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The Political Economics Side of the J-Curve

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The Political Economics Side of the J-Curve

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Resumo/Abstract:

About twenty years ago, an article by van der Ploeg analysed the implications of the J-curve effect for the political business cycle in a small open economy [van der Ploeg (1989c)]. It was then shown that a sudden jump on the exchange rates in the election day should be observed if the government, in order to maximise its popularity, explores a J-curve effect. As a way of celebrating this work, that should have been more influential, it is presented in the paper a simulation study, which confirms that exchange rate overvaluation result *a la* van der Ploeg.

Palavras-chave/Keywords: Exchange rates, J-Curve, Partisan Business Cycles, Political Business Cycles.

Classificação JEL/JEL Classification: E31, E32, F31.

The Political Economics Side of the J-Curve

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Abstract

About twenty years ago, an article by van der Ploeg analysed the implications of the J-curve effect for the political business cycle in a small open economy [van der Ploeg (1989c)]. It was then shown that a sudden jump on the exchange rates in the election day should be observed if the government, in order to maximise its popularity, explores a *J-curve effect*. As a way of celebrating this work, that should have been more influential, it is presented in the paper a simulation study, which confirms that exchange rate overvaluation result *a la* van der Ploeg.

Keywords: Exchange rates, J-Curve, Partisan Business Cycles, Political Business Cycles.

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“... a *pessimistic* or a *cynic* may (...) be tempted to say that (...) the main obstacle for a successful stabilization policy is, in fact, the government itself.”,
Lindbeck (1976: 17)

1 Introduction

The major part of the electoral cycles literature has studied closed economies, in spite of the explicit consideration of the open economy case ever since Lindbeck

(1976).¹ Using the empirical evidence supporting that election results seemed to be more sensitive to changes rather than to the level of state variables in the popularity function, Lindbeck (1976) assumed that the functioning of the political system was not always compatible with the requirements of a stabilization policy. In fact, in order to be an electoral winner the incumbent government should ‘destabilize’ the economy, i.e. should deliberately create the right changes in the economy in the right moment of time.

As is well known, the electoral cycle literature has developed in two clearly distinct phases. The first one took place in mid-1970s, due to the influential work of Nordhaus (1975) and Hibbs (1977). These studies had in common a ‘pre-rational expectations’ model of the economy and were based upon an exploitable Phillips curve. Furthermore, in accordance to the perspectives assumed by Nordhaus (1975) and Hibbs (1977), the subsequent models of electoral cycles emphasized either the *opportunistic* (*a la* Nordhaus) or the *partisan* (*a la* Hibbs) incentives to policy-makers. In opportunistic models, policy-makers maximise their popularity or their probability of re-election, independently of ideological concerns. In partisan models, different political parties represent the interests of different constituencies and, when in office, follow policies which are favourable to their supporting groups; specifically, it is assumed that left-wing parties are more concerned with the problem of unemployment, while right-wing parties are relatively more willing to bear the cost of unemployment to reduce inflation.

According to Nordhaus’ approach to *political business cycles*, governments stimulate aggregate demand before elections in order to reduce unemployment and increase real demand while expecting that the inflationary consequences of this electoral policy appear only after the election has taken place. The economy is described by an ‘expectations augmented’ Phillips curve assuming adaptive expectations, which in conjunction with naive (retrospective) voters makes it possible an opportunistic short-run manipulation of the economy in order to increased popularity on election’s eve.

The *partisan model* of electoral cycles considered by Hibbs assumed systematic differences in macroeconomic policy-making between the ‘unemployment averse’ left-Labour-Democrats governments and the ‘inflation averse’ right-Conservatives-Republicans governments.

The empirical literature generated by Nordhaus (1975) and Hibbs (1977) was not conclusive about their adequacy to reality. Partly as a reaction to these empirical rejections and partly in response to the *rational expectations revolution*, in the late 1980s a new generation of models of electoral cycles emerged. These second generation models depart from their predecessors in assuming the existence of rational expectations. The assumption of economic agents’ rationality reduces the possibility

¹ Just after the publication of Lindbeck’s paper, Paldam (1979) was one of the first to study, from an empirical point of view, the existence of an electoral cycle in a multi-country context. A main finding was that the cycle was much stronger in the price than in the real components of the series. For other multi-country – but not necessarily from a country interdependence viewpoint – see also Alesina *et al.* (1992), Alesina and Roubini (1992), Alesina *et al.* (1993), and Gärtner (1994b).

of regular electoral cycles, although it does not eliminate them, as we will see later in the paper. As in the previous generation of models, there was a separation between *political cycles* [*a la* Rogoff (1990)] , and *partisan cycles* [*a la* Alesina (1987)].²

Plainly, the empirical implications of these second generation models are substantially different from those of the earlier literature. Generally speaking, in those second generation models, one should observe short-run manipulations of policy instruments around elections [see, for instance, van der Ploeg (1989a)]. This is exactly what can happen to the exchange rate as we will see in the following sections. This important result was due to a perspective of van der Ploeg that, in the late 1980s, analysed the consequences of the existence of a *J-curve effect* on the electoral manipulation of the exchange rate [van der Ploeg (1989c)].³ Given the importance of this perspective, which was unjustly ignored in the literature, we would like to take this opportunity for calling the attention for it.

The structure of the paper is as follows. Section 2 briefly analyses the effects of electoral uncertainty, and its associated *news* content, on the time trajectory of exchange rates, if some *partisan differences* are (implicitly) assumed. In section 3, the results of van der Ploeg (1989c) are recalled, showing that the same kind of path for the exchange rates can be obtained, *no matter the kind of government*, if the exchange rate is used as policy instrument in order to explore a well-known *J-curve* structure of the small open economy. In section 4 a simulation study is done, using the package PSREM, which confirms those theoretical results. Section 5 provides some concluding remarks and presents some future directions which deserve to be followed in subsequent studies.

2 The effects of electoral uncertainty on exchange rates

In this section the efficient asset market model of exchange rate determination will be used to derive typical time profiles of exchange rates around election dates. In accordance to the theory of efficient markets, the change from today's to tomorrow's exchange rate is unpredictable conditional on today's exchange rate e_t . This means that when it is assumed that the exchange rate is a function of its own expected future value, the correct way of anticipating the future value implies a random walk of the exchange rate.

²Even in this more recent generation of models the focus was generally put on the closed/single economy case. Sapir and Sekkat (1999) and Kayser (2006) constitute two exceptions to this perspective. The adoption of a single election date in the European Union is the suggestion of Sapir and Sekkat (1999) [see also Caleiro (2000,2006)]. Kayser (2006) finds out that: (a) clusters of countries tend to hold elections in periods of international economic expansion and (b) that national election cycles, much like business cycles, have become more correlated over time, most prominently in Europe.

³See also Gärtner (1986), Kapopoulos (1995), Stein and Streb (2004), Bonomo and Terra (2005), and Stein *et al.* (2005) as other interesting studies on the consequences of electoral concerns for the trajectory of exchange rates.

If today's value of the exchange rate e_t is an equilibrium value in the sense that equals tomorrow's expected value $E_t(e_{t+1})$ then tomorrow's exchange rate e_{t+1} can only differ from today's value e_t if some unanticipated information becomes available, which, in this case, can be considered as *news*. In case of rational expectations, agents will not make systematic errors in forecasting the values of exchange rates. By construction, in an efficient market, *news* have zero expectation mean and are not autocorrelated, i.e. today's *news* must be uncorrelated with yesterday's *news*.

With the assumption of a zero-return equilibrium model, i.e.,

$$E_t(e_{t+1}) = e_t,$$

where $E_t(\cdot)$ denotes the expectation held at time t of the next period exchange rate e_{t+1} , the existence of rational expectations in the exchange rate market leads to

$$E_t(e_{t+1}) = e_{t+1} + \mu_{t+1},$$

where $\{\mu_t\}$ is a white-noise process, and guarantees that the exchange rate follows a random walk, i.e.,

$$e_{t+1} = e_t - \mu_{t+1}.$$

Due to the intrinsic uncertainty of election results, when these results are finally known, i.e. after the election day, it can be admitted that they will constitute *news* [see, for instance, van der Ploeg (1987)]. Let us assume that agents believe that the (new) government can, and in fact does, set immediately the exchange rate to e^G . Some partisan difference leads to a different desired value e^O for the opposition party, which also be implemented without any lag if the opposition wins the elections.

Prior to an election, the exchange rate is *known* to remain at e^G until the day of installation of next government and *expected* to change to

$$e^* = \text{prob}(G) \cdot e^G + \text{prob}(O) \cdot e^O$$

at this very date; where $\text{prob}(G)$ denotes the probability of reelection of the present government and $\text{prob}(O)$ denotes the probability of opposition winning the elections. *Right after the election*, the economy becomes informed that the exchange rate will definitely be set to e^G or e^O at the inauguration day, depending on who won the election. Evidently, none of those, e^G or e^O , will equal e^* , unless $\text{prob}(G) = 1$ or $\text{prob}(G) = 0$.⁴ Therefore, there can be situations where election results indeed constitute *news* as defined under the rational expectations or the efficient market hypothesis.

⁴This really can happen when it is (almost) sure that some government will be reelected (or not), as it happens in practice. Moreover, if we consider a *trivariate party system* we can have $e^* = e^G$ or $e^* = e^{O_1}$ or $e^* = e^{O_2}$, where e^G, e^{O_1} and e^{O_2} denote, respectively the exchange rate of actual government, of opposition party 1 and of opposition party 2. Indeed, the only proposed exchange rate that *can* be equal to e^* is the intermediate one.

What was said before has a clear analogy with possible announced or an unannounced (not in the cheating sense of a deliberate surprise) money supply change. If the winning political party literally changes the economic policy right along the same moment that electoral results are known, this can be associated with the case of an unannounced, unanticipated money supply change. On the contrary, if there is a relevant lag before the victorious party really assumes the power and start making new economic policy, this can be associated to the case of an anticipated money supply change. In this case, *news* are known at election day but concern a policy change at some time in the future.

Hence, it is possible to have distinct exchange rate time paths around elections corresponding to the unannounced or announced policy changes cases. Obviously, these cases correspond to two possible scenarios. The first scenario assumes that both the election date and the date of implementation of the new government collapse into T_1 . The second scenario assumes that the election occurs at T_1 and the inauguration takes place at $T_2 > T_1$.

If we assume that the actual government is defeated at the election and that its conceived target *level of nominal balances* m_G is lower than the one of the opposition party m_O (e.g. because of different preferences concerning policy outcomes and/or instruments) there will be two scenarios as follows. In the first scenario case, the effect of the election result on the exchange rate is an instantaneous overshooting followed by a monotonic asymptotic return to its new (higher) equilibrium level. In the second scenario, due to the correction of expectations, a jump of the exchange rate on election day in the same direction in which exchange rate equilibrium moves can be observed. This discrete jump, however need not exceed (overshoot) the new equilibrium value for the exchange rate, but may well fall short of it, if T_2 is sufficiently far from the election day T_1 . After that, we again observe the familiar monotonous asymptotic return to the new equilibrium level of the exchange rate.

In order to be more precise let us formalize the argument through a simple model as follows. Let us assume a small open economy described by some sort of simple surprise Phillips curve, so that only unanticipated inflation is non-neutral:

$$u_t - \bar{u} = \alpha(e_t - E_{t-1}(e_t)), \quad \alpha > 0 \quad (1)$$

where u_t is the level of employment in period t , $\bar{u}$ is the natural rate of employment, $E_{t-1}(e_t)$ is the expectation in period $t - 1$ of the actual exchange rate, and α is a parameter. Expression (1) implies that a devaluation increases output if it comes as a surprise and wages were predetermined.

Assuming a *partisan approach* let us consider that the political parties exploit the Phillips curve in order to provide welfare gains to their core constituencies.⁵ This

⁵In Minford (1990) it is considered an interesting ‘alternative’, which we could classify as intermediate between the opportunistic and partisan approaches, which consists in assuming that the parties are supported by their core constituencies and some floating voters making transitions between the parties. In this case the maximization of some objective function leads to the best trade off between the chances of winning elections and assuring the loyalty of their support constituencies.

is done by considering different loss-functions of the two parties, say V^C and V^S for right-wing parties and left-wing parties, respectively:

$$V^C = \sum_{t=0}^{\infty} \beta^t \left(\frac{c_\pi}{2} \Delta e_t^2 - c_u(u_t - \bar{u}) \right), \quad (2)$$

$$V^S = \sum_{t=0}^{\infty} \beta^t \left(\frac{s_\pi}{2} \Delta e_t^2 - s_u(u_t - \bar{u}) \right), \quad (3)$$

where β is a discount factor and the Hibbsian hypothesis hold, i.e., the weight attributed to inflation by left-wing parties, s_π , is lower than the weight attributed by right-wing parties, c_π , and the reverse is also true for the unemployment rate, $c_u < s_u$.

Each political party, when in government, can implement a time consistent depreciation rate policy by minimizing (2) and (3) subject to the description of the economy (1). Therefore, substituting (1) into (2) or (3), we have:

$$\min_{\{e_t\}} V^C = \sum_{t=0}^{\infty} \beta^t \left(\frac{c_\pi}{2} \Delta e_t^2 - c_u \alpha (e_t - \mathbf{E}_{t-1}(e_t)) \right), \quad (4)$$

$$\min_{\{e_t\}} V^S = \sum_{t=0}^{\infty} \beta^t \left(\frac{s_\pi}{2} \Delta e_t^2 - s_u \alpha (e_t - \mathbf{E}_{t-1}(e_t)) \right). \quad (5)$$

From the optimal programmes (4) or (5) it results that the time consistent depreciation rate for the right-wing party, $\Delta e_t = (c_u/c_\pi)\alpha$, is smaller than the time consistent depreciation rate for the left-wing party, $\Delta e_t = (s_u/s_\pi)\alpha$, due to the different policy preferences ($c_u < s_u$ and $c_\pi > s_\pi$).

As before, let us assume that the only source of uncertainty in the system concerns election outcomes, the probabilities of which are assumed to be exogenous.⁶ If p^S and p^C denote the probability of electoral victory of the left-wing party and of the right-wing party, respectively, the expected rate of depreciation is:

$$\mathbf{E}_{t-1} \Delta e_t = p_t^S \frac{s_u}{s_\pi} \alpha + p_t^C \frac{c_u}{c_\pi} \alpha, \quad (6)$$

From (6), the expected depreciation rate and, *ceteris paribus*, the inflation rate will be the lowest with a right-wing government, the highest with a left-wing government, and in between in the first post-election year. In other words, in the case of a left-wing electoral victory, inflation will be higher than expected immediately after the elections, whereas, if the right-wing party wins, inflation will be lower than expected before the election. In the subsequent years of both governments, inflationary expectations are correct because of lack of electoral uncertainty and so a convergence to the equilibrium is achieved.⁷

⁶The ‘endogeneization’ of these probabilities seems to be a promising source of future studies.

⁷Using this simple model we can also study some possible *dynamic inconsistency* issues as follows. Since right-wing governments have a *reputation* for fighting unemployment ($s_\eta > s_\pi$), the private sector rationally expects higher inflation under this kind of administrations. In fact, a low (resp. high) rate of depreciation policy announcement $e_t^\#$ by a left- (resp. right-) wing government, i.e., $e_t^S > e_t^\#$ (resp. $e_t^C < e_t^\#$) would not be credible.

To sum up, when there are some partisan differences, electoral uncertainty can produce strong cyclical time patterns of the exchange rates. The same trajectory of the exchange rate can, nevertheless, be obtained if we assume that non-partisan policy-makers explore, in a convenient manner, the structure of the economy as we will show in the following section.

3 The exchange rate overvaluation result

As above said, the initial studies on electoral cycles assumed that the private sector was *backward looking*. Indeed, it is the myopic characteristic of the electorate that make it possible to create that kind of cycles. In fact, by construction, those business cycles are not feasible under rational expectations because the electorate would understand the government's short-run vote-maximizing strategy. This does not mean that the misleading result of *ineffectiveness of policy* can be applied. In fact, as it was shown in the previous section, (future) electoral uncertainty, combined with *forward looking* behaviour of the private sector, can cause sudden changes in the evolution of the economy. Moreover, as it is about to be shown, in modern real exchange rate overshooting models of small open economies with sticky prices *a la* Dornbusch it is also possible to have strong policy implications in the short-run and medium-run, even if the private sector is assumed to be *forward looking* and rationally anticipate future events.

In open economy macroeconomics the *J-curve effect* is a well-established phenomenon. It means that an appreciation of the exchange rate leads to an immediate reduction in imports and consumers prices and therefore immediately increases real income whilst the adverse effects on the volume of exports, aggregate demand and employment start occurring after some time due to some kind of equilibrium correction lag. This makes it possible, and easier, for governments to exploit this *J-curve effect* in order to obtain short-run popularity gains.

Thus, on contrary to what was admitted in the initial (naive) view of electoral cycles, i.e. the assumption of fast changes in output and only gradual influences in inflation, through expectations, when there is *J-curve effect*, a real appreciation immediately reduces inflation and increases real consumers' wage, whilst the impact on output is much more gradual.

Hence, if the actual government uses the exchange rate in order to maximise votes on election's eve it should adopt a policy of immediate depreciation of the exchange rate on the morning after the election and subsequently implement gradual appreciations, so that output and real income gradually rise and inflation gradually fall over the election cycle [van der Ploeg (1989c)]. This theoretical result can be derived from a simple model as follows.

3.1 A model of a small open economy with a *J-curve*

Let us start by recalling the macroeconomic model considered in van der Ploeg (1989c):

$$y = \bar{\delta}c + \eta(p + y - p_c) - \bar{\mu}(p^* + e - p), \quad \bar{\delta} > \bar{\mu} > 0, \eta < 1, \quad (7)$$

$$\dot{c} = \psi(p^* + e - p - c), \quad \psi > 0, \quad (8)$$

$$p_c = (1 - \alpha)p + \alpha(p^* + e), \quad 0 < \alpha < 1, \quad (9)$$

$$p = \omega = \bar{\omega}, \quad (10)$$

where y , c , p , p^* , e , p_c , and ω denote real output, a competitiveness index, the home price level, the foreign price level, the nominal exchange rate defined as the price of one unit of foreign exchange, the consumers' price index and the nominal wage, respectively.⁸

Equation (7) gives aggregate demand as an increasing function of competitiveness and real income and a decreasing function of the real exchange rate. In the short run an appreciation of the real exchange rate reduces the value of imports, increases real income, and therefore increases aggregate demand.

Equation (8) gives the *J-curve* and shows that the volume of net exports fall gradually after an appreciation of the real exchange rate.

Equation (9) gives an expression for the consumers' price index as a weighted average of home and foreign prices.

Equation (10) shows that prices are a constant mark-up on wages and that there is nominal wage rigidity. For simplicity we assume that $p = \omega = \bar{\omega} = p^*$.

The reduced form of the model then becomes:

$$\begin{aligned} y &= \delta c - \mu e \\ \dot{c} &= \psi(e - c) \end{aligned}$$

where $\delta \equiv \bar{\delta}/(1 - \eta) > \mu \equiv (\alpha\eta + \bar{\mu})/(1 - \eta) > 0$.

Let us also assume that the incumbent government chooses its exchange rate policy to maximise votes on election eve where the popularity on election day, say T , depends on how well the government has done during all election cycle (i.e. from $t = 0$ to $t = T$) on output, employment and real income. Thus, the following program must be solved:

$$\max_e \int_0^T \exp(\rho t) \left\{ \delta c(t) - \mu e(t) - \frac{1}{2} \theta [e(t) - e^{op}]^2 \right\} dt$$

subject to $\dot{c} = \psi(e - c)$, where ρ is a rate of discount, $\delta c(t) - \mu e(t) = y(t)$, θ denotes a relative weight and e^{op} is the optimal value of the nominal exchange rate.

The first order conditions of the problem which are obtained through the maximization of the associated Hamiltonian leads to a particular time path of the exchange rate as follows:

$$e(t) = e^{op} - (\mu/\theta) + [\delta\psi/(\psi - \rho)\theta]\{1 - \exp[(\psi - \rho)(t - T)]\}, \quad (11)$$

⁸All variables are expressed as logarithmic deviations from their equilibrium values.

which shows that from $t = 0$ to $t = T$ the exchange rate $e(t)$ decreases from $e(0) = e^{op} - (\mu/\theta) + [\delta\psi/(\psi - \rho)\theta]\{1 - \exp[-T(\psi - \rho)]\}$ to $e(T) = e^{op} - (\mu/\theta)$, i.e. the exchange rate monotonically appreciates during the length of each election period and on election morning ($t = 0$ again) there is a sudden depreciation of the exchange rate.⁹

From equation (11) it is clear that when there is no *J-curve effect*, a situation that happens when $\psi = 0$, the exchange rate no longer will have this cyclical evolution. The investigation of the real influence of different values of the *J-curve* parameter ψ leads us to the next section.

4 A simulation study

As is obvious, the autonomy of national policy-makers to generate electoral cycles by the manipulation of policy instruments is limited in a small open economy due to the international interdependence of the economies and the possible need to coordinate policies at an international level. If we assume that exchange rates are fixed, that all goods move freely, and that domestic and foreign goods are perfect substitutes, domestic prices are determined by supply and demand on world markets rather than on national markets. In this case, the atomicity of the country makes every price independent of the decisions taken by agents in the small open economy.

From these assumptions it is obvious the limited role of national stabilization policies in such an economy. However, if the hypothesis of exchange rate rigidity is abandoned, i.e. if we assume that exchange rates can be used as a policy instrument, the commodity price level can be influenced by different exchange rate policies, as well by tariffs and indirect taxes or subsidies on foreign trade. That is basically all that national stabilization policy can do in small open economies. If the perfect substitutability assumption is abandoned, monetary policy gains power and can be used to manage the demand side of the economy.

In some sense, what was said before is just an illustration of the importance of relative openness of different markets in the efficacy of the various policy tools. The more closed the economy and the more rigid domestic wages and prices are, the more can aggregate demand management effectively act as a complement to policy measures that change relative prices (such as indirect taxes or subsidies and exchange rates).

As referred above, in an open economy it is much easier and faster to affect real income and prices through the exchange rate than it is to have an effect on aggregate demand, output and employment. The above argument is based on the *J-curve effect* in the balance of trade.

In order to study the real importance of the *J-curve effect* in the time path of the

⁹In van der Ploeg (1989c) is reported some empirical evidence supporting the existence of these political business cycles based on overvaluation of the exchange rate, namely the case of Chile with Pinochet, the United Kingdom with Thatcher and the United States with Reagan.

exchange rate we proceed with a simple simulation study using the package PSREM.¹⁰

Let us consider a finite-horizon model of a small open economy with a *J-curve* and imperfect substitution between home and foreign goods as follows:

$$y_t = \eta(p + y_t - p_{c_t}) - \bar{\mu}e_t + \bar{\delta}c_t, \quad \eta > 0, \bar{\mu} > 0, \bar{\delta} > 0 \quad (12)$$

$$\dot{c} = \psi(e - c), \quad \psi > 0 \quad (13)$$

$$p_{c_t} = p_t + \bar{\mu}e_t, \quad (14)$$

where c , e , p_c , p and y denote the logarithms of competitiveness, the real exchange rate (the relative price of foreign goods in terms of home goods), the consumers price index, the home price level and real output, respectively.

Equation (12) gives aggregate demand as an increasing function of real income and competitiveness and a decreasing function of the real exchange rate. This kind of relationship together with equation (13) leads to a *J-curve* which means that in the short-run an appreciation of the real exchange rate increases aggregate demand, real income and net exports, while in the long-run we observe an inflection on the evolution of these aggregates.

The solution for y_t is

$$y_t = \frac{\bar{\delta}}{1 - \eta}c_t - \frac{\bar{\mu}(\eta + 1)}{1 - \eta}e_t$$

which shows that, under a convenient reparameterisation, this model is observationally equivalent to the one presented in the previous section.

Let us assume that the incumbent government chooses its exchange rate policy in order to maximise votes on election eve. Popularity is an increasing function of the outcomes of output (or employment) and the real consumers' wage over the election cycle. Leaving ψ as a free parameter, we can consider that the program of the government is

$$Max_e \int_0^T -\frac{1}{2} [y_t^2 + (p_t - p_{c_t} - 0.1)^2] dt \quad (15)$$

when the model is parameterized as follows:

$$y_t = 0.6(p + y_t - p_{c_t}) - 0.25e_t + 0.8c_t, \quad (16)$$

$$\dot{c} = \psi(e - c), \quad \psi > 0 \quad (17)$$

$$p_{c_t} = p_t + 0.25e_t, \quad (18)$$

From the first and third equation of the model, the solution for y_t will be:

$$y_t = 2c_t - e_t.$$

Plugging this solution into the government's objective function we get the following program:

¹⁰An acronym for Policy Simulation with Rational Expectations Models [see Markink and van der Ploeg (1989)].

$$Max_{\{e\}} \int_0^T -\frac{1}{2} [(2c_t - e_t)^2 + (0.25e_t + 0.1)^2] dt \quad (19)$$

subject to

$$\dot{c} = \psi(e - c). \quad (20)$$

The corresponding Hamiltonian is:

$$H = -\frac{1}{2} [(2c_t - e_t)^2 + (0.25e_t + 0.1)^2] + \lambda [\psi(e_t - c_t)] \quad (21)$$

where λ is a co-state variable associated the *J-curve* ‘restriction’.

The first-order conditions associated with this problem are:

$$\begin{aligned} \frac{\delta H}{\delta e} &= 0 \Rightarrow 2c_t - 1.0625e_t - 0.025 + \psi\lambda = 0 \\ \frac{\delta H}{\delta c} &= -\dot{\lambda} = 0 \Rightarrow \dot{\lambda} = -2e_t + 4c_t + \psi\lambda \end{aligned}$$

These last two expression together with the *J-curve* now constitute a ‘program’ that can be ‘evaluated’ by the package PSREM. Our objective is, in the first place, to confirm (or not) the existence of a sudden jump on the exchange rate right after the elections and, in the second place, to check if different values of the *J-curve* parameter ψ change the evolution of the exchange rate in a significant way.

We perform four simulations considering $\psi \rightarrow 0, \psi = 0.5, 1.0, 1.5$ and one mandate with $T = 4$. The results can be summarised in figure 1:

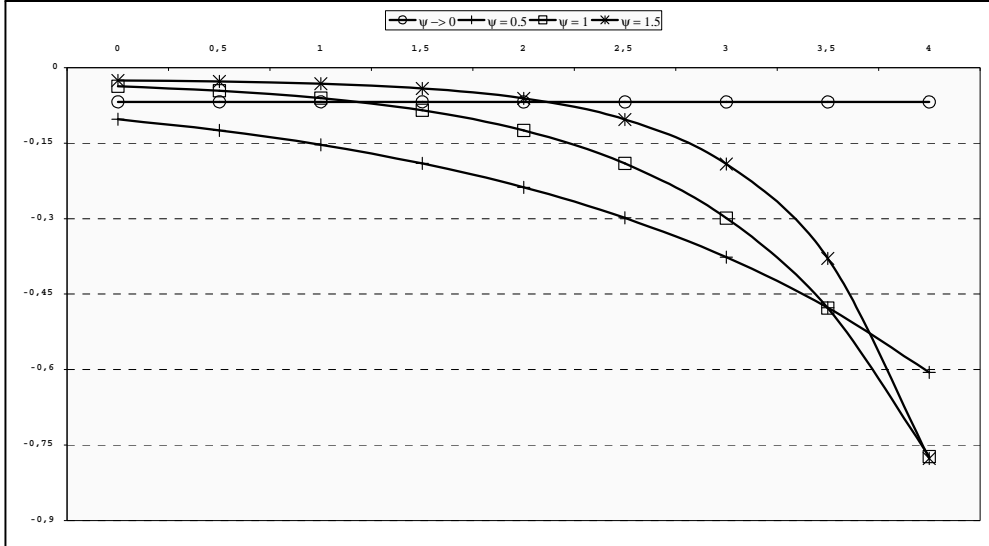


Figure 1: The exchange rates trajectories

As figure 1 clearly shows, when there is no *J-curve* effect, exchange rates are absolutely stable. On the contrary, when this effect exists it is possible to observe that the exchange rates behave as theory predicts. Furthermore it can be verified

that the stronger the *J-curve* effect is, the larger will be the interval of variation of the exchange rates. Finally, we can observe that in a pre-electoral moment near the election the exchange rates are, in value, quite similar no matter the value of ψ .

Although not reported, the evolution of aggregate demand is rather interesting. In fact we can observe that, during the election cycle, y decreases monotonically. An appreciation of the exchange rate immediately reduces import prices and consumers' prices and therefore immediately increases real income. This, combined with the reduction in the real value of imports, depresses aggregate demand. This is in accordance to what van der Ploeg (1989c) shows, i.e., the presence of a *J-curve* effect may, in fact, turn the electoral cycle upside down.¹¹ This result can be explained by the particular form of the objective function and the structure of the model.

In what concerns the structure of the model, when the exchange rate appreciates a decrease in competitiveness and output decrease over the election period can be observed. In short, because government explore the almost instantaneous increase in popularity due to the *J-curve* effect, the adverse effects of this short-run policy on employment and output and net exports occur mainly beyond the election period.¹²

5 Concluding Remarks

Electoral cycles have typically been analysed most of the times in a closed-economy framework. Besides its obvious inadequacy to the more realistic case of (small) open economies it is clear that the initial models of electoral cycles were somewhat naive by assuming a backward looking private sector unable to anticipate future events.

Thus, on those first models, it was impossible to study the effects of uncertainty about future electoral outcomes on the state of the economy. As shown in the paper, this is a considerable drawback, because using those models it is impossible to study why on the morning after the election, once the victorious party has been chosen, the economy can jump onto a new trajectory in order to take account the *news*' content of the election results. Therefore, the possible consequences of large jumps in asset prices/exchange rates which often occur on the morning after the election can not be studied unless we adopt different models such as the one analysed by van der Ploeg (1989c).

As said before, the partisan model emphasises that parties have different preferences for inflation and unemployment. A government that is relatively more averse to unemployment, say a left-wing government, will have stronger incentives to inflate. As these incentives will be anticipated by wage setters, left-wing governments will be

¹¹As shown in van der Ploeg (1989b) it is possible that output increase over the election period when in the objective function votes depend linearly on employment and output.

¹²Using a somewhat different model, where time is divided into election and no election periods, it is shown in Gärtner (1994a) that: *adaptive expectations* makes optimal to create boom and (unexpected) inflation during elections periods and recessions and deflation between elections; and that if we consider the *J-curve* case, output is high during election periods and low in between, this being achieved by inflating between elections, and deflating and appreciating the exchange rate during election periods.

associated with higher expected and actual inflation than right-wing ones, although they will not be able to affect unemployment systematically, except in the period following an election (if nominal wages having been set before the announcement of the election result). In this period, in case of a left (resp. right)-wing victory, inflation will be higher (resp. lower) than wage setters anticipated, and thus unemployment will temporarily fall (resp. rise).

Thus, the possibility of a different political party with different choices concerning economic policy targets and instruments gaining office in the near future might have strong consequences for the pre-election evolution of the economy. For instance, if there is a chance that demand will be stimulated in the future, the economy will anticipate the possible future budget deficits and rising future short-term interest rates. The anticipation of this evolution can imply a rise in current long real rates of interest, which combined with the appreciation of the currency can aggravate the recession caused by the economic policy that is being implemented.

In our opinion, a deeper analysis of the partisan view expressed above is worthwhile. As many authors accept, if the left-wing parties are more unemployment averse than the right-wing ones, then higher inflation at any point in their term office is expected to occur. Nevertheless, as Alogoskoufis *et al.* (1992) point out, if the preferences of political parties for inflation and unemployment are close enough, or even if different preferences concerning state variables do not correspond to different policies,¹³ inflation will be higher for both parties in the period following an election than in non-election periods. Inflation is higher in election periods because the benefits of the persistence in the reduction in unemployment by unanticipated inflation will be anticipated by wage setters, this leading to higher inflationary expectations in the first part of a government's term.¹⁴

As it was shown about twenty years ago by van der Ploeg (1989c), and was confirmed here by a simple simulation study, the *J-curve effect* that characterises many small open economies, gives the incumbent government an incentive to appreciate the currency, increase real income and gain popularity towards election eve whilst

¹³This can happen, for instance, if a small country's government behaves cooperatively in some international arrangement.

¹⁴The authors tested this model for the British economy for the period between 1952-1990. The first empirical finding was that the exchange regime matters greatly for expected price inflation and hence nominal wage growth. One cannot reject the hypothesis that expected price inflation in Bretton Woods period of fixed exchange rates has been independent of unemployment, the party in power and the timing of elections. In addition, in the post-Bretton Woods regime of managed exchange rates, expected inflation has been both higher and more persistent, as it seems to have depended positively on the unemployment rate. The second empirical evidence was that even in this last period, there were very small differences between Labour and Conservatives administrations in non-election years.

The same model has been applied to Greece over the period 1958-1989 by Alogoskoufis and Philippopoulos (1992). The main finding was that outside fixed exchange rate regimes, persistently high inflation could be attributed to the failure of political parties to pre-commit to price stability. The higher aversion of 'socialists' to unemployment results in an inflation rate which is higher than that under 'conservatives' governments. Furthermore, unemployment path revealed to be independent of the party in power.

the adverse effects of this policy on net exports and employment should occur after winning the elections.

In our opinion, this line of research deserves to be explored. In particular, we should take into account possible interferences with country's participation in international agreements concerning the evolution of exchange-rates. As is well known, the (traditional) exchange-rate regime model captures one of the institutional mechanisms that can help avoid the unpleasant outcome of a inflationary equilibrium bias without any employment benefits. Participation in a fixed exchange rate regime, in which exchange rate policy is to be determined by an anti-inflationary independent central bank, 'ties the hands' of domestic policy makers, who cannot determine their economic policy independently.¹⁵ The possible (long-run) benefits from a cooperative solution within a 'controlled' exchange rate regime *versus* the (short-run) popularity gains from changes in the exchange rate seems to be a practical/real dilemma and a theoretical challenge. In particular, this is a question that seems to be crucial for countries that consider the possibility of entrance in a monetary zone or union based upon the use of a single currency (such as the euro).

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¹⁵ A study of the choice of the optimal exchange rate regime in a political setting can be seen in Ruland and Viaene (1993).

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