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Partisanship and fiscal policy co-ordination in a monetary union¹

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Abstract

The recent economic literature shows a new interest in the links between politics and economics. In this paper, we join Hibbs' partisanship theory with the literature of fiscal policies international co-ordination. Furthermore, by considering a monetary union context, we also open a new angle of view in the recent debate on the effects of the European Monetary Union. In fact, by considering the possibility of governments' partisan behaviour, we analyse the possibility for governments of internalising macroeconomic spillovers deriving from public expenditure at a national level and investigate the interactions between fiscal and monetary authorities. This paper also partially answers recent concern for considering multi-player contexts and asymmetries in open economy analyses. Here, in fact, several kinds of co-operation and the effects of asymmetries in players' preferences are studied (e.g. the asymmetries in the governments' preference due to their partisanship).

JEL codes: E62, E64, F15, F42.**Key words:** partisanship, monetary union, international co-operation, policy games.

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1. Introduction

As is well known, the theoretical framework joining policy objectives with government ideologies is the partisan theory. Douglas Hibbs (1977, 1987) first formulated this theory in a very influential article published in 1977 and in a successful book published ten years later. Hibbs (1977) contrasted his partisan model to the political business cycle theory of Nordhaus (1975). In fact, the partisanship model emphasises the nature of the choice between alternatives presented in majority-rule elections instead of a principal-agent problem between voters and elected public officials as in the electoral business cycle models. The partisan theory of macroeconomic policy is based on the idea that political parties weight nominal and real economic performance differently. Left-wing governments are assumed to be more inclined than right-wing ones to pursue expansionary policies designed to yield lower unemployment and higher growth, but running the risk of extra inflation².

The assumption of partisanship can be justified by the consequences of unemployment for income distribution. In periods of high (low) unemployment, low (high) growth and low (high) inflation the relative income of the upper-middle class increases (decreases). However, having different preferences is a necessary but not a sufficient condition for observing the two parties act differently when in office. In fact, in two-party elections, the candidates may converge toward the middle in order to win the election: even a partisan politician cannot implement his desired policies if he loses. A possible justification can be found in the uncertainty of electoral results. Parties trade off the potential gain in probability of victory if they converge to the middle against the potential loss in their preference dimension if they move away from their preferred position. We will not explore the question of policy convergence in a two-party system with partisan policy-makers and will stick to the original formulation³.

In a recent article, Saint-Paul (1998) in fact underlines the strong link between policy objectives and government ideologies. He analyses 40 changes in European employment-protection legislation since 1960, classifying each one according to whether it was a step towards or away from more job protection and according to whether it affected all workers or just a specific group. Ideology, not surprisingly, plays a part: across-the-board reforms tend to happen under right-wing governments just as targeted increases in protection are associated with left-wing governments. Similar empirical studies are collected in Kreech (1995) for the United States and Alesina et al. (1997) for OECD countries (see also Alvarez et. al. 1991; Franzese, 1999; and Oatley, 1999).

Detken and Gärtner (1994); Franzese (1996, 1999); and Di Bartolomeo (1999, 2001) have opened a new strand by merging partisanship theory with the literature on central bank independence and the labour market. However, these works mainly consider closed economy contexts. In an open economy setting the problem of fiscal policy co-operation across national boundaries arises. Fiscal policy co-operation may be founded on the existence of negative or positive spillovers. When there are negative spillovers co-ordination leads to a reduction in government expenditure, whereas positive spillovers imply increased government expenditure in the co-ordinated case, if there is nominal inertia (see Mundell, 1968; Hamada, 1985; Svensson, 1987; van der Ploeg, 1993). Dixon and Santoni (1997) have recently shown that positive spillovers from government expenditure arise in a monetary union with unemployment, a fixed money supply and unionised labour markets. Acocella and Di Bartolomeo (2001) have shown the limited possibility of gains from fiscal policy co-operation across national boundaries in a game with an active central bank whose pre-eminent objective is price stability and centralised wage setting. These gains can be interpreted in terms of the partisan theory, as we do in this paper.

We use the simple model described in Acocella and Di Bartolomeo (2001), which is referred to only two countries, takes as constant some variables and assumes some kind of symmetry as between the two countries.

² See Hibbs (1992) for a review of the voluminous literature.

³ For a discussion of these and related issues, see Wittman (1977, 1983); Calavert (1985); and Alesina and Rosenthal (1995: chapter 2).

The rest of the paper is organised as follows. In section 2 we present the model; in section 3 non-cooperative solutions are obtained. The effects of international fiscal policy co-ordination and co-operation between fiscal and monetary authorities are examined in sections 4 and 5, respectively. The final section presents a summary and conclusions.

2. The model

Three types of agents (firms, unions, and fiscal authorities) operate in each country and a single central bank for the whole integrated area, which is a closed economy, sets the nominal interest rate, r . Since there is perfect mobility of financial capital, the interest rate is the same in both countries. Each country is specialised in the production of one good (or one basket of goods). Goods are imperfect substitutes. There is perfect competition between firms within each country, but imperfect competition as between firms operating in the two countries. Firms are profit maximisers and unions set monopoly wages in each country (if they do not act co-operatively) or for the whole area (if they co-operate). Governments set the balanced budget level of public expenditure in each area in a co-operative or non-co-operative way. Wages, budget levels and the interest rate are set simultaneously.

Our baseline framework is an IS-AS model (see Acocella and Di Bartolomeo, 2001). The model consists of two equations for each country. All variables are in logs.

$$n_i = -s(r - p^e_i) + ag_i + bg_j - t(p_i - p_j) \quad [1]$$

$$n_i = (p_i - w_i) \quad [2]$$

$$n_j = -s(r - p^e_j) + ag_j + bg_i - t(p_j - p_i) \quad [3]$$

$$n_j = (p_j - w_j) \quad [4]$$

$$v_i = (1-h)p_i + hp_j \quad [5]$$

$$v_j = (1-h)p_j + hp_i \quad [6]$$

where i and j denote the two countries, n is employment; p is the price of the composite commodity, g is public expenditure, w is the wage rate, p^e is the expected inflation rate, v is the consumer price index, or CPI. The expected rate of inflation is reasonably defined as $\mathbb{E}_{t-1} v_t - v_{t-1}$. Furthermore, perfect foresight and an initial price parametrically set equal to zero are assumed. Thus $\mathbb{E}_{t-1} v_t = v_t$ and $p^e = v_t$ hold. Since our model is deterministic, the assumption of perfect foresight is equivalent to that of rational expectations.

The two economies work in a symmetric way. Asymmetry in the working of the two economies does not need to be stressed for the purposes of this paper. It can however be easily introduced. In addition, a kind of asymmetry might arise because of possibly different preferences of unions and governments (see eqns. [12] and [13] below),

Equation [1] and [2] represent IS and AS in country i ; equation [3] and [4] IS and AS in country j . Following recent literature, we take the nominal interest rate as the instrument of monetary policy, as opposed to a monetary supply aggregate. This dispenses us with specifying a money market equilibrium condition (i.e., an LM curve).

Demand is decreasing in the real interest rate (as an effect of the saving-investment behaviour by the private sector) and the product prices differential (competitiveness effects on foreign trade). It increases in home public expenditure and foreign public expenditure (exports). The latter is a shortcut, with no loss of generality, to spillovers from country j to country i taking place through country j 's imports. Equation [2] is a standard supply representation for profit-maximising firms.

Equations [5] and [6] define consumer price indexes. CPIs are weighted averages of prices of domestic and foreign goods. h is a function of the degree of openness. As customary, we assume $h < 1/2$.

Solving the previous system of equations, we obtain the reduced form of the model:

$$n_i = -A_0 r + E_1 g_i + E_2 g_j - (1-A_1) w_i + A_2 w_j \quad [7]$$

$$v_i = -A_0 r + D_1 g_i + D_2 g_j + B_1 w_i + B_2 w_j \quad [8]$$

$$n_j = -A_0 r + E_2 g_i + E_1 g_j + A_2 w_i - (1-A_1) w_j \quad [9]$$

$$v_j = -A_0 r + D_2 g_i + D_1 g_j + B_2 w_i + B_1 w_j \quad [10]$$

where: $A_0 = \mathbf{s}/(1-\mathbf{s})$; $A_1 = (1-\mathbf{s}+\mathbf{t}+h\mathbf{s})/[(1-\mathbf{s})(1-\mathbf{s}+2\mathbf{t}+2h\mathbf{s})] > A_2 = (\mathbf{t}+h\mathbf{s})/[(1-\mathbf{s})(1-\mathbf{s}+2\mathbf{t}+2h\mathbf{s})]$; $A_1 > B_1 = (1-h)A_1 + hA_2 > B_2 = hA_1 + (1-h)A_2 > 0$; $E_1 = (\mathbf{a}A_1 + \mathbf{b}A_2) > E_2 = (\mathbf{a}A_2 + \mathbf{b}A_1)$; $D_1 = (1-h)E_1 + hE_2 > D_2 = hE_1 + (1-h)E_2 > 0$.

Parameters: A_0, A_1, A_2 , are the elasticities of the domestic price with respect to the nominal interest rate, nominal domestic wage, nominal foreign wage, respectively. Therefore, $(1+A_0)$, $(1-A_1)$ and $(1-A_2)$ are the elasticities of the real interest rate, the real domestic wage, the real foreign wage rate with respect to the nominal interest rate, the nominal domestic wage and the nominal foreign wage, respectively. In other words, for example, if the nominal interest rate increases by one point, the real interest rate increases by $1 - (-A_0) = 1 + A_0$, where 1 is the effect on the real interest rate of the rise in the nominal interest rate and A_0 is the effect of prices reduction (induced by the rise in the nominal interest rate).

In this paper $\mathbf{s} \in (0,1)$ is reasonably assumed.

Five different regimes are possible according to the values of the two parameters $\mathbf{h}_v = (1-B_1)$ and $\mathbf{h}_p = (1-A_1)^4$. The former is the elasticity of the real wage to the nominal wage (when the real wage is calculated on the basis of the CPI). The latter is the elasticity of the real wage (and employment, since [2] and [4] hold) to the nominal wage (when the real wage is calculated on the basis of production prices).

When \mathbf{h}_v and \mathbf{h}_p are both positive, unions raise real wages by rising nominal wages at the cost of a lower employment level (*standard trade-off* regime).

When \mathbf{h}_v is positive and \mathbf{h}_p is negative, unions benefit from a complementarity between real wages and employment. This complementarity arises because of the wedge between the real wage (calculated in terms of the CPI) relevant for the unions and the real wage (calculated in terms of production prices) relevant for the firm (*wage-wedge externality* regime).

When \mathbf{h}_v and \mathbf{h}_p are both negative, by definition of these elasticities, an increase in nominal wages causes a more than proportional increase in v and p , and then a reduction in the real wage both in terms of production prices and the CPI. In this regime unions can raise real wages by reducing nominal wages. Employment however is still a decreasing function of real wages (*'perverse' trade-off* regime).

When \mathbf{h}_p is equal to zero, nominal wage increases lead to proportional increases in production prices, leaving the real wage rate (in terms of the latter variable) unchanged. Unions can thus pursue only an objective of real wages (in terms of CPI) (*fixed employment* regime).

When \mathbf{h}_v is equal to zero, nominal wage increases lead to proportional increases in CPI, leaving unchanged the real wage rate in terms of the latter variable. Unions could raise their satisfaction only by raising the employment level which would compel them to set nominal wages at an extreme value, in order to guarantee maximum employment (*fixed real wage* regime). This regime is thus of no interest for our purposes⁵.

⁴ Four regimes are ruled out by the assumption $\mathbf{h}_v < \mathbf{h}_p$ (or $B_1 < A_1$).

⁵ All regimes are possible. As can be easily checked, \mathbf{h}_v and \mathbf{h}_p are positive for values of σ close to zero. Both are increasing in the degree of openness of the economy (captured by h and \mathbf{t}) and decreasing in $\mathbf{s} \in (0,1)$. Moreover, when σ rises, \mathbf{h}_v becomes negative after \mathbf{h}_p and both become negative for values of σ smaller than $1/2$. Hence for $\mathbf{s} \in [1/2,1)$ we are always in the *perverse trade-off* regime. For values of $\mathbf{s} \in (0,1/2)$, given the degree of openness of the economy, we can be in one of the five regimes according to the size of \mathbf{s} : For values of \mathbf{s} close to zero the *standard trade-off* regime is more plausible while for values of \mathbf{s} closer to $1/2$ the *perverse trade-off* regime becomes more plausible; for

The reader should also note that government expenditure of each country has positive (negative) spillovers on the employment (price) level of the other country.

We consider a simultaneous policy game between the central bank, national governments and national unions. These players maximise the following utility functions:

$$M = -\frac{1}{2}(v_i + v_j)^2 + s(n_i + n_j) \quad [11]$$

$$S_k = -\frac{1}{2}(n_k - n_k^g)^2 - t_k v_i \quad k=\{i,j\} \quad [12]$$

$$U_k = -\frac{1}{2}(w_k - v_k - w_k^u)^2 + q_k n_k \quad k=\{i,j\} \quad [13]$$

where M is the utility function of the central bank, S_k and U_k are those of the government and the union of the k country, respectively; n_k^g and w_k^u are government k 's and union k 's bliss points, respectively. According to Hibbs' partisanship theory, we assume that right and left wing parties have different opportunity cost of low inflation in terms of employment. We assume that a left wing government is relatively adverse to the utility losses caused by a rise in the unemployment, whereas a right wing government is relatively adverse to the utility losses caused by a rise in the inflation rate. This is the standard assumption on which partisan theory models are based (see Alesina, 1988; Hibbs 1992, 1993; and Di Bartolomeo, 2001).

Justifications for the use of the above preference functions can be found in the relevant literature and, more specifically, in Acocella and Di Bartolomeo (2001). We want here only to draw attention on the fact that, even both governments attribute more importance to employment than to inflation (which is stressed by the quadratic form of the former argument in the preference function), they can put a different stress on this objective, if they have a different political orientation.

3. Non-co-operative solutions

Nash non-co-operative solutions are obtained by solving the system of equations derived from agents' maximisation problems. Each player maximises its preference function (equation [11] or equation [12] or equation [13]) with respect to its control variable.

The following first order conditions refer to the solution of the central bank, the two unions and the two governments problems, respectively:

$$2sr - (\mathbf{a} + \mathbf{b})(g_i + g_j) + w_i + w_j + \frac{s}{1-s} = 0 \quad [14]$$

$$A_0 r - (\mathbf{a}B_1 + \mathbf{b}B_2)g_i - (\mathbf{a}B_2 + \mathbf{b}B_1)g_j + \mathbf{h}_v w_i - B_2 w_j - w_i^u + \frac{\mathbf{h}_p}{\mathbf{h}_v} q_i = 0 \quad [15]$$

$$A_0 r - (\mathbf{a}B_1 + \mathbf{b}B_2)g_j - (\mathbf{a}B_2 + \mathbf{b}B_1)g_i + \mathbf{h}_v w_j - B_2 w_i - w_i^u + \frac{\mathbf{h}_p}{\mathbf{h}_v} q_j = 0 \quad [16]$$

$$A_0 r - E_1 g_i - E_2 g_j + \mathbf{h}_p w_i - A_2 w_j + n_i^g - \frac{\mathbf{a}B_1 + \mathbf{b}B_2}{E_1} t_i = 0 \quad [17]$$

$$A_0 r - E_1 g_j - E_2 g_i + \mathbf{h}_p w_j - A_2 w_i + n_j^g - \frac{\mathbf{a}B_1 + \mathbf{b}B_2}{E_1} t_j = 0 \quad [18]$$

intermediate values of $s \in (0, \frac{1}{2})$, the *wage-wedge externality* regime holds (if $h > 0$); the other two regimes occur when switching from one regime to another. For more details on the regimes see Acocella and Di Bartolomeo (2001: Appendix B).

Solving the equation system ([14], [15], [16], [17] and [18]), we obtain the following result:

$$n_i^{NC} = \frac{n_i^s - n_j^s}{2} - \frac{1}{2} \frac{\mathbf{a}B_1 + \mathbf{b}B_2}{E_1} (t_i - t_j) - \frac{w_i^u + w_j^u}{2} + \frac{1}{2} \frac{\mathbf{h}_p}{\mathbf{h}_v} (q_i + q_j) \quad [19]$$

$$v_i^{NC} = \frac{(1-2h)}{4h} \left[n_i^s - n_j^s - \frac{\mathbf{a}B_1 + \mathbf{b}B_2}{E_1} (t_i - t_j) + w_i^u - w_j^u - \frac{\mathbf{h}_p}{\mathbf{h}_v} (q_i - q_j) \right] + \frac{1}{2} s \quad [20]$$

$$(w-v)_i^{NC} = w_i^u - \frac{\mathbf{h}_p}{\mathbf{h}_v} q_i \quad [21]$$

Expressions similar to [19], [20] and [21] hold for country j .

According to equation [19] and equation [20], a left-wing government obtains a better result in terms of employment at the cost of a worse result in terms of inflation, and vice versa when a right-wing party is considered. This result confirms that of Di Bartolomeo (2001) in a closed economy.

4. Fiscal policy co-operation

The central bank and unions maximisation problems are the same as those analysed in the above section. Governments instead maximise the following common utility preference:

$$\Omega = \frac{1}{2} S_i + \frac{1}{2} S_j \quad [22]$$

Solution of the governments' problems yields the following FOCs:

$$\frac{(\mathbf{a} + \mathbf{b})}{1 - \mathbf{s}} r - (B_1^2 + B_2^2) g_i - 2B_1 B_2 g_j + (\mathbf{h}_p B_1 - A_2 B_2) w_i - (A_2 B_1 - \mathbf{h}_p B_2) w_j + B_1 n_i^s + B_2 n_j^s - D_1 t_i - D_2 t_j \quad [23]$$

$$\frac{(\mathbf{a} + \mathbf{b})}{1 - \mathbf{s}} r - (B_1^2 + B_2^2) g_j - 2B_1 B_2 g_i + (\mathbf{h}_p B_1 - A_2 B_2) w_j - (A_2 B_1 - \mathbf{h}_p B_2) w_i + B_1 n_j^s + B_2 n_i^s - D_1 t_j - D_2 t_i \quad [24]$$

We obtain the equilibrium values of employment and the CPIs by solving the system ([14], [15], [16], [23] and [24]):

$$n_i^{GC} = \frac{n_i^s - n_j^s}{2} - \frac{1-2h}{2} (t_i - t_j) - \frac{w_i^u + w_j^u}{2} + \frac{\mathbf{h}_p}{\mathbf{h}_v} (q_i + q_j) \quad [25]$$

$$v_i^{GC} = \frac{(1-2h)}{4h} \left[n_i^s - n_j^s + (1-2h)(t_i - t_j) + w_i^u - w_j^u - \frac{\mathbf{h}_p}{\mathbf{h}_v} (q_i - q_j) \right] + \frac{1}{2s} \quad [26]$$

$$(w-v)_i^{GC} = w_i^u - \frac{\mathbf{h}_p}{\mathbf{h}_v} q_i \quad [27]$$

The values of gains from co-operation accruing to country i (in terms of the specific objectives and not of satisfaction) can be obtained by subtracting the values of non-co-operative solutions from the values of co-operative ones:

$$\Delta n_i^{dg} = \frac{h}{2} \frac{(\mathbf{a} + \mathbf{b})}{(1 - \mathbf{s}) E_1} (t_i - t_j) \quad [28]$$

$$\Delta v_i^{dg} = \frac{(1 - 2h)}{4} \frac{(\mathbf{a} + \mathbf{b})}{(1 - \mathbf{s}) E_1} (t_i - t_j) \quad [29]$$

$$\Delta(\mathbf{w} - \mathbf{v})^{dg}_i = 0 \quad [30]$$

Similar expressions hold for country j .

Co-operation has an effect on employment and consumer prices only if governments have different objectives. In this case *each government can exchange one objective for the other* and (presumably) raise its satisfaction level. The right-wing government can achieve a higher level of employment when it co-operates with the left-wing government (since, in this case, it would share the latter's preferences, which are more employment-oriented), while the other left-wing can achieve a lower level of inflation, through international co-operation.

As pointed out in Acocella and Di Bartolomeo (2001), the reaction of the central bank to any attempt at a co-ordinated fiscal expansion of the economy (in order to preserve price stability) completely *neutralises* the rise in total employment and prices induced by the governments' action. Only a redistribution of employment according to the relative preferences of the two governments can take place, at the cost of higher inflation in the country which improves the level of employment (and with the benefit of a lower inflation in the other country). If these profess to the same political credo (i.e., have an equal t), fiscal co-operation has no effect on employment or inflation.

Contrary to conclusions drawn by Dixon and Santoni (1997), positive spillovers from government expenditure no longer arise in a monetary union with an active central bank and equal political orientation of governments.

5. Simultaneous co- operation between central bank and governments

In this section, we assume that the central bank and governments act co-operatively, by maximising the following function:

$$\Omega = \frac{1}{3} M + \frac{1}{3} S_i + \frac{1}{3} S_j \quad [31]$$

Following the same procedure as above, after tedious algebra, we obtain the following equilibrium values:

$$n_i^{BG} = \frac{n_i^s - n_j^s}{2} - \frac{1 - 2h}{2} (t_i - t_j) + \frac{w_i^s + w_j^s}{2} + \frac{1}{2} \frac{\mathbf{h}_p}{\mathbf{h}_v} (q_i + q_j) \quad [32]$$

$$v_i^{BG} = v_i^{GC} - \frac{1}{4} (n_i^s + n_j^s + w_i^u + w_j^u + q_i + q_j + t_i + t_j) \quad [33]$$

$$(w-v)_i^{BG} = w_i^u - \frac{h_p}{h_v} q_i \quad [34]$$

Similar expressions hold for the other country.

Gains from co-operation between central bank and between governments are as follows:

$$\Delta^{dgb} n_i = \frac{h}{4} \frac{(\mathbf{a} + \mathbf{b})}{(1-\mathbf{s}) E_1} (t_i - t_j) \quad [35]$$

$$\Delta^{dgb} v_i = \frac{(1-2h)}{4} \frac{(\mathbf{a} + \mathbf{b})}{(1-\mathbf{s}) E_1} (t_i - t_j) - \frac{1}{4} (n_i^s + n_j^s + w_i^u + w_j^u + q_i + q_j + t_i + t_j) \quad [36]$$

$$\Delta^{dgb} (w-v)_i = 0 \quad [37]$$

These are the same outcomes derived in the case of government co-operation, except for the inflation bias, which is reduced by the second term on the right hand side of [36].

Co-operation between the governments and the central bank can induce some gains in inflation, but adds nothing to gains in employment that can be derived by the co-operation of governments only. In particular, no rise in employment can be obtained by politically homologue governments co-operating with the central bank.

6. Summary and conclusions

In this paper, we have analysed the effects of international fiscal policy co-ordination and co-ordination among fiscal and monetary authorities in a common-currency area.

In the non co-operative equilibrium, the standard proposition of monetary policy neutrality holds. Furthermore, when partisanship is assumed, a standard result is obtained. A left-wing government obtains a better result in terms of employment at the cost of a worse result in terms of inflation, and vice versa when a right-wing party is considered.

However, when international fiscal policy co-ordination is introduced, the above result no longer holds. In fact, in this case a right-wing government achieves a higher level of employment (but only at the cost of higher inflation) when it co-operates with the left-wing government (since, in this case, it would share the latter's preferences, which are more employment-oriented), while a left-wing government can achieve a lower level of inflation (at the cost of lower employment) if it co-operates with a right-wing government.

Gains may then derive in terms of employment *or* inflation to one or the other country from fiscal policy co-ordination between government having different political orientation.

Co-operation between the governments and the central bank can induce some gains in inflation, but adds nothing to gains in employment that can be derived by the co-operation of governments only. In particular, no rise in employment can be obtained by politically homologue governments co-operating with the central bank.

The effects of fiscal policy co-ordination thus differ from those found by Dixon and Santoni (1997), who claim the existence of across-boundaries positive spillovers from government expenditure. In the case of co-operation between governments the attempt to raise expenditure in order to capture positive spillovers on the employment level is neutralised by the central bank aiming at price stability. Any gain that can derive from co-operation is tied to the existence of a plurality of political orientations in the monetary union. Neither a left-wing government nor a right-wing one can have better results on, respectively, employment and inflation, by co-operating with a

politically-homologue government. In addition, as one could expect, a government with a certain political orientation can expect to gain by co-operating with a government having a different political orientation only in terms of the variable (employment or inflation) it is less interested in (and the other government is more interested in). This is so because co-operation means sharing the partner's objective.

When all the three public bodies (i.e., the central bank and the two governments) co-operate, gains can only arise in terms of less inflation. Right-wing governments can then benefit from co-operating with the central bank in a monetary union.

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