The implications for an open economy of partisan political business cycles: Theory and evidence

Christopher J. Ellis [a,b,*], Mark A. Thoma [a]

[a] *Department of Economics, University of Oregon, Eugene, OR 97403, USA*
[b] *Department of Economics, University of Kent at Canterbury, Canterbury, UK*

Abstract

This paper develops and tests the predictions of two open economy models in which partisan effects are present, a small-country–one-good model of exchange rate determination and a model that assumes the two countries each specialize in the production of one good. From these models, we can obtain predictions for the behaviour of the terms of trade, the current account, and real and nominal exchange rates. The predictions are tested empirically using panel data from 14 OECD countries and the results provide support for the theoretical predictions that systematic partisan effects are present in current accounts, real exchange rates, and the terms of trade.

1. Introduction

Recent work by Alesina (1988), Alesina and Sachs (1988), Haynes and Stone (1988), Haynes and Stone (1989), Ellis and Thoma (1991), Ellis and Thoma

---

* Corresponding author.

(1993) and many others, has developed a considerable theoretical and empirical literature investigating partisanship models of the political business cycle. The basic idea is that when political parties follow different (partisan) inflation/monetary growth rate policies, then the surprise of a political regime change will cause a change in output provided that surprise money/inflation is non-neutral. In many countries political regime changes occur at regular intervals giving rise to a regular form of political business cycle. To date all the rational partisan models in this literature have considered only closed economies, while the empirical investigations have looked only for domestic effects. [1] The purpose of this paper is to help rectify this omission. Here we develop and test the predictions of two open economy models in which partisan effects are present. The first is a small-country–one-good model of exchange rate determination. It predicts the time paths of exchange rates and explains why systematic differences may exist between future spot and risk adjusted forward exchange rates. The second model assumes that two countries each specialize in the production of one good. From this set up we can obtain predictions for the behaviour of the terms of trade, the current account, and exchange rates. The empirical section uses panel data from 14 OECD countries and reveals support for the theoretical predictions that systematic partisan effects are present in current accounts, real exchange rates, and the terms of trade.

2. Partisan effects and exchange rate determination

2.1. The model

In this section we introduce government preferences and elections into a standard small-country–one-good open economy model (see for example Dornbusch (1976), Cox (1980), Bhandari (1984), Flood and Marion (1982) and Marston (1984)). The economy is described by the following four relationships.

Nominal interest rate,

$$i_t = r_t + E\big[\,p_{t+1}|I_t\,\big] - p_t = r_t + E\big[\,\pi_{t+1}|I_t\,\big],\tag{1}$$

where r_t is the real interest rate in t, p_t is the price level in t, π_{t+1} is inflation at $t + 1$, and E is the expectations operator.

---

[1] The closest antecedents to this work are Van der Ploeg (1987) and Gärtner (1986), Gärtner (1994). Van der Ploeg examines optimal government policy in a Dornbusch (1976) type model. However, he concentrates on optimal government policy when macroeconomic variables affect a governments' reelection chances. Van der Ploeg (1989) continues this line of research by examining endogenous voting in a rational expectations model where real variables may be manipulated by exchange rate policy. Both of the Van der Ploeg contributions contain elements of our analysis, but concentrate on 'manipulative' policy in the spirit of Nordhaus (1975). Gärtner's work is discussed below.

Purchasing power parity,

$$p_t = \varepsilon_t + p_t^*, \tag{2}$$

where ε_t is the exchange rate in t, an asterisk denotes a foreign variable.

Uncovered interest arbitrage,

$$i_t = i_t^* + \mathrm{E}\big[\varepsilon_{t+1}|I_t\big] - \varepsilon_t. \tag{3}$$

Phillips curve,

$$y_t = Y + p_t - \mathrm{E}\big[p_t|I_{t-1}\big] = Y + \pi_t - \mathrm{E}\big[\pi_t|I_{t-1}\big]. \tag{4}$$

All variables are in logs except the nominal interest rate and inflation rate. Expressions (1)–(3) jointly imply $r_t = r_t^*$, so the domestic country faces the world real interest rate. To this standard structure we add a cost function representing government preferences.

Government preferences,

$$\sum_{t=0}^{\infty} C_t = \sum_{t=0}^{\infty} \gamma^t\big[(j/2)\pi_t^2 - (y_t - Y)\big]. \tag{5}$$

This formulation is as in Alesina (1988) and Barro and Gordon (1983) except that $y_t - Y$ is the difference in logs, and $j = l, c$ where $c > l$. Substituting from (4) into (5) and minimizing by choice of π_t we obtain the time consistent inflation rate of party j, $\pi_t = p_t - p_{t-1} = 1/j$. We hereafter assume each party achieves its time consistent inflation rate. [2]

2.2. Fixed electoral terms

We now introduce political elections into the model. It is assumed that an election is held every T periods. We define $A = \{t|t/T \text{ is integer valued}\}$ as the set of all election periods. We assume each party faces an exogenous probability of electoral victory such that expected inflation may be expressed as

$$\mathrm{E}\big[\pi_t|I_{t-1}\big] = \begin{cases} 1/j & \text{if } T \notin A, \\ \rho(1/l) + (1-\rho)(1/c) & \text{otherwise,} \end{cases} \tag{6}$$

where ρ is the probability of party l winning the election. We assume the election

---

[2] The predictions of this model require only that the two parties' policies be distinct. Reputational arguments as in Barro and Gordon (1983) and Alesina (1988) may easily be incorporated but only add complexity.

to be the only source of uncertainty. The time paths of the main variables may now be computed to be

$$
y_t = Y + \begin{cases} 0 & \forall\, t \notin A, \\ (1 - \rho)/l - (1 - \rho)/c & \text{if } t \in A \text{ and } l \text{ wins,} \\ \rho/c - \rho/l & \text{if } t \in A \text{ and } c \text{ wins,} \end{cases} \tag{7}
$$

$$
i_t = \begin{cases} r_t^* + 1/j & \forall\, t \text{ such that } t + 1 \notin A, \\ r_t^* + \rho/l + (1 - \rho)/c & \text{if } t + 1 \in A, \end{cases} \tag{8}
$$

$$
\varepsilon_t - \varepsilon_{t-1} = 1/j - \pi^* \quad \forall\, t. \tag{9}
$$

Hence, output only deviates from the natural rate when elections induce inflationary surprises, the nominal interest rate anticipates the election by moving with the expected inflation rate, and the rate of depreciation of the exchange rate equals the difference between the domestic and foreign inflation rates.

The main interest in this model involves the predictions it makes about the time paths of exchange rates and the differences between future spot exchange rates and forward rates. We know from (9) that the rate of depreciation of the exchange rate equals the difference between the domestic and foreign inflation rates. The foreign inflation rate is assumed constant, so if $t \in A$ then

$$
\varepsilon_t - \varepsilon_{t-1} = \begin{cases} 1/c - \pi_t^* < 1/l - \pi_t^* = \varepsilon_{t-1} - \varepsilon_{t-2} & \text{if } c \text{ deposes } l, \\ 1/l - \varepsilon_t^* > 1/c - \pi_t^* = \varepsilon_{t-1} - \varepsilon_{t-2} & \text{if } l \text{ deposes } c, \\ \varepsilon_{t-1} - \varepsilon_{t-2} & \text{otherwise.} \end{cases} \tag{10}
$$

This expression provides a further testable prediction. If a conservative party deposes a liberal party then the rate of depreciation of the exchange rate decreases. If party l deposes party c the converse occurs. If an incumbent wins, the rate of change of the exchange rate remains constant. We now examine the future spot and forward exchange rates. In the absence of risk premia the forward rate should equal the expected future spot rate. If $t \in A$ then (7) and (10) give

$$
\mathrm{E}\big[\varepsilon_t | I_{t-1}\big] - \varepsilon_t = \begin{cases} (1 - \rho)[1/c - 1/l] < 0 & \text{if } l \text{ wins,} \\ -\rho[1/c - 1/l] > 0 & \text{if } c \text{ wins.} \end{cases} \tag{11}
$$

The forward rate will systematically overpredict (underpredict) the future spot rate after a conservative (liberal) electoral victory. [3]

2.3. Variable electoral terms

In most market economies the electoral term served by a government has an upper bound but no lower bound, a change in government can occur at any time

---

[3] This represents one possible explanation of the 'Peso problem'; see Levich (1985) for a survey of empirical studies of forward market efficiency.

due to a vote of no confidence, coalition breakdown, the calling of a general election, or even a coup d'état. The governments choice of an election date and the economic implications of variable electoral terms in closed economy models are analyzed in Ellis and Thoma (1993). Here we neglect domestic effects and concentrate on the exchange rate implications. Let λ_t be the probability of an election at t. Then the expected inflation rate in any period may be expressed as

$$E[\pi_t|I_{t-1}] = \lambda_t(1/j) + (1 - \lambda_t)[\rho_t(1/l) + (1 - \rho_t)(1/c)], \tag{12}$$

and the expected rate of exchange rate depreciation may be expressed as

$$E[\varepsilon_t|I_{t-1}] = \lambda_t(1/j) + (1 - \lambda_t)[\rho_t(1/l) + (1 - \rho_t)(1/c)] - \pi_t^*. \tag{13}$$

Note that the ρ's may not be time invariant, and may not be independent of the λ's. The spot exchange rate at t is given by (10), which together with (13) allows the deviation of the forward rate from the future spot rate to be expressed as

$$E[\varepsilon_t|I_{t-1}] - \varepsilon_t = \frac{\lambda_t + (1 - \lambda_t)\rho_t}{c} + \frac{(1 - \lambda_t)(1 - \rho_t)}{l} - (1/j). \tag{14}$$

Therefore there is a consistent bias in the future rate as a predictor of the future spot rate. With a conservative party in power the forward rate will systematically overpredict the spot rate, and vice versa with a liberal party in power. Notice that this result does not require a change in government or even an election, it merely requires these events have positive probability.

3. Exchange rates, the current account, and the terms of trade

In the preceding sections we analyzed the implications of potential or actual political regime changes for exchange rate determination in a small open economy in a one good world. Here we analyze trade and balance of payments issues by allowing for the existence of more than one traded good. We assume complete specialization, the domestic economy produces and sells one good to the rest of the world. It is not a price taker on the market for its own output. The rest of the world produces one (composite) good which is available to the domestic economy at a constant world price.

The domestic economy produces a good, y_1, the level of which is determined by the surprise Phillips curve identical to (4) except that the expected and realized inflation rates are replaced by the expected and realized rates of change of the price of the domestically produced good. Domestic and foreign demands for the domestic good are given by

$$y_{1t}^d = \zeta y_{1t} + p_{2t} - p_{1t}, \tag{15a}$$

and

$$y_{1t}^* = \beta\left(p_{2t}^* - p_{1t}^*\right).\tag{15b}$$

p_{2t} is the log of the price of the good produced by the rest of the world. Foreign goods are supplied infinitely elastically to the domestic market and are demanded according to

$$y_{2t}^d = (1 - \zeta) y_{1t} + \left(p_{1t} - p_{2t}\right).\tag{16}$$

There are no tariffs, taxes, or trade barriers so arbitrage implies $p_{1t} = \varepsilon_t + p_{1t}^*$ and $p_{2t} = \varepsilon_t + p_{2t}$. The domestic price deflator may now be defined as

$$p_t = \eta p_{1t} + (1 - \eta) p_{2t},\tag{17}$$

where $\eta \in [0, 1]$. Hence domestic inflation is

$$\pi_t = p_t - p_{t-1} = \eta\left(p_{1t} - p_{1t-1}\right) + (1 - \eta)\left(p_{2t} - p_{2t-1}\right).\tag{18}$$

The standard interest arbitrage condition (3), and definition of the nominal interest rate (1) hold as in II(a). Finally government preferences are represented by the cost function (5), which is written here as

$$\sum_{t=0}^{\infty} C_t = \sum_{t=0}^{\infty} \gamma^t\left[(j/2)\pi_t^2 - \left(\pi_{1t} - \mathrm{E}[\pi_{1t}|I_{t-1}]\right)\right],\tag{19}$$

As before we shall assume that two parties compete periodically to form the government. The probability of party l winning an election in t will be denoted ρ_t as before.

3.1. The government's optimum and partisan effects

In order to select its optimal inflation rate the government must first understand the relationship between the inflation rate and the rate of change of the price of domestic goods. In the absence of surprises we may use the domestic goods market equilibrium condition and the demand functions (15a) and (15b) to obtain [4]

$$\pi_{1t} = a_1 \pi_t + a_2 \mathrm{E}[\pi_{1t}|I_{t-1}],\tag{20}$$

where

$$a_1 \equiv \frac{(1 + \beta)}{[(1 - \eta)(1 - \zeta) + (1 + \beta)]} \quad \text{and}$$

$$a_2 \equiv \frac{(1 - \eta)(1 - \zeta)}{[(1 - \eta)(1 - \zeta)(1 + \beta)]}.$$

---

[4] Details available from the authors on request.

Substituting (20) into the governments minimization problem (19) gives

$$\min_{\pi_t} \sum_{t=0}^{\infty} \gamma^t \left\{ (j/2)\pi_t^2 - b_1\pi_t - b_2 E[\pi_{1t}|I_{t-1}] \right\}, \tag{21}$$

where $b_1 = a_1$, $b_2 \equiv a_2 - 1$ and, $b_2 = -b_1$. The first-order condition and (20) provide

$$\pi_t = b_1/j, \quad j = c, l, \tag{22}$$

and

$$\pi_{1t} = b_1^2/j + (b_2 + 1)E[\pi_{1t}|I_{t-1}]. \tag{23}$$

So in all non-election periods we have

$$\pi_{1t} = E[\pi_{1t}|I_{t-1}] = \pi_{2t} = E[\pi_{2t}|I_{t-1}] = -b_1^2/jb_2 = b_1/j. \tag{24}$$

3.2. Partisan effects

To obtain the effects during the election period, we use the Phillips curve together with Eqs. (7) and (24) to get

$$y_{1t} - Y = \begin{cases} b_1(1-\rho)[1/l - 1/c] > 0 & \text{if } l \text{ wins,} \\ -b_1\rho[1/l - 1/c] < 0 & \text{if } c \text{ wins.} \end{cases} \tag{25}$$

The standard partisan effects are present in the open economy structure, output lies above the natural rate with a liberal victory and below the natural rate with a conservative one. However the mechanism generating these effects differs from the closed economy case. Suppose that a liberal government is elected. Its time consistent policy involves raising inflation by means of a monetary expansion. The government repurchases government debt from domestic debt holders. Domestic debt holders then substitute foreign for domestic debt hence causing a devaluation of the exchange rate. The rise in the domestic price of the foreign good combined with the fall in the foreign relative price of the domestic good cause both foreign and domestic consumers to substitute into the domestically produced good hence raising its price and stimulating output via the surprise Phillips curve. A reverse argument holds for the election of a conservative government. Clearly the magnitude of the effects is not independent of open economy considerations. Differentiating (25) appropriately yields

	$\dfrac{d\beta}{}$	$\dfrac{d\eta}{}$	$\dfrac{d\zeta}{}$
$d(y_{1t}^l - Y)$	$+/0$	$+/0$	$+/0$
$d(y_{1t}^c - Y)$	$-/0$	$-/0$	$-/0$

Here the magnitude of the partisan effects will be larger (a) the larger is ζ, the income effect of domestic income on expenditure on domestic goods, (b) the larger is η, the weight placed on domestic goods in the domestic price deflator, and (c) the larger is β, the foreign elasticity of demand for domestic goods.

We next compute the partisan effects on the terms of trade. In non-election periods there is no partisan surprise. Output of the domestic good equals the natural rate Y, and (15a), (15b), and the interest arbitrage conditions provide the terms of trade

$$p_{2t} - p_{1t} - \frac{Y(1 - \zeta)}{(1 + \beta)} \quad \text{if} \quad t \notin A. \tag{26}$$

However, in election periods there is a partisan effect on output, so from (15a), (15b), (25), and the interest arbitrage conditions we get

$$p_{2t} - p_{1t} = \begin{cases} \left[\frac{(1 - \zeta)}{(1 + \beta)}\right][Y + b_1(1 - \rho)(1/l - 1/c)] & \text{if } l \text{ wins,} \\ \left[\frac{(1 - \zeta)}{(1 + \beta)}\right][Y - b_1 \rho(1/l - 1/c)] & \text{if } c \text{ wins.} \end{cases} \tag{27}$$

It now follows that

$$p_{2t}^l - p_{1t}^l > p_{2t} - p_{1t} > p_{2t}^c - p_{1t}^c. \tag{28}$$

So the terms of trade will deteriorate (improve) in the immediate post election period if the liberal (conservative) party gains power. Next period they return to their equilibrium level.

We may now discuss the implications of the partisan effects for the current account of the balance of payments. The log linear structure of the model prevents our specifying a particular functional form for the current account balance, but we know that generally it must depend on the terms of trade, the prices of the imported and exported goods and domestic income. We thus may write

$$CA_t = T\left(\underset{(+)}{p_{2t} - p_{1t}}, \underset{(+)}{p_{1t}}, \underset{(-)}{p_{2t}}, \underset{(-)}{y_{1t}}\right), \tag{29}$$

where symbols in parentheses indicate signs of partial derivatives. [5] We know from (28) that the terms of trade effects work in opposite directions for the election of the two parties, as does the income effect and the effect of the change in the domestic price of the foreign good. Only the price of the domestically produced good increases in both cases. There is a strong presumption that the current account will move in different directions with the election of the two parties.

---

[5] In this model the current account specification requires only the terms of trade, in many others the real exchange rate must be substituted. We thank Tom Willett for this point.

Exchange rate predictions are also easily acquired, exploiting (16) and the constant world price of the imported good we obtain

$$\varepsilon_T - \varepsilon_{T-1} = p_{2T} - p_{2T-1} < (>)0 \quad \text{if} \quad c(l) \text{ wins.} \tag{30}$$

These predictions do not contradict those of the simple model presented in Section 3.

4. Empirical evidence

In the open economy theoretical models developed above, four testable predictions are identified. First, the balance of payments on current account moves in opposite directions with the election of liberal and conservative governments. If the current account improves (worsens) after a conservative victory, it will worsen (improve) after a liberal victory. Second, as noted earlier, the real exchange rate moves in opposite directions with the election of conservative and liberal parties. Though this is not a direct prediction of our model, this result is expected in more general versions. Third, the forward rate systematically overpredicts the future spot rate after a conservative electoral victory, and systematically underpredicts it after a liberal victory. Fourth, the terms of trade unambiguously improve after a conservative victory and worsen after a liberal victory. It is also worth noting that in variable electoral term economies such as the U.K., these predictions do not require a change in regime or even an election. All that is required is that there is a positive probability that these events will occur.

4.1. The econometric model

The effects of the timing of elections and changes in government on GNP growth, inflation, and unemployment are examined by Alesina and Roubini (1992) and Gärtner (1994). Using a panel data set of OECD countries, Alesina and Roubini find that the paths of GNP growth, unemployment, and inflation are systematically affected by the timing of elections and by changes in the political party in power, though Gärtner takes issue with some of these conclusions. This section extends the empirical investigation of political business cycles to the predictions of open economy models based on the theoretical models developed above.

The methodology used to test the hypotheses regarding open economy political business cycle models is similar to that used by Alesina and Roubini [6] to test closed economy partisan models for OECD countries. They argue that powerful

---

[6] Similar models are used by McCallum (1978), Hibbs (1987), Alesina and Sachs (1988), and Alesina (1988) on U.S. data.

tests of political business cycle models can be obtained by running panel regressions of time-series cross-section data such as

$$X_t = \alpha_0 + \sum_1^k \alpha_i X_{t-i} + \theta PDUM_t + \varepsilon_t \tag{31}$$

where X_t is a stacked vector of time-series data on GNP growth, unemployment, or inflation for the countries in the sample, and $PDUM_t$ is a dummy variable capturing political events such as changes in the party in power or the date of elections. To control for the effects of the world economy on small domestic economies, Alesina and Roubini define X_t as the difference between the particular countries value and the world average for each time period.

The theoretical model developed above suggests a similar specification augmented by the control variables output, the price level, and the average world price. Thus, the model used here is

$$X_t = \alpha_0 + \alpha_1 t + \alpha_2 D72 + \sum_1^k \beta_i X_{t-i} + \sum_1^k \gamma_i \bar{X}_{t-i} + \sum_1^k \delta_i y_{t-i} + \sum_1^k \omega_i P_{t-i}$$
$$+ \sum_1^k \rho_i \bar{P}_{t-i} + \theta PDUM_t + \varepsilon_t \tag{32}$$

where X_t is a stacked vector of time-series data on the balance of payments, the real exchange rate, the terms of trade, or the difference between the forward and future spot exchange rates for the countries in the sample; t is a stacked vector of time trends; $D72$ is a stacked dummy variable which has the value of one from 1972 through the end of the sample, and is zero otherwise. This variable is included to capture the effects of switching from fixed to floating exchange rates; [7] $\bar{X}_t$ is a stacked vector of the world average of X_t which, similar to Alesina and Roubini, is included to control for the effects of the world economy on small domestic economies; y_t is a stacked vector of output for each country; is a stacked vector of price levels for each country; $\bar{P}_t$ is a stacked vector of the world average of P_t for each time period; [8] and $PDUM_t$ is a stacked political dummy. $PDUM_t$ is defined to be $+1$ in the N quarters beginning with the election of a conservative government, -1 in the N quarters beginning with the election of a liberal government, and 0 otherwise. [9] The lag length, k, is chosen using conventional tests for autocorrelation in the residuals. The value of k for each empirical model, which differs as the definition of X_t differs, is given in

---

[7] The definition of $D72$ follows Alesina and Roubini who define 1972 as the beginning of the flexible exchange rate regime.

[8] The theoretical model implies that the countries own price, the average world price, and the difference between the countries own price and the world average belong in the empirical model. However, these three variables are perfectly collinear, so only the countries own price and the world average appear in the empirical model.

[9] This is identical to the dummy variable $DRPTN$ in Alesina and Roubini (1992, p. 669).

Tables 1 through 4. Estimation follows Alesina and Roubini and a fixed-effects model with constant slopes is used.

4.2. The data

The implications of the theoretical model are tested using a panel data set of OECD countries. All of the data are from the OECD's *Main Economic Indicators*, and *International Financial Statistics*. The data used is quarterly and the sample period extends that used by Alesina and Roubini (1992) from 1960 through 1987 to 1960 through 1992.

The countries in the panel data sets used in the tests differ due to differences in data availability. Tests of hypotheses involving the balance of payments on current account are performed on a panel including the seven countries Canada, Denmark, Germany, Great Britain, Italy, the Netherlands, and the United States. The data is from 1960:2 through 1992:4, and a lag length of $k = 5$ is used in the empirical model. For tests involving the real exchange rate, the panel includes 14 countries, Austria, Australia, Canada, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, Japan, the Netherlands, Norway, and Sweden. The sample period is 1960:3 through 1992:4, and a lag length of $k = 3$ is used in the empirical model. The exchange rates are expressed in terms of the dollar, so the US is excluded. The panel used for tests involving the difference between the forward and 90-day future spot exchange rates includes the four countries Belgium, Canada, Germany, and Great Britain. Once again the exchange rates are expressed in terms of the dollar, so the United States is excluded. The sample period is 1960:3 to 1992:4, and here the lag length in the empirical model is $k = 3$. Tests involving the terms of trade, defined as the ratio of the unit price of imports to the unit price of exports, are performed on a panel including the nine countries Canada, Finland, Great Britain, Italy, Japan, the Netherlands, Norway, Sweden, and the United States. The sample period is 1960:1 through 1992:4, and the number of lags in the empirical model is $k = 5$. A shorter sample period, 1972:1 through 1992:4, is also used for each test. This is the time period defined by Alesina and Roubini (1992) to be the period of floating exchange rates. [10] Finally, the consumer price index and a measure of industrial production for each country are used as the price and output measures. All variables are measured in logs.

4.3. The results

The results for the partisan effects in the real exchange rate are shown in Table 1.The theoretical results show that the real exchange rate moves in opposite directions after the election of conservative and liberal governments. Thus, the

---

[10] The dummy variable *D72* is, of course, dropped from the model when the shorter sample period is used.

Table 1

Tests for partisan effects in the real exchange rate [a]

Number of quarters in which the political dummy equals one	Full sample	Post 1971 sample
1	0.4226	0.5619
	(0.3975)	(0.5909)
2	0.5286	0.7460
	(0.3282)	(0.4855)
3	0.5832 **	0.7925 *
	(0.2885)	(0.4283)
4	0.4987 *	0.7274 *
	(0.2627)	(0.3911)
5	0.4731 *	0.7056 *
	(0.2435)	(0.3627)
6	0.5214 **	0.7161 **
	(0.2294)	(0.3414)
7	0.6029 **	0.8487 **
	(0.2192)	(0.3261)
8	0.6261 **	0.8947 **
	(0.2118)	(0.3154)

[a] The number of lags, k, is 3. The coefficients in the table have been multiplied by 100. The standard errors (in parentheses) are corrected for heteroskedasticity using the correction of White (1980). The uncorrected results are very similar. The model used for the tests is described in the text.
* Significant at the 10% level.
** Significant at the 5% level.

hypothesis tested is that θ in Eq. (32) is different from zero. Estimates of θ for values of N from 1 to 8 along with the standard error of the estimate are given in the table. The results show significant differences in the movement of the real exchange rate at the 10% level [11] for $N = 3$, 4, 5, 6, 7, and 8 for both the full sample and the sample beginning in 1972, with the results generally becoming stronger as N increases. Thus, these results imply that the real exchange rate rises with the election of a conservative government, falls with the election of a liberal government, with significant effects occurring from three quarters to two years after the election. The magnitude of the effects, measured by the movement in the dependent variable due to a unit change in the partisan dummy as a percentage of the standard error of the dependent variable, [12] is 2.0% on average for the significant coefficients for the full sample and 2.4% on average for the significant coefficients for the sample beginning in 1972. Thus, the magnitude of the effects are slightly larger for the sample period that is limited to the flexible exchange rate regime.

---

[11] The choice of a 10% significance level is based upon the arguments in Delong and Lang (1992).

[12] That is, a unit change in the partisan dummy causing the dependent variable to move one standard deviation would result in a measurement of 100%.

Table 2
Tests for partisan effects in the balance of payments on current account [a]

Number of quarters in which the political dummy equals one	Full sample	Post 1971 sample
1	−71.87	−88.05
	(94.66)	(142.5)
2	−45.25	−64.37
	(81.89)	(122.9)
3	−59.09	−91.58
	(71.92)	(107.0)
4	−103.5	−157.3
	(63.88)	(96.07)
5	−99.65 *	−146.7 *
	(58.00)	(87.51)
6	−82.48	−120.7
	(54.02)	(81.90)
7	−25.03	−39.33
	(52.04)	(80.15)
8	−37.78	−56.38
	(48.86)	(76.63)

[a] The number of lags, k, is 5. The standard errors (in parentheses) are corrected for heteroskedasticity using White's (1980) correction. The uncorrected results are very similar. The model used for the tests is described in the text.
* Significant at the 10% level.
** Significant at the 5% level.

Table 2 shows the results for the tests for partisan effects in the balance of payments on current account.The theoretical prediction here is the same as for the real exchange rate, the balance of payments on current account moves in opposite directions after conservative and liberal victories. Accordingly, the hypothesis tested here is that θ in Eq. (32) is different from zero. The results in table 1 show significant differences in the movement of the balance of payments on current account at the 10% level for $N = 5$ for both the full sample and the sample beginning in 1972. Thus, these results imply that the balance of payments on current account falls with the election of a conservative government, rises with the election of a liberal government, with significant effects about a year and a quarter after the election. The magnitude of the effects, measured the same as for the real exchange rate, is 4.8% for the full sample and 6.1% for the sample beginning in 1972. Thus, as with the real exchange rate, the partisan effect is slightly larger during the flexible exchange rate regime.

The next table, Table 3, shows the results of tests of the hypothesis that the difference between the forward exchange rate and the future spot rate is positive with the election of a conservative government, and negative with the election of a liberal government.Accordingly, the hypothesis tested is that θ is greater than zero. The results show no significant difference in the difference between the

Table 3
Tests for partisan effects in the difference between the forward and future spot exchange rates [a]

Number of quarters in which the political dummy equals one	Full sample	Post 1971 sample
1	0.0141	0.0778
	(0.0566)	(0.0701)
2	−.0216	0.0229
	(0.0470)	(0.0596)
3	−0.0373	0.0076
	(0.0412)	(0.0526)
4	−0.0157	0.0299
	(0.0375)	(0.0480)
5	−0.0130	0.0398
	(0.0351)	(0.0450)
6	−0.0142	0.0323
	(0.0329)	(0.0424)
7	−0.0279	0.0015
	(0.0321)	(0.0414)
8	−0.0285	0.0124
	(0.0307)	(0.0382)

[a] The number of lags, k, is 3. The coefficients in the table have been multiplied by 100. The standard errors (in parentheses) are corrected for heteroskedasticity using White's (1980) correction. The uncorrected results are very similar. The model used for the tests is described in the text.
* Significant at the 10% level.
** Significant at the 5% level.

forward and spot exchange rates at the 10% level for any N for either the full sample or the sample beginning in 1972. As almost all the empirical evidence on exchange rate behaviour suggests that they follow a random walk (see for example Meese (1990)) our model fares no worse in this regard. Gärtner (1986) also fails to find effects on exchange rates near elections using U.S. and French time-series data.

Finally, Table 4 shows the results for the terms of trade, which is predicted to fall after a conservative victory, and increase after a liberal victory.

The hypothesis tested here is that θ is less than zero. The results show a significant difference in the movement in the terms of trade only for $N = 1$ in the sample beginning in 1972. The results indicate that during the flexible exchange rate regime the terms of trade decrease after the election of a conservative government, and increase after the election of a liberal government for at most one quarter, a result that agrees with the predictions of the theoretical model. The magnitude of the partisan effect, once again measured as a percentage of the standard error of the dependent variable, is 4.3%. Also, as with the real exchange rate and the balance of payments on current account, the partisan effect is larger in

Table 4
Tests for partisan effects in the terms of trade [a]

Number of quarters in which the political dummy equals one	Full sample	Post 1971 sample
1	− 0.3069	− 0.5098 [*]
	(0.2365)	(0.3032)
2	− 0.0667	− 0.0544
	(0.1877)	(0.2434)
3	0.0639	0.0500
	(0.1704)	(0.2205)
4	− 0.0070	− 0.1231
	(0.1560)	(0.2055)
5	− 0.0640	− 0.0814
	(0.1488)	(0.1995)
6	− 0.0116	0.0652
	(0.1447)	(0.1898)
7	− 0.0651	− 0.0523
	(0.1400)	(0.1871)
8	− 0.0629	− 0.0340
	(0.1346)	(0.1797)

[a] The number of lags, k, is 5. The coefficients in the table have been multiplied by 100. The standard errors (in parentheses) are corrected for heteroskedasticity using White's (1980) correction. The uncorrected results are very similar. The model used for the tests is described in the text.
[*] Significant at the 10% level.
[**] Significant at the 5% level.

the flexible exchange rate regime than it is in the full sample where the partisan effect is not significantly different from zero.

Overall, the results are favorable. Significant differences in the movements of the balance of payments on current account, the real exchange rate, and the terms of trade after the election of conservative and liberal governments are present in the data, and the movements are in agreement with the theoretical predictions.

We expected the results to differ substantially for the full sample and the sample limited to the flexible exchange rate regime, particularly the results for exchange rates and the balance of payments on current account. The magnitude of the partisan effects for the real exchange rate and the balance of payments on current account are slightly larger when the sample is limited to the flexible exchange rate period, and the only significant partisan effect for the terms of trade occur during this period. However, overall the differences across the two samples in the significance of the partisan terms and the magnitude of the partisan effects are not large. Therefore we do not find that moving from flexible to fixed exchange rates, as would occur among members of the European Economic Community under the European Monetary System, will have a significant influence on the timing or magnitude of partisan effects on the variables considered above.

5. Conclusions

In this paper we have examined the implications for an open economy macro model of changes in economic policy regimes arising from political competition between two partisan motivated political parties. The paper serves two purposes: Firstly, it provides a series of novel predictions, absent in closed economy analyses, that allow further testing of the partisan political business cycle model. Secondly, it allows us to explain some puzzles about the behaviour of international macroeconomic time series. Our theory demonstrates that the analysis of partisan effects in an open economy framework has the same qualitative domestic implications as existing closed economy analyses. However, it does have quantitative implications for such domestic variables as output, employment and inflation, and further, has important qualitative implications for exchange rates, the terms of trade, and the current account of the balance of payments. The empirical work supports the theory. For both the full sample and the sample beginning in 1972, the empirical results at no point contradict the theoretical predictions. Either significant effects of the predicted sign are found, or significant effects are absent. This analysis generally supports the partisan theory of political business cycles, and indicates that it is indeed important for both closed and open economy issues.

Acknowledgements

References

Alesina, A., 1988, Macroeconomic policy in a two party system as a repeated game, Quarterly Journal of Economics 102, 651–678.

Alesina, A. and N. Roubini, 1992, Political cycles in OECD Economies, Review of Economic Studies, 59, 663–688.

Alesina, A. and J. Sachs, 1988, Political parties and the business cycle in the United States, 1948–1984, Journal of Money Credit and Banking 20, 63–82.

Barro, R. and D. Gordon, 1983, Rules discretion and reputation in a model of monetary policy, Journal of Monetary Economics 12, 101–122.

Bhandari, J., 1984, Aggregate dynamics in an open economy, The Manchester School 52, 425–430.

Cox, W., 1980, Unanticipated money, output, and prices in the small economy, Journal of Monetary Economics 6, 359–383.

Delong, J. and K. Lang, 1992, Are all economic hypotheses false?, Journal of Political Economy 100, 1257–1272.

Dornbusch, R., 1976, Expectations and exchange rate dynamics, Journal of Political Economy 84, 1161–1176.

Ellis, C. and M. Thoma, 1991, Partisan effects in an economy where the government may choose the next election date, Journal of Money Credit and Banking 23, 728–741.

Ellis, C. and M. Thoma, 1993, Credibility and political business cycles, Journal of Macroeconomics 15, 69–90.

Flood, P. and N. Marion, 1982, The transmission of disturbance under alternative exchange rate regimes with optimal indexing, The Quarterly Journal of Economics XCVII, 43–66.

Gärtner, M., 1986, Some political economy of flexible exchange rates, European Journal of Political Economy 2, 153–168.

Gärtner, M., 1994, The quest for political cycles in OECD economies, European Journal of Political Economy 10, 427–440.

Haynes, S. and J. Stone, 1988, Does the political business cycle dominate US unemployment and inflation? Some new evidence, in: T.D. Willett, eds., Political business cycles (Duke University Press, Durham, NC).

Haynes, S. and J. Stone, 1989, Political models of the business cycle should be revived, Economic Inquiry 28, 426–434.

Hibbs, D., 1987, The American political economy (Harvard University Press, Cambridge, MA).

Levich, R., 1985, Empirical studies of exchange rates: Price behaviour, rate determination and market efficiency, in: R. Jones and P. Kennen, eds., Handbook of international economics, Vol. II (North-Holland, Amsterdam).

Marston, R., 1984, Wage rates and the terms of trade, Journal of Money Credit and Banking 6, 285–301.

McCallum, B., 1978, The political business cycle: An empirical test, Southern Economic Journal 44, 504–515.

Meese, R., 1990, Currency fluctuations in the post-Bretton Woods era, Journal of Economic Perspectives 4, 117–134.

Nordhaus, W., 1975, The political business cycle, Review of Economic Studies 42, 169–190.

van der Ploeg, F., 1987, Optimal government policy in a small open economy with rational expectations and uncertain election outcomes, International Economic Review 28, 469–492.

van der Ploeg, F., 1989, The political economy of overvaluation, The Economic Journal 99, 850–855.

White, H., 1980, A heteroskedastic-consistent covariance matrix estimator and direct test for heteroskedasticity, Econometrica 48, 817–838.