviations of output and unemployment from trend. Governments may end up in a sub-optimal equilibrium with an inflation bias if they are more concerned about growth and unemployment instead of inflation. This causes the inflation rate to remain high even after the economy has returned to its "natural" state. Carlsen (1997b) tests whether left-wing parties make more countercyclical fiscal policies, and uses panel data on 18 OECD countries between 1980 and 1992. His results support the partisan theory: the structural deficit is higher under left-wing governments while the unemployment is high. When the unemployment is low, the political orientation of the parties plays no role.

3.4. Rational Partisan Model

The political business cycle literature predicts that one should observe recessions in the beginning of any type of administration (Alesina, 1987). Towards the end of the administration inflationary expansion takes place. The prediction of Alesina's rational partisan model is that in the U.S. one should observe recessions at the beginning of the Republican governance as opposed to the higher output growth and inflation rates at the beginning of the Democratic governance. In both cases, in

the later stage output remains roughly the same, with higher inflation during Democratic administration. Alesina and Roubini (1992) state, that there is strong evidence to support the rational partisan model compared to the political business cycle model. They estimate a weaker form of the rational partisan model by testing for temporary effects on real variables after actual changes of governments. Countries with a two-party system or at least a distinguishable "left" and "right" are considered: the United States, the United Kingdom, France, Germany, Australia, New Zealand, Sweden and Canada. In addition, the test is conducted for some countries with a more fragmented system. They conclude that the results are very favourable to the rational partisan model.

Alesina and Sachs (1988) test the model on post-Second World War United States data. Their findings are consistent with the model. For instance, they find that the growth rate of the GNP in the first half of Democratic administrations tends to be higher than in the second half, and vice versa for Republican administrations. Contrary to the predictions of the political business cycle model of Nordhaus, recessions did not take place during Democratic administrations in the United States between 1949 and 1984. On the other hand, each Republican administration had a recession soon after being elected. During the studied period, only two administrations do not fit the predictions of the rational partisan model: the second half of the Nixon administration and the entire Kennedy administration. The reason for the former was the monetary expansion in 1971-1972. The latter was due to a policy mix with expansionary fiscal policy and tight monetary policy.

Note that Heckelman (2006) states that some of the evidence supporting the rational partisan model is due to Alesina himself, and that there are plenty of studies that do not generally support the model. Such studies include Sheffrin (1989) and Heckelman (2001).

3.5. Exchange Rate Manipulation
Due to its simplicity and immediate impact, exchange rate manipulation has been used by governments around the world. According to Dornbusch (1987), it has been used to gain popularity for Augusto Pinochet in Chile, Martinez de Hoz in Argentina, Margaret Thatcher in the United Kingdom, and Ronald Reagan in the United States.

4. Conclusions

Several models have been formulated to describe the political aspects of business cycles. Political parties and individuals choose their strategies such that they will maximize their chances of being voted into power or to remain in office for another term. Most of the models can be divided into two main groups: opportunistic and partisan. In opportunistic models, politicians are only interested in staying in power, whereas in partisan models policies are determined according to party goals. In addition, exchange rate manipulation has been used to gain popularity in the wake of elections.

There is empirical evidence to support each of the models - however, at varying degrees. In general, the partisan and rational partisan models have gathered the most support, whereas the original political business cycles model by Nordhaus has only had a limited amount of success. Exchange rate manipulation has also been used successfully.

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