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IL CICLO POLITICO-ECONOMICO

POLITICAL BUSINESS CYCLE

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A mia madre e mio padre, per aver sempre creduto in me

A tutta la mia grande famiglia, il mio punto di riferimento

Alle amiche e agli amici che mi hanno accompagnato in questi tre anni

Alle mie due coinquiline, le sorelle che non ho avuto

INDICE

Questo elaborato va ad affrontare il tema, approfondito da vari autori tra gli anni ‘70 e ‘90 del secolo scorso, dei cicli politici economici.

L’idea di tentare di comprendere come e se i politici potessero influenzare, attraverso la manipolazione di variabili economiche, i risultati elettorali nasce in realtà molto prima degli anni ‘70.

Il primo vero modello di ciclo politico economico fu però elaborato da Nordhaus e rappresenta ancora la pietra miliare nello studio dei PBC, nonostante sia stato ampiamente criticato e ormai superato.

Tutti i modelli che verranno trattati andranno quindi ad indagare come il potere politico, attraverso l’uso della politica monetaria o fiscale, riesca ad influenzare le decisioni di voto dei cittadini.

In altre parole questo lavoro cerca di fornire un quadro in merito alle principali elaborazioni inerenti questo tema, partendo dai modelli opportunistici, trattati nel primo capitolo e arrivando a quelli partigiani, mostrati nel secondo.

I modelli che si andranno a trattare, pur avendo ricevuto spesso poche conferme empiriche, costituiscono sicuramente il punto di partenza fondamentale nello studio ed elaborazione dei cicli politici economici.

Sembra importante sottolineare già qui come dopo gli anni ‘90 il tema sia tornato d’interesse con l’elaborazione degli AFPM models, più che altro basati sull’utilizzo da parte dei governi della politica fiscale, essendo la politica monetaria nelle mani di Banche Centrali indipendenti.

INTRODUCTION

The purpose of this work is to deal with the main theories about Political Business cycle, developed between 1970s and 1990s.

Political Business (or Budget) cycles are based on the use of economic variables by government to influence election results.

Because of that the main theme is the possibility that the incumbent uses expansionary or contractionary monetary (or fiscal) policy to maximize his chances of being re-elected.

Actually, we have to point out that the first author who deals with this topic and who anticipates the idea of an economic cycle was Kalecki, in 1943, with his article “Political Aspects of Full Employment”. This author questioned the causes of unemployment, seeing them in the opposition of the capitalist system to full employment. He did not elaborate a mechanism of transmission between economic variables and the political system, but he spreads the idea of a government as a “passive instrument in the hands of capitalists” (Kalecki, M., 1943).

However, the birth of the idea of a Political Business Cycle has always been attributed to Nordhaus rather than Kalecki, but an initial reference to this author have seemed appropriate.

In the first chapter of this work I will analyse the contribute of two authors, Nordhaus and Rogoff, to the development of Political Business/Budget Cycle

models. These two patterns have a key feature in common: they are based on opportunistic policymakers, who are only aiming to be re-elected.

The monetary policy in Nordhaus model and the fiscal one in the model developed by Rogoff are used by the incumbent to maximize his possibility of re-election. The main difference between these two models is the fact that in Nordhaus pattern we will deal with naive and back-ward looking citizens, while in Rogoff model the assumptions change and voters are considered rational.

The second chapter instead will deal with partisan models and particularly the contributes of two authors: Hibbs and Alesina.

Partisan models are based on the idea that left-wing and right-wing parties, having different ideologies, will implement different economic policies.

Hibbs model deals with the use of monetary policy to maximize the chances of re-election. The pattern is also based on irrational voters.

Alesina tried instead to create a partisan model based on rational voters, certainly closer to empirical reality. Also this pattern exploits monetary policy to create a cycle.

Then apart from Rogoff model, the others are based on the use of monetary policy to influence election's results through an exploitable Phillips curve. This is one of the most criticized aspect of these models. In fact, considering empirical reality, Central Banks control monetary policy and so the government can only influence fiscal policy. Because of that, after the 1990s, the AFPM models were

developed, based on the use of transfers and tax cuts to influence election results by the incumbent and so abandoning the idea of a Phillips curve that can be exploited by the governments.

All the models end with the illustration of the main criticism and with some references to any empirical confirmations.

Capitolo 1

OPPORTUNISTIC MODELS

1.1 Opportunistic Irrational Model

The first complete model of a Political Business Cycle was developed by Nordhaus in 1975. He assumes that the monetary policy can be used to influence the results of the elections. The whole model is based on an exploitable Phillips curve.

The Phillips curve expresses an inverse relation between unemployment and inflation or, if we express unemployment as a function of the output, a direct relation between inflation and output. The inflation-output trade-off or the inflation-unemployment trade-off is used to influence the election results.

The objective function of the policymaker is based only on the willing to be elected or re-elected: because of that he is called an opportunistic incumbent. He is not worried about economic growth, inflation or unemployment per se.

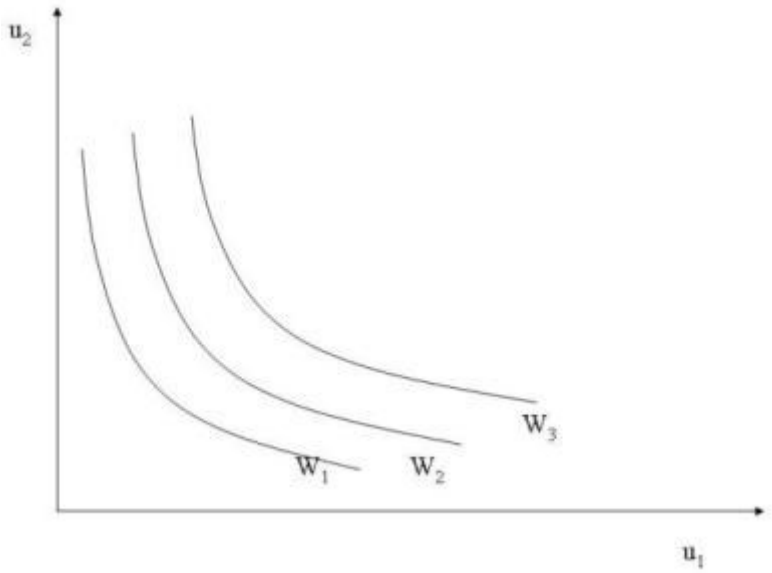
The voters' behaviour is retrospective and they are assumed to have short memory: their expectations of inflation are based on the recent past inflation outcomes, reached by the policymaker. They prefer a low inflation and a low unemployment. They vote as backward-looking individuals.

It is clear that both, politicians and voters, are supposed to be individualists; because of that their welfare's function is utilitarian or *Benthamiana*. So, the

welfare of the society that has to be maximized is given by the sum of the single utilities

$$W = \sum_{i=1}^{N} u_i$$

Picture 1.1: Utilitarian or *Benthamiana* welfare's function



1.1.1 The model

The central idea of the model is that, if citizens are backward-looking, an opportunistic policymaker can exploit the Phillips curve (and so the relation between output and inflation) to influence election's results and to maximize his probability of re-election. He creates an expansion during the period before the

election day throughout an expansionary monetary policy: inflation raises and unemployment is reduced. People are retrospective and so this recent economic performance will count more in influencing their choices of voting. After the elections, to reduce inflation, the politicians will start a contractionary monetary policy, throughout the reductionist of money's supply. This clearly generates an increase in unemployment and a recession in general. In addition, this mechanism that clearly reduces the inflation, is used to reduce inflationary expectations, that, as we will see, are adaptive and backward-looking. The policymakers, having the same objective function, are similar and they make the same choices. When the day of a new election comes, the cycle restarts. Then the policymaker in the period before next elections will generate an expansion, with a not so much high rate of inflation, thanks to the "monetary surprise" (Drazen, A., 2001).

In this way, according to Nordhaus, we have a cycle in macroeconomic variables correlated with electoral cycle, that would be repeated at every election session.

The exploitable Phillips curve used to influence the electoral results is expressed by an equation that represents an output-inflation trade-off:

$$Y^* - Y_t = \pi_t - \pi^e_t$$

where Y^* is the potential output and where the inflation rate π_i is controlled by the government.

The voter dissatisfaction will depend on the deviation of inflation and economic activity from their target value. So we have a loss function such as:

$$L_t = \alpha \frac{(x_t - x^*)^2}{2} + \frac{(\pi_t - \pi^*)^2}{2}$$

where α is the weight that voters attribute to the output's deviation from his target value compared to inflation's.

It has been said that the policymaker wants to maximize his probability of re-election. Because of that he will keep in consideration in this function the preferences of the median voter, who is the one who is placed in the middle position of the distribution of preferences of all voters. Therefore in this way, according to the *theorem of the median voter*, the policymaker has the chance to reach the maximum number of votes.

The number of votes that the policymaker will reach can be expressed by the function:

$$N_t = N \left(\sum_{s=0}^{T} \delta^s L_{(t-s)} \right) + \varepsilon_t$$

where δ is a sort of "forgetfulness coefficient" (Drazen, A., 2001): it is comprehended between zero and one because economic performance of the distant past does not influence so much voter's choices; ε_t is a stochastic term that is used to represent the possibility of the loss of the election session. Therefore the number of votes that the incumbent can reach is a function of voter's welfare.

The voters are assumed to have adaptive static expectations. In fact they are back-ward looking and so, as we have already said, the expected inflation depends on the recent past inflation. The equation that is used in the Nordhaus' model is:

$$\pi^e_t = \pi_{t-1} + \theta\,(\pi^e_{t-1} - \pi_{t-1})$$

where the coefficient $0<\theta<1$ represents how much time has to be used by irrational voters to adapt their expectations to the past outcomes.

The central point of this model, and the most criticized, is the presence of irrational voters, who during every election session let themselves be fooled by the same economic cycle generated by identical policymakers. Thanks to that, the opportunistic policymaker can exploit the Phillips curve in order to maximize his probability of re-election.

It was the first example of a model based on the idea of macroeconomic variables that can be used to influence election results. This Nordhaus pattern gives

birth to a vast group of models that try to explain the Political Business Cycle, starting from different points.

1.1.2 Empirical evidence?

Many authors have tried to find some empirical proofs for the Nordhaus model, but data does not show much evidence of the existence of this type of Political Business Cycle.

Surely, something that has found empirical confirmation is that the economic conditions of a country in the period before elections have important consequences on the voter's choices. That aspect does not mean that policymakers have to exploit this fact. In fact data shows that in USA or in general in the majority of OECD countries, there is no reduction of unemployment or increase of GNP before the elections. The only aspect that can be interesting is that sometimes an increase in money growth rate could be observed before the election session.

In addition, only in a few cases we can observe an empirical confirmation of the post-electoral policymakers' behaviour described in the Nordhaus model. In some OECD countries, in fact, after elections there is an increase in inflation that entails a recession, but it is not a general rule.

1.1.2 Critics

There are three most criticized aspects of this model.

Firstly, we are assuming that the government controls the monetary policy. It is clearly not true, because of the independence of the Central Banks. The government can control the fiscal policy rather than the monetary policy's instruments, such as the rate of interest or the money growth rate. Because of that, the hypothesis of the entire model can be criticized. Starting from this point, the AFPM models have been developed, that study a political budget cycle, which is based on the exploitation of the fiscal policy to influence the electoral results.

Secondly, voters in this model are supposed to be irrational, backward-looking and unsophisticated. This is clearly something not real. In fact, after some electoral cycles, citizens can understand that the expansions before elections are used only to attract votes. Because of that, they should not be cheated by the policymakers and rather punish them for their manipulative behaviour. This hypothesis of irrational voters will be replaced by the presence of asymmetric information in the Rogoff Political Budget Cycle model.

In addition, the whole model is based on an exploitable Phillips curve, and so on a trade-off between inflation and unemployment. As we have already noticed, the fiscal policy does not play any role and it is not realistic according to empirical evidence.

1.2 Opportunistic Rational Model

The idea to reconcile the Nordhaus model, based on naive and backward-looking voters, with rational voters arises around 80's. The first articles were written by Rogoff and Sibert (1988) and Rogoff (1990).

We will examine more deeply the Rogoff model.

The first difference that we have to consider is that now we are dealing with a Political Budget Cycle, based on the use of fiscal policy. Therefore, the basic idea is that the incumbent uses tax cuts and the increase of transfers and public spending to show his competence and to maximize his probability of re-election.

The fiscal policy could be expansive or contractionary and it can be examined exploiting an IS (Investment and Sales) curve, that represents the equilibrium on the goods market.

The second difference is clearly that now voters are rational and not naive as in the Nordhaus model. They base their decision of voting for an incumbent rather than for another on the willing to maximize their expected utility. So, also in this model, we have utilitarian/*Benthamiana* welfare's functions.

So how can a political budget cycle arise? Thanks to the information asymmetries about the incumbent's competence. In fact, the Rogoff model shows that incumbent's competence can be observed directly by voters only one period after the election year, and not contemporaneously. In addition, to see investments in period t+1, the incumbent has to invest during the previous period t. Because of

that, also the degree of public investment cannot be directly observed by voters during the election period.

It becomes clear that the incumbent has an incentive to manipulate consumption expenditures and degree of taxes, to influence the voters' inferences about the incumbent's competence and the amount of public investment.

1.2.1 The model

In this model, as we have already said above, the voters want to maximize their utility, that depends on the degree of consumption of public and private goods.

$$U_t = \sum_{s=t}^{T} [\, F(c_s, g_s) + G(k_s) + \eta_s \,] \, \beta^{s-t}$$

The term *c* represents the citizen's consumption of private goods, *g* represents the consumption of public goods and η represents a possible random shock, such as shocks due to "non-pecuniary, leader-specific factors" (Rogoff, K., 1990). The functions *F()* and *G()* are both concave. The term *k* represents the public investment good and $\beta<1$ is the discount rate of a representative citizen.

The citizen's consumption of the private goods is given by:

$$c_t = y - \tau_t$$

where y represents some units of a "nonstorable good" (Rogoff, K., 1990) that all citizens receive (a sort of income) and τ represents the lump-sum taxes imposed by the government.

The key feature of the incumbent is his competence.

The term "competence" has a specific explanation: an incumbent is considered more competent when he incurs less costs and so when he imposes less taxes, to provide public goods and services. It does not depend on the choices of the incumbent, but on his genetic characteristics.

Surely competence does not depend only on the specific personality of the incumbent, but also for example on knowing how to deal with historical and political changes.

The term ε, that measures the incumbent's competence, evolves in this way:

$$\varepsilon^{i}_{t} = \alpha^{i}_{t} + \alpha^{i}_{t-1}$$

where α is a stochastic variable from a Bernoulli distribution and $i = H, L$ indicates the type of incumbent: H is the more competent, L the less.

Following the structure of a Bernoulli, p is the probability that $\alpha = \alpha^{H}$ and $1\text{-}p$ is the probability that $\alpha = \alpha^{L}$, where $\alpha < \alpha^{L} < \alpha^{H}$.

The sum of public goods and investment in this model is equal to the sum of incumbent's competence and the amount of lump-sum taxes:

$$g_t + k_{t+1} = \tau_t + \varepsilon_t$$

where *k* has the subscript *t+1* because, as it has already been said, the government has to invest before to create the "public investment" good.

The expected utility of the incumbent (indicated by peak *I*) is described such as:

$$E^I(u_t) = E^I_t(u_t) + \sum_{s=t}^{T} \beta^{s-t} X \pi_{s,t}$$

because it depends on private and public consumption such as every other citizen, that is indicated by the term $E^I_t(u_t)$, but it also depends on the "ego rents" (Rogoff, K., 1990) *X*. The term π represents the probability of being elected in the period *s* for a certain amount of time *t*.

Therefore, as Rogoff explains in his paper, "the leader puts some weight on social welfare and some weight in the rents he receives from being in office" (Rogoff, K., 1990).

The basic idea is that the incumbent can show his competence using the instruments of the fiscal policy. In this way he can maximize his probability of re-election. He can generate this expansionary fiscal policy in the period before

election and so he can influence the elections results thanks to the presence of asymmetric information.

Voters can directly observe only the amount of τ and g. From these values they can deduce the amount of k and α and so the amount of public investment and incumbent's competence. Clearly it is not a certain value, but something which the voter can only estimate. However, the incumbent knows these values a period before the voters and so he has a sort of "temporary information advantage" (Rogoff, K, 1990) that he can exploit to create a Political Budget Cycle.

Therefore the fiscal policy is exploited to influence the voters' inferences about the incumbent's competence and the degree of public investments. As it has been specified above, competence, that is an individual characteristic, depends on the ability of the incumbent to provide public goods and services, minimizing the expense.

In addition the voter has no information about the opponent, while he can estimate incumbent's competence, because he has already governed, as we have already said. In fact in this model the opponent has been chosen random from the entire population and so the representative voter has nothing to deduce his competence.

Clearly, because we are dealing with opportunistic voters, they will choose the candidate to vote considering the one who maximizes their expected utility.

We have this type of function to describe voter's choice:

$$v_t = 1 \text{ if } E^P_t(u_{t+1}) \geq E^p_t\,(u^o_{t+1})$$

$$v_t = 0 \text{ otherwise}$$

where if $v_t = 1$ the representative citizen votes for the incumbent, if $v_t = 0$, he votes for the opponent.

Clearly, if the voters can directly observe α, and so ε, no political budget cycle can arise. In fact voters would not use the amount of taxes and public goods to hypothesize the incumbent's competence and so the use of an expansionary fiscal policy in the period before elections would be useless.

The inferences about α are indicated by $\rho\ (g, \tau)$, where ρ is the probability that the competent type will be elected, so that $\alpha = \alpha^H$.

The incumbent's utility, as we have already said, depends on the amount of public and private goods and public investment, such as any other citizen, but also on his ego rents. Because of that, he has to maximize this function:

$$Z\,[\,g, \tau, \rho(g, \tau)\,,\, \varepsilon^i\,] = \chi^i\pi\,[\,\rho(g, \tau)\,] + W(g, \tau, \varepsilon^i)$$

where χ represents the gain from winning the election and π the expected probability of winning.

So clearly the incumbent has the possibility of showing his competence because of the asymmetric information, but he also cares about the mix of private and public goods and the amount of investment. It creates a limit for the incumbent in the exploitation of the fiscal policy to deceive the electorate.

1.2.2 Key features

This model surely has the merit of using the fiscal policy to create a cycle instead of the monetary policy of the Nordhaus model. In fact, one of the most significant criticism of the Nordhaus theory is obviously the fact that the governments have not the opportunity to exploit a Phillips curve, because the monetary policy is controlled by Central Banks.

The second fundamental aspect of this model is that it is clearly an example of an opportunistic model, but based on rational and not naive voters. In fact politicians also in this model behave as the incumbent of the Nordhaus model: both try to maximize their chances of being re-elected.

The difference is that in the Nordhaus model the politicians can be opportunistic and can exploit the Phillips curve because voters are completely naive and backward looking. In the Rogoff model the possibility of showing the incumbent's competence (and so the possibility of using the fiscal policy to maximize the probability of incumbent's re-election) is caused by the presence of

asymmetric information. However voters are rational, and it makes the Rogoff model more realistic.

Capitolo 2

PARTISAN MODELS

2.1 Partisan Irrational Model

The first idea of a Partisan Political Business Cycle was introduced by Hibbs with an article published in 1977.

The article deals with the fact that macroeconomics policies and outcomes "covary with the political orientation of governments" (Hibbs, D., 1977); in particular, the model suggests that political goals change between left-wing and right-wing parties.

2.1.1 The model

As we have already anticipated, left-wing and right-wing parties have different preferences on the macroeconomic policies to be implemented.

This model, as the Nordhaus model, is based on an exploitable Phillips curve and it deals with irrational and back-ward looking voters.

The difference is that now we do not have identical incumbents that have only the willing to maximize their chance of re-election, regardless of the economic policy that has to be implemented. In a partisan model in fact, the objective function of the incumbent will depend on the ideology of his party, and so on his target trade-off between unemployment and inflation.

In this model we have two different parties: left-wing party, closer to "lower income, blue-collars groups" (Hibbs, D., 1977) and right-wing party, closer to "higher income, white-collars groups" (Hibbs, D., 1977). So each party reflects more the will of one part of the workforce, or using different words, every party makes interests of a social class rather than another. Each social class will in fact have different preferences in terms of inflation and unemployment.

Generally, the left-wing party would prefer a high employment (or low unemployment) and high inflation trade-off and so they will do the interests of the blue-collar groups. The right-wing party, maximizing the utility of the richest, would prefer a high unemployment, low inflation trade-off.

The "partisan loss function" (Drazen, A., 2001) will be:

$$L_t^j = \alpha^j \frac{(x^t - \tilde{x}^j)^2}{2} + \frac{(\pi_t - \tilde{\pi}^j)^2}{2}$$

where $\tilde{\pi}^j$ is the target rate of inflation of the party *j*, $\tilde{x}^j$ is the target output value for the party j and α^j is the relative weight that the party *j* attributes on economic activity fluctuations rather than inflation fluctuations. This equation represents voter's dissatisfaction.

As we have already said, the left-wing party will give more importance to the rate of unemployment (and so to the output level) and to his deviation from the

target value. The contrary happens for the right-wing party, that surely will give more weight to the deviations of the inflation rate from his target value.

To summarize the differences between the two parties:

$$\tilde{x}^L \geq \tilde{x}^R$$

$$\alpha^L \geq \alpha^R$$

$$\tilde{\pi}^L \geq \tilde{\pi}^R$$

where the superscript *L* represents the left-wing party, and the superscripts *R* the right-wing party. At least one inequality has to be strict.

So, according to the model, a cycle arises "in which the level of economic activity and inflation varies with the ideology of the incumbent" (Drazen, A., 2001).

2.1.2 Empirical evidence?

Hibbs, in his article "Political Parties and Macroeconomic Policy" published in 1977, looked for empirical evidence for his model in twelve West European and North American Nations in the post-war elections.

We will only examine the results obtained for Italy, Great Britain and United States.

About Italy, left-wing parties were highly regarded, but the post-war period was characterized by governments of national unity. So, Communist and Socialist political blocs were poorly represented in the government.

Because of that, despite the strength of the left-wing parties, during the post-war period Italy experienced a high unemployment rate.

About Great Britain, as Hibbs states, it "is an ideal candidate for dynamic analysis in that national political power has oscillated between the working class-based Labour party and the middle class-based Conservative party" (Hibbs, D., 1977).

In fact, Hibbs analysis shows that in Great Britain, during the left-wing party's government, British citizens experienced a high rate of employment and a high rate of inflation. On the contrary, during right-wing administration, the government gave more weight to the goal of achieving a low rate of inflation, even if it would have meant an increase in unemployment.

About United States, Hibbs states that the Democratic Party and the Republican Party were less distant ideologically than normal right and left parties.

Nevertheless, we can notice also in this country the partisan cycle theorized by Hibbs and so the different choices made by left and right parties regarding the unemployment/inflation trade-off, given by an exploitable Phillips curve.

2.1.3 The limits of the model

We can say that the fundamental limits of this model are similar to those of the Nordhaus pattern.

The first limit that we have to consider is that all the model is based on an exploitable Phillips curve, not giving adequate importance to the fiscal policy. It needs to be reiterated that independent Central Banks control monetary policy, and so governments can not exploit it.

Secondly, voters are irrational, naive and back-ward looking. This is clearly a hypothesis inconsistent with reality.

However, Hibbs model has the merit of having initiated the study of partisan political cycles.

After his work, many experts became passionate about the subject. Among these, Alberto Alesina gave an important contribution to the development of a partisan political cycle, introducing voters with rational expectations, and so overcoming one of the main limits of Hibbs model.

2.2 Partisan Rational Model

Regarding Political Business Cycles, according to what we have previously examined, politicians can have two different motivations to stand for elections.

Opportunistic policymakers want only to be re-elected. They are not interested in the consequences of their economic policies because they have only the willing

to maximize their popularity. So, according with the implications of the *median voter theorem,* the parties will implement the same economic policies.

The second type of policymaker is the one who is interested in the effects of his policies, because he represents the ideology of a party and so the interests of a specific social class (white-collar and blue-collar groups in Hibbs model).

Alesina, in his famous paper published in 1987 "Macroeconomic Policy in a two-party system as a repeated game", developed a rational partisan model, based on the second type of policymaker shown above. These partisan models are clearly more consistent with the empirical evidence than the opportunistic ones. A cycle arises thanks to the fact that wage-setters sign contracts about nominal wage before the election period and so thanks to the possibility of generating "monetary surprises" (Drazen, A., 2001). Therefore this model "substitute the notion of asymmetric information between voters and policymakers to the assumption of voters' irrationality" (Alesina, A., 1988), considering the comparison with Hibbs model.

2.2.1 The model

The model developed by Alesina is based on an exploitable Phillips curve that, as we have already said, expresses a trade-off between output and inflation.

Because of that we are dealing with a political business cycle, based on monetary policy.

The model is based on rational voters and partisan policymakers. As in Hibbs model, we will deal with a two-party system. Clearly, "the two parties propose different platforms even if they share the same information about the distribution of voters' preferences" (Alesina, A., 1977), because of the different ideology of the two parties. Therefore on one hand we have left-wing parties (Democratic party in the United States, Labour Party in England), more concerned about a low rate of unemployment rather than a high rate of inflation. This party does the interests of poorer social classes. On the other hand, we have right-wing parties (Republican party in the United States and Conservative Party in England), less concerned about unemployment and more on the rate of inflation, doing the interests of richer social classes. In this model, policymakers are "purely partisan, with no opportunistic motives and hence no desire to manipulate outcomes" (Drazen, A., 2001).

About the two political parties preferences, we can go back to the system of inequalities used in Hibbs model:

$$\tilde{x}^L \geq \tilde{x}^R$$

$$\alpha^L \geq \alpha^R$$

$$\tilde{\pi}^L \geq \tilde{\pi}^R$$

where $\tilde{\pi}^j$ is the rate of inflation, $\tilde{x}^j$ is the output value and α^j is the relative weight that the party j attributes on economic activity fluctuations rather than inflation

fluctuations; the apex *j= L, R* represents the two different parties, left-wing and right-wing. To have a cycle in this rational partisan model, one of the three inequalities has to be strict.

The objective function of the two parties is:

$$U_t^j = \alpha^j \frac{(x_t - \tilde{x}^j)^2}{2} + \frac{(\pi_t - \tilde{x}^j)^2}{2} + \beta \left[\alpha^j \frac{(x_{t+1} + \tilde{x}^j)^2}{2} + \frac{(\pi_{t-1} - \tilde{\pi}^j)^2}{2} \right]$$

where $\tilde{\pi}$ and $\tilde{x}$ are inflation and output target values for party *j* and β is the discount rate. The party in power will choose his optimal policy maximizing this function.

Alesina assumes that every two periods there is an election, so at period *t, t+2, t+4..*

We are dealing with rational expectations and no more adaptive.

The rate of inflation, knowing that every party has different preferences on the target value of this variable, depends on the party that will win the next election. Clearly, voters do not know exactly before the election the winner. Thanks to this asymmetric information, a cycle can arise. The equation of the expected inflation is given by:

$$\pi_t^e = p^L \pi_t^L + (1 - p^L)\pi_t^R$$

where p^L is the probability that the left-wing party will win the election and π_t^L and π_t^R is the target rate of inflation of each party. Therefore expected inflation is a sort of weighted average between these two values of inflation, that represent the optimal policy pursued by each party. Knowing that the left-wing party prefers less unemployment, also if it means a higher rate of inflation, there will be a "positive inflation surprise" (Drazen, A., 2001) if this party will win elections. On the contrary, if right-wing party will win the elections, we will have a "negative inflation surprise" (Drazen, A., 2001). The cycle arises clearly in the first part of the term, when the monetary policies are unexpected, because voters do not know who will be the next politician in power. In the second half of the term, his identity is well-known and so a cycle can not arise, due to the absence of any monetary surprise.

2.2.2 Critics

There are some aspects of the rational partisan model presented by Alesina, that have been criticized by some authors.

First of all, Alesina himself, in his paper of 1987, states that the equilibrium presented by this model is suboptimal. He shows that, if there would be the possibility of "binding commitments" (Alesina, A., 1987) between the two parties, fluctuations in output and inflation could be avoided. So Alesina states that, if the two parties adopt a cooperative policy, in the long-run all the constituencies would

be better off. This is clearly a choice of the two political parties and it depends on their objective function: they can in fact be more oriented on short-run results, so they will pursue the partisan policy showed in the model above.

We also have to consider the problem of the irrational behaviour of wage-setters. We have already pointed out that wage contracts are signed before elections and, thanks to that, the surprise inflation can have effects and can create a monetary cycle. The fact is that there is no reason why wage-setters have to sign contracts before elections. Empirical evidence suggests that these contracts are signed after election, avoiding in this way the possibility of a monetary surprise. In fact, "the election date is fully known" (Drazen, A., 2001) as Drazen points out. Therefore wage-setters could consider the optimal rate of inflation of the winner party, signing the contracts after the election date, avoiding this way fluctuations in output and inflation.

Another interesting aspect is that a cycle can arise only if there is uncertainty about the winner party. So if $p^L = p^R = 0,5$, maximal fluctuations can arise. Clearly, if for example $p^L = 1$ and $p^R = 0$, there would be no monetary cycle.

The last criticism, as we have already pointed out for Nordhaus and Hibbs models, is that empirical evidence shows that independent Central Banks control monetary policy, not the government. Politicians are more likely to use fiscal policy to generate a political cycle, using transfers and taxes. Because of that, recent

studies have focused more on the use of fiscal policy to influence elections' results, creating a cycle in macroeconomic variables.

2.2.3 Empirical evidence

To begin, it must be said that opportunistic models, that have been developed years before the partisan one, have been more tested by researchers, to find empirical evidence. However, also partisan models have found empirical correspondence in reality.

Studies are concentrated in the period after the Second World War up to the 1990s.

Examining the United States, about the output rate, academics find empirical correspondence with the theory of the partisan rational model developed by Alesina. In fact when Democrats were in office, the United States experienced an higher rate of economic activity and employment, according to the model shown above.

About the inflation rate and monetary policy in general, academics found no significant evidence of a monetary cycle. We have to said that opinions are divided, but generally speaking we cannot state that empirical evidence always supports Alesina model.

CONCLUSION

It is clear that these models have found little empirical confirmation, only in some countries and in particular periods. Therefore data does not show support to the models shown above. This allows us to say that "monetary surprises as a driving force of a PBC just do not provide a very convincing story" (Drazen, A., 2001).

After Alesina model, AFPM models were born and developed. The acronym AFPM means "active fiscal passive monetary".

In fact, apart from Rogoff model, the other three models shown in this paper are based on an exploitable Phillips curve and so on monetary policy as the driving force. The problem, as we have already said, is that monetary policy is controlled by independent Central Banks and not by the government. So clearly the basic idea of all these models does not sound right.

On the contrary, the AFPM models are based on a cycle generated by fiscal policy. These patterns show how Central Banks, during the period of the elections, try to keep stability of all the variables under their control, from interest rates to money supply. In fact Central Banks do not want to be "dragged into partisan politics" (Drazen, A., 2001).

The incumbent uses fiscal policy and not monetary to influence election's results and to create a cycle. So, thanks to the use of tools such as the increase in

transfers or the reduction of taxes, politicians create a Political Budget Cycle. This clearly explains the expression “active fiscal”.

About the data that has shown a cycle in monetary instruments according to the models above, the AFPM models show how Central Banks “accommodates fiscal policy in an election year, so that there is a passive political monetary cycle caused by a political cycle in fiscal instruments” (Drazen, A. 2000). Therefore the cycle shown in the model above is a passive answer to the active fiscal policy generated by the government to create a cycle. This explains the expression “passive monetary”.

These models seem to be more realistic because of the effective control in the empirical reality of fiscal policy by governments. Empirical data shows how these patterns are found mainly in developing countries.

To conclude, it seems important to reflect about an aspect. We are dealing with a government that aims to be re-elected. Also in the partisan models, the policymaker wants to reach goals that are consistent with his ideology but he also wants to be re-elected. The fact is that governments and political parties seem to choose the easiest way to be popular and to gain the support of citizens. We can easily see empirical data support for this claim. But it is not certain that what seems best to citizens is actually for the good of the country. Sometimes unpopular political choices are necessary and for this reason technical governments are often

born, particularly in difficult economic and social situations, like the one we have been experiencing for two years now.

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