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CONFLICT INFLATION AND TRADE STRUCTURE IN AN OPEN ECONOMY

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Abstract: This paper draws together the various essential elements of the conflict inflation approach within the context of an open economy. We present a basic model that explains why, once output is allowed to vary, there is no practicable method of tackling three crucial macroeconomic targets –external balance, internal balance and workers/firms aspiration balance. The model also shows how an adverse balance of payments shock, like war (or debt) reparations, a sudden stop of external capital or higher foreign interest payments, may lead eventually to the breakdown of the conflicting claims equilibrium. The model is extended in two ways: first, by considering the case in which an increase in the real exchange rate deteriorates the external balance, and second by introducing a flexible mark-up. We will claim that, in general, the conflict inflation framework suggests that external conditions might also be important in the explanation of price stabilization in developing countries and emerging markets since the mid 1990s.

Key Words: Conflict Inflation, Distribution of Income, External shocks, Balance of Payments.

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1. Introduction

Since the seminal work of Rowthorn (1977), post Keynesian and marxist economists have emphasized that inflation is the result of conflicting claims over the distribution of income. Thus, while neoclassical theories of inflation depict inflation as the excess of demand for output over the value of output at existing prices, conflict theories represent it as the excess of income claims over the value of output at existing prices. In a close economy setting where two income recipients exist, inflation just reflects the inconsistency of the desired mark up of firms and the target real wage that workers consider fair. Though in his seminal article Rowthorn (1977) clearly pointed out that the move to the open economy introduces an additional claimant on the output per head, most post Keynesian conflict inflation models and extensions have neglected open economy considerations. Rare exceptions are Cordero (2002 and 2004) and Vernengo (2003). But while Vernengo (2003) is much more concerned with wage, price and exchange rate dynamics of an economy exposed to an external shock, Cordero (2002 and 2004) deals with short-run equilibrium and long run dynamics for the rate of growth of an open economy when an adjustment mechanism is allowed to reconcile incompatible income claims. A more New Keynesian approach to the issue can also be found in the textbook presentation of Carlin and Soskice (1990) and in some further developments such as Kolsrud and Nymoen (1998) and Petursson (2002). However, this literature is very much concerned with the changing relationship between inflation and the natural rate of unemployment.

As a supplement to the existing literature, this paper sets out an open economy model that clearly shows the interactions between the external sector and the process that leads to conflict over the distribution of income and inflation.

In the next section, we consider a simple model —perhaps the simplest model one can construct in the context of an open economy— in which due to different macro targets, society can not reach an agreement concerning the appropriate distribution of income. In order to derive the model, we only need a few simple building blocks. The first step is to derive a supply side relationship that determines the trade-off between a stable distribution of income and the external balance. Latin American structuralist economists have operationalized this trade-off through the inverse relationship between the real

wage and the real exchange rate.¹ Accordingly, there is a conflict between the maintenance of a real wage target in the economy and the need to modify the real exchange rate to restore balance of payments equilibrium when there is a new set of external parameters. The second step is to combine the supply side relationship with James Meade's analysis of the relation between internal and external balance (Meade 1951). This allows us to argue that the target real wage (and the claims over a variable level of income) may be regulated by economic activity. Hence for any level of output there will be a required real exchange rate that guarantees the compatibility of firms and workers claims over the distribution of income. The model can be interpreted as an extension of Dornbusch's conflicting claims framework (see Dornbusch 1980, and Murshed 1997), thus elucidating the close relation between developments in the external sector and the dynamics of conflict inflation.

More specifically, the canonical model that is built up in section 2 shows how compensatory wage and price increases and conflict inflation can develop in a country that is deprived of foreign capital flows or that is affected in its ability to service foreign debt. As remarked by Burdekin and Burkett (1996) and Vernengo (2005), theories that blame inflation on external non-monetary factors go back to the German hyperinflation of 1923.² Latin American Structuralist economists provided a similar argument in the 1950s and 1960s when the growth prospects of the region faced a lack of foreign exchange. The availability of foreign currency played once again an evident parallel in the 1980s when the economies of Argentina, Brazil and Bolivia had to face foreign debt service problems.³

We show in section 3 that the same adverse external shock may generate a different business cycle depending on the trade structure of the economy. When the exchange rate adjustment that follows an adverse external shock does not improve but deteriorate the trade balance, the level of output falls temporarily and improves after an upward

¹ Watts (1988) has remarked that the incompatibility of real wage maintenance and the external balance was very early pointed out by Meade and Russell (1957).

² The so-called German Balance of Payments School traced a chain of causation running from reparations burdens to balance of payments deficits to exchange rate depreciation to rising import prices and hence to general price inflation. The price increase leads to rising money demand and finally to the money stock itself.

³ Solimano (1989) argues that the balance of payments vulnerability of these economies, mainly due to foreign debt service problems, forced these countries to run trade surplus and to undervalue the real exchange rate.

reversion in the real exchange rate. In section 4, we contemplate the possibility that intensified international competition could account for a squeeze on corporate profits of domestic firms and assume a flexible mark-up (instead of a fixed one). We evaluate then how the small open economy adjusts when it is shocked by higher international competition and a change in the terms of trade. Section 5 aims to shed light on the recent fall in inflation in the world economy, specifically in developing countries and emerging markets. We show the suitability of the post Keynesian open economy conflict inflation framework for the analysis of global disinflation.

2. The Canonical Model

The canonical model will show that it is possible for the economy to squeeze the real cost of imports and thereby satisfy both the worker and capitalist income claims at a higher level of employment. But the cost of this will be the deterioration in competitiveness and in the balance of payments. If there is limit to the length of time for which the economy can sustain a balance of payments deficit, conflict inflation will follow as a result of an unchanged level of real profits per unit of output and redistribution of national income away from real wages towards export revenues.

Let us begin by considering a modern, industrial economy where the product market is not perfectly competitive and prices are fixed by domestic capitalists according to the usual mark-up pricing rule. Specifically, in the present model it is assumed that prices are set as a markup on unit direct costs that consist entirely of wages. We have then a simple rule:

$$p = (1 + \tau)wb, \quad \tau > 0 \tag{1}$$

where p is the price level, w is the nominal wage rate, τ is the fixed markup, and the term b represents the output-labor ratio or the inverse of labor productivity. The assumption of a fixed mark-up implies that increases in money wages are fully passed on in the form of higher prices.

Workers are wage earners who are interested in maintaining a target or desired standard of living, measured by a real wage. In essence workers are assumed to set nominal

wages on the basis of a current cost of living index so that they obtain their real wage target. This implies

$$w = \Omega Q \quad (2)$$

where Ω stands for the target real wage. As consumers of both home and imported goods, workers are interested in the prices of both home and foreign goods, and their living standard will be measured by a cost of living index, Q :

$$Q = p^\alpha (ep^*)^{1-\alpha}, \quad 0 \leq \alpha \leq 1 \quad (3)$$

where α and $(1-\alpha)$ and the expenditure shares of home and imported goods respectively in the workers' consumption basket. Define now the real exchange rate or the competitiveness index as

$$q = (ep^*/p) \quad (4)$$

The main point now is that there will be a required or unique real exchange rate consistent with the objectives of both firms and workers. Thus, substituting (4) and (3) into (2) and then putting that into (1) we obtain:

$$q^r = \left[\frac{1}{b\Omega(1+\tau)} \right]^{\frac{1}{(1-\alpha)}} \quad (5)$$

where q^r represents the exchange rate (in real terms) that satisfy a zero (or constant) inflation condition. In other words, q^r guarantees that workers achieve their target real wage and firms obtain their target mark-up. It is clear that if the real exchange rate is above the required level, then, for a given b and α , either the desired mark-up or the target real wage has to adjust downward. In particular, proponents of the balance of payments approach to conflict of inflation emphasize the fact that, very often, during inflationary episodes the real exchange rate is inversely related to the real wage. Indeed it was Joan Robinson (1938) who very early pointed out that as far as currency depreciation leads to a decline in the real wage there will be an inflationary process in form of a wage/foreign-exchange spiral. The struggle of workers, firms and foreign claimants over the distribution of income leads to inflation, but note in this case that there may be real profit resistance as firms succeed in preserving their desired mark-ups.

Though the business cycle appears to exercise no effect on the conflicting claims, this effect can be incorporated by making the target real wage endogenous. Following Dornbusch (1980) and Murshed (1997) we postulate that the target real wage contains an exogenous and a cyclical component, that is

$$\Omega = \varepsilon \left(\frac{Y}{Y_f} \right)^\phi, \quad \varepsilon, \phi > 0 \quad (6)$$

where ε stands for the exogenous component in the target real wage and ϕ is the elasticity of the target real wage with respect to the ratio of actual output, Y , to potential output, Y_f . The target real wage is then a positive function of real output. The rationale is that a lower level of output diminishes workers' expectations because of "reserve army" effects.

Substituting (6) into equation (5) we have

$$q^r = \left[\frac{1}{b\varepsilon \left(\frac{Y}{Y_f} \right)^\phi (1+\tau)} \right]^{\frac{1}{(1-\alpha)}} \quad \text{or} \quad q^r = \left[b\varepsilon(1+\tau) \left(\frac{Y}{Y_f} \right)^\phi \right]^{\frac{-1}{(1-\alpha)}} \quad (7)$$

and differentiating with respect to output yields

$$\frac{dq^r}{dY} \Big|_{\pi=0} = -\frac{1}{(1-\alpha)} b(1+\tau) \left(\frac{Y}{Y_f} \right)^{\frac{-2+\alpha}{(1-\alpha)}} \phi \left(\frac{Y}{Y_f} \right)^{\phi-1} \frac{1}{Y_f} < 0$$

An increase in output pushes up money wages, but given a constant mark-up the domestic price level rises relative to w . Workers can be compensated, however, by a fall in import prices promoted by an exchange rate appreciation (a fall in e relative to p and p^*). Therefore, the real exchange rate adjustment avoids that the rival claims on income—those negotiated by workers in the wage bargain and those pursued by capitalist in their pricing policy—may exceed what is available.

Diagrammatically the relationship in (7) can be depicted as a convex and downward sloping curve in the Y and q space (see Figure 1). All points along the *CCE* depict an

aspiration equilibrium (or zero conflict inflation).⁴ Above the *CCE* schedule the actual real wage is less than the desired; hence w rises, p rises and consequently q falls. Exactly the opposite reasoning holds below the *CCE* curve. An upward shift in the schedule will occur if labor productivity improves (b falls), the target mark-up of firms falls, or if workers lower their target real wage.

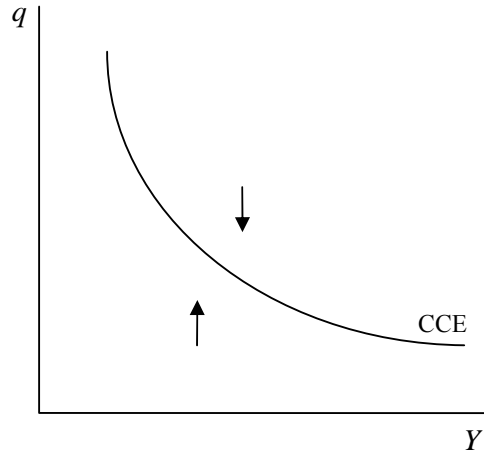


Figure 1. *The competing-claims equilibrium locus*

After having identified the price and wage-setting behavior of the economy we can proceed to define the external and internal balances. Without loss of generality, the model assumes that, the change in the real stock of international reserves in the economy (in domestic currency) equals the sum of the trade account and net financial transfers.

$$\Delta R = T + F \quad (8)$$

The trade balance consists of real export minus real imports where export and import demands are given by the standard specifications

$$T = T(q, Y, Y^*), \quad \frac{\partial T}{\partial q} = n > 0, \quad \frac{\partial T}{\partial Y} = -m < 0, \quad \frac{\partial T}{\partial Y^*} > 0, \quad (9)$$

In other words, the trade balance (T) depends upon the level of domestic output, Y , world income, Y^* , and the real exchange rate, q . Since the law of one price will not hold in the model, price competitiveness can vary. Very well known conditions spell out the

⁴ This is equivalent to what Carlin and Soskice (1990, p. 259) call in the context of a small open economy 'the competing claims equilibrium locus'.

circumstances under which increased competitiveness improves the balance of trade.⁵ We will not be agnostic, at this stage, about the sign of $\partial T/\partial q$. In general, a higher real exchange rate will result in an improvement in the balance of trade as long as the increase in net exports outweighs the effect of the increased real cost of imports. The trade balance also improves with higher world income but deteriorates with higher domestic output.

Net financial transfers are roughly the difference between net capital inflows, CF , and net interest payments, i^*D . The country is assumed to be a net debtor, therefore, we have added interest payments to net capital inflows to reflect the adverse shocks on the balance of payments that comes from war reparation payments (as in the early 1920s), foreign debt services and sudden stops of capital (as in the early and mid 1980s). Then we have

$$F = CF + i^*D \quad (10)$$

All components of expression (10) are governed by world economy sentiments. Full external balance implies that the level of foreign reserves does not change ($\Delta R = 0$).⁶ If we take the external balance condition and substitute (9) and (10) in (8) we get

$$T(q, Y, Y^*) = CF + i^*D \quad (11)$$

Given Y and Y^* , it may happen, within the framework of a small open economy, that monetary authorities decide to establish a real exchange rate target in order to guarantee that the real exchange rate is such that an export surplus (to pay for debt interest payments and negative capital inflows) will always exist. Whatever that target is, we may denote it q^s . Assuming further that $dY^* = 0$ we fully differentiate (11) and get

$$\frac{\partial T}{\partial q} dq + \frac{\partial T}{\partial Y} dY = 0$$

or

⁵ This is the well known Marshall-Lerner condition which says that devaluation will improve the trade balance if the sum of the price elasticities of import and export demands exceeds unity. It needs to be emphasized that the condition assumes highly competitive goods, infinite supply elasticities as well as initial trade balance equilibrium.

⁶ Of course, in the short and medium run, there can be departures from $\Delta R = 0$; so that the country may gain or lose reserves but that will only happen in a fixed exchange rate system.

$$\frac{dq}{dY}|_{\Delta R=0} = \frac{m}{n} > 0 \quad (12)$$

A locus in the q - Y space may show the combinations of output and competitiveness at which $\Delta R = 0$.

Turning now to the goods market equilibrium relationship for the home economy:

$$Y = E(Y) + \bar{G} + T(q, Y, Y^*), \quad \frac{dE}{dY} = c; \quad 0 \leq c \leq 1 \quad (13)$$

where E stands for total induced domestic expenditure and \bar{G} represents the sum of expenditure by the government sector which is assumed to be exogenous. In a keynesian manner the limited size of the market for the home country accounts for actual real output being lower than the potential output. That is, $Y < Y_f$

It is not difficult to see in (13) that an increase in Y for a given q leads to an increase in imports relative to exports causing the balance of trade to deteriorate. This means, under flexible exchange rates, that the real exchange rate has to depreciate. Again there is a unique locus, YY , showing the combinations of Y and q for which output is equal to aggregate demand and it is upward-sloping.

If we fully differentiate (13) we get

$$dY = \frac{dE}{dY} dY + \frac{\partial T}{\partial q} dq + \frac{\partial T}{\partial Y} dY$$

or

$$\frac{dq}{dY}|_{YY} = \frac{1-c+m}{n} > 0 \quad (14)$$

Figure 2 introduces now the BP and YY locus. The YY locus slopes upward since an increase in domestic output requires a higher real exchange rate (and the boost to net exports) to restore goods market equilibrium. The BP locus is upward-sloping since at a higher level of output (and imports) the real exchange rate must be higher to keep the external balance. To the right of the BP locus, there is a balance of payments deficit,

and to the left, a surplus. The BP locus will be shifted by any change in world demand (and exports), net capital inflows or net interest payments. Simple inspection of (12) and (14) shows that the BP curve will be flatter than the YY curve. This is the conventional stability requirement of the Meade-Salter-Swan diagram.

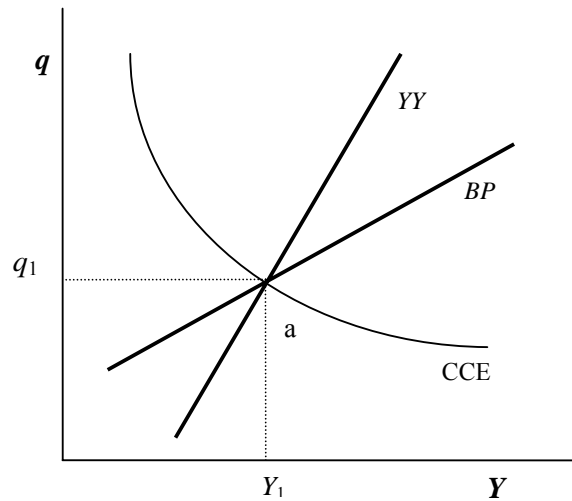


Figure 2. *General equilibrium position*

As we may note from Figure 2, it is not difficult to conceive just one point (a) at which there is simultaneously external balance, internal balance and consistency of claims on income. But we should point out that there is no reason for the YY and BP schedules to intersect at point “a”. Barring the coincidental case in which the three schedules meet at a point, in general it is not possible for domestic and external market to clear and for the aspirations of different classes to be satisfied. To see more interesting and realistic cases attention is then turned to the implications of an exogenous external shock.

Let us assume the economy is hit by adverse balance of payments shocks like war or debt reparations, a reversal of foreign financing flows (a sudden stop of external capital) or a higher foreign interest rate (that translates into higher foreign interest payments). Indeed, the European hyperinflations of the nineteen twenties, the high inflation episodes in Latin America and other developing countries during the since the late 1970s, and some significant jumps in inflation in Eastern Europe from 1989/1990 until 1992 were strongly associated with a heavy burden on the balance of payments. As shown in Figure 3, such an external shock will make F more negative and will move the BP locus upward and to the left and a new potential equilibrium appears at “b”. We may

assume that in the short-run the goods market equilibrium is always achieved and that the end of any adjustment is marked by the attainment of the short-run equilibrium on the YY schedule. Figure 3 also summarizes the dilemma that this economy has to face now. The intersection of YY and CCE shows that at the required real exchange rate q^r associated with point “a”, the economy simultaneously achieves internal balance and a conflicting-claims equilibrium. However, at “a” the economy is facing an external imbalance (a deficit in the balance of payments). An economy prone to a balance of payments deficit may be forced to move to point “b”. At point “b”, higher price competitiveness (q^s) is required in order to have a higher output consistent with the external balance, and since higher competitiveness means more expensive imports, a real wage cut is necessary. Therefore, at point “b” the economy simultaneously achieves internal and external balances but workers and later capitalists may be unwilling to accept the burden of higher import costs and may use their market power to resist this burden.

Thus, the scarcity of foreign exchange sooner or later requires a solution for the balance of payments deficits. Indeed, even in the context of a fixed exchange rate system an external deficit cannot be sustained indefinitely.⁷ But to use devaluation to raise competitiveness from q^r to q^s and restore the external balance may be useless. The endogenous wage and price-setting behavior at “b” operates to counteract the effect on competitiveness of the devaluation. Higher price for imports reduce the effective real wage. This occurs directly through consumers having to pay increased prices for their imported consumer goods. As a consequence, prices rise relative to world prices and competitiveness begins to fall. The disequilibrium in terms of competing claims at “b” is resolved through domestic wages and prices rising relative to world prices until q has returned to q^r (at point “a”) where the economy is once again confronted with an external imbalance.

⁷ At some point, foreign currency holders are likely to get nervous about whether the exchange rate will be maintained. If large-scale selling of the domestic currency then starts, the government may be unable to maintain the currency’s value except by offering exceptionally high interest rates. Eventually, a devaluation of domestic currency is unavoidable.

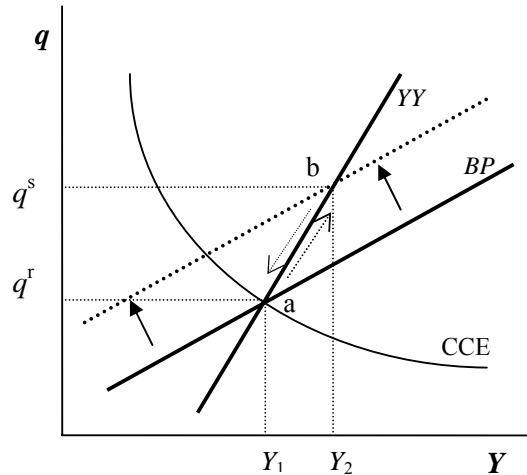


Figure 3. *A reversal of foreign financing flows*

Of course, the behavior of this economy depends crucially on our assumptions about the responses of the variables and interest groups to disequilibrium. In particular, we have assumed that both workers and firms react instantaneously to changes in relative prices. In reality, the improvement in competitiveness brought about by devaluation may be gradually eroded. Similarly, government authorities, who set the nominal exchange rate, may exhibit rapid or slow reactions to pressures on the external accounts depending on the exchange regime in place. Without further policy actions it seems reasonable to estimate that that this economy will settle somewhere on the segment a-b with chronic inflation.

3. A Different Trade Structure

In the previous section we represented the external sector in a very conventional manner. The trade balance expression implicitly assumes that the demand functions for real exports and for real imports are very sensitive to relative price variations. We now focus on a slightly different or alternative specification for imports demands and undertake an analysis of the effects of the equilibrium configurations, the policy dilemmas and how adjustment occurs. The economy in question exports and imports a competitive good, but now domestic production requires, in addition, internationally produced importable intermediates. Relative prices or the real exchange rate does not play any important role in the volume of intermediate imports. The volume of

intermediate inputs depends upon the domestic level of output.⁸ The purpose of this drastic simplification is to set out the major macro adjustment mechanism in simplest form.

Now the trade balance can be divided between competitive net exports NX and non-competitive intermediate imports M . Competitive net exports depend on the real exchange rate, q , such that

$$NX = NX(q) \quad (15)$$

The demand for intermediate imports can be expressed as

$$M = \frac{ep_m^* aY}{p} \quad (16)$$

where $ep_m^* a$ is the domestic value added of the imported intermediate input and a is the intermediate input-output coefficient. Assuming for simplicity that $p_m^* = p^*$, expression (16) may be written as

$$M = qaY \quad (17)$$

The trade balance and its sensitivity to variations in the real exchange rate would be

$$T = NX(q) - qaY, \quad \frac{dNX}{dq} = n > 0 \quad (18)$$

$$\frac{dT}{dq} = n - a \frac{dY}{dq} \quad (19)$$

It is easily seen from the expression above that the Marshall-Lerner condition is not sufficient for an improvement in the trade balance. Note that as q increases, the total cost of imports in terms of the amount of domestic goods that have to be paid for them ($ep^* a/p$) increases. Moreover, if devaluation leads to an economic expansion, then the volume of intermediate imports increases as well. In general, these specifications for the imports and exports functions may reverse the impact on the trade balance of a change in competitiveness.⁹

⁸ The role of price competitiveness depends on the type of good and in particular on how prices are set in the markets in which it is sold. There is no general rule which applies to all commodities and all markets.

⁹ We should recall that the issue of the impact of exchange rate changes on the trade balance and the level of output has been a controversial one.

Assuming that $a(dY/dq) > n$, then the effect of devaluation on the trade balance appears to be negative. In essence the external and internal balance functions will depend upon the same arguments as before, but since $dT/dq < 0$, the slope of the BP function will be negative in (q, Y) space. The slope of the YY locus is given by

$$dY = c dY + \left(n - a \frac{dY}{dq} \right) dq - m dY$$

$$\frac{dq}{dY}|_{YY} = \frac{1 - c + a + m}{n} > 0 \quad (20)$$

and the slope of the BP locus would be

$$\left(n - a \frac{dY}{dq} \right) dq - m dY = 0$$

$$\frac{dq}{dY}|_{\Delta R=0} = \frac{m}{\left(n - a \frac{dY}{dq} \right)} < 0 \quad (21)$$

These outcomes suggest that though the YY schedule is still upward sloping, the BP is downward sloping meaning that an increase in domestic output requires a lower exchange rate to restore the external balance. The system of equations (20) and (21) give rise to the configurations shown in Figure 4. As indicated by the spiral path sketched, cyclical convergence toward the equilibrium could be expected. Full equilibrium at point “a” is stable.

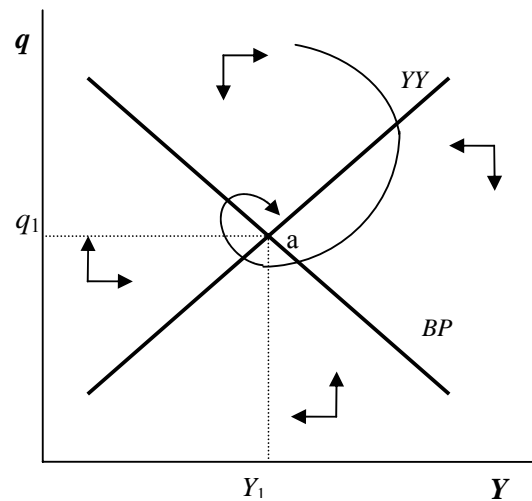


Figure 4. *Spiral path when devaluation deteriorates the balance of payments*

Regarding price and wage-setting behavior, we have to modify the price equation (1) and consider that the mark-up is defined now over unit cost of labor wb and imported intermediates ep_m^*a . However, the real wage resistance behavior remains intact. The price equation is then

$$p = (1 + \tau)(wb + ep_m^*a) \quad (22)$$

We now may combine (2), (3), (4) and (6) with the new price equation (22) and get the expression for competing claims equilibrium

$$\left[\frac{b\varepsilon(Y/Y^*)^\phi}{(q^r)^\alpha} + a \right] q^r = \frac{1}{1 + \tau} \quad (23)$$

Equation (23) defines combinations of q^r and Y that keeps the aspirational or competing claims equilibrium (both workers and firms achieve their target income shares). The two are negative related. Notice that the diagrammatic representation of the competing claims equilibrium in Figure 5 again portrays two asymptotes in the space q - Y . The locus is relative flat at high levels of Y and steeper at low levels. Representation of the YY and BP schedules are as before and we assume, once again, that the economy is initially at point “a”(at which there is simultaneously external balance, internal balance and consistency of income claims on output). But we should remark that to the right of point “a” the slope of the BP schedule is higher than the slope of the competing claims equilibrium locus. Obviously, depending on the position of the schedules, other possibilities may exist.

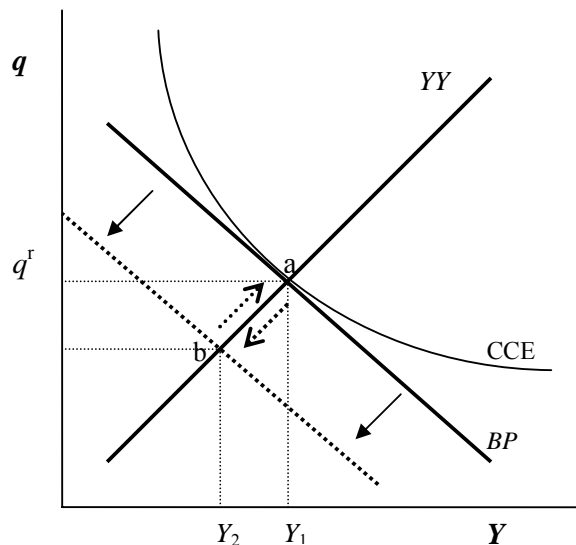


Figure 5. A reversal of foreign financing flows when devaluation deteriorates the balance of payments

Now in the event of a change in international financial conditions that threatens the external balance the *BP* curve shifts to the left. Of course, the short-run impact of the adverse financial shock depends on the exchange rate regime. In the case of a fixed exchange rate system, it may be possible for the economy in such a situation to remain at point “a” away from the new external balance schedule, but concerns about the sustainability of the balance of payments deficit may induce an exchange rate adjustment sooner or later. The diagram shows how the real exchange rate and the level of output have to adjust to re-establish a disturbed equilibrium. The new balance of payments equilibrium locus passes through point “b” and requires a fall in output and lower real exchange rate. In a floating rate system an appreciation will occur in the short run and the economy will move rapidly to point “b”. The possibility of changing the exchange rate increases the output cost of the adjustment to point “b” but with the consequence that there is a bout of falling wages and prices in the home economy relative to the rest of the world.¹⁰ As domestic prices go down the real exchange rate appreciation brought about by revaluation may be gradually eroded and the economy returns to point “a” where the balance of payments deficit will reappear.

In terms of the assessment of the initial output adjustment, an adverse external shock that makes *F* (net financial transfers) more negative may be associated with either

¹⁰ This means that at “b” the actual or effective real wage is above the target real wage.

worsened or improved output, depending on whether a higher level of competitiveness improves the trade balance or not. Similarly, in terms of the assessment of the wage and price adjustment paths both inflation and deflation may be expected depending on the sign of the impact that the real exchange rate may have on the trade accounts.

4. International Competition and Flexible Mark-ups

The canonical model not only assumes that an improvements in price competitiveness (a rise in q) will improve the trade balance (and vice-versa) but also that firms pass on 100% of any increase in unit labor costs in form of higher prices regardless of how uncompetitive domestic products becomes and how much their market share falls. Indeed the prominent view in open economy models with imperfect competition is that the price that domestic producers set mainly depends on domestic variables, with international factors having only a limited impact. However, as Blecker (1989) has remarked the assumption of a fixed mark-up in an open economy model may be implausible because it rules out *a priori* the possibility that intensified international competition could account for a squeeze on corporate profits. If competitiveness is reduced, domestic firms can be forced to cut mark-ups in an effort to limit the loss of market share. Recent work in international macroeconomics suggests that this may be the case. Accordingly, the intensifying trend of global economic integration has changed the behavior of domestic pricing rules so that variations in the desired markups of domestic firms could arise in response to changes in competitive pressures from abroad. Moreover, several applied studies have found that markups are negatively related to openness (see Feinberg and Shannon, 1994; Katics and Peterson, 1994; Lopez and Lopez, 1996; Ghosal, 2000 and Olivie, 2002). This is interpreted as evidence indicating that trade increasing competition reduces domestic market power.

It turns out that the potential feasibility of a strategy of flexible mark-ups increases in the context of a country that instead of an external financial shock suffers an adverse or negative terms of trade shock. The reason is straightforward. A reduction in the prices of foreign competitors directly affects the external competitiveness of domestic firms and induces a fall in net exports. This burden is not directly imposed in the event of an increase in debt servicing or a capital reversal. Thus, a reduction in the prices of foreign competitors, for instance, can induce domestic firms to revise and lower their desired

markups. Formally, Blecker (1989) considers convenient to represent the sensitivity of the mark-up to competitiveness by a constant elasticity function

$$\tau = \sigma \left(\frac{ep^*}{p} \right)^\theta, \quad 0 < \theta < 1 \quad (24)$$

$$\frac{d\tau}{dq} = \theta \sigma(q)^{\theta-1} > 0$$

where θ stands for the elasticity of the mark-up with respect to the relative price of imports and σ represents the exogenous component of the target mark-up.

With a flexible mark-up, as specified in equation (24), the aspirational equilibrium relationship given by expression (7) becomes

$$\frac{1}{\varepsilon(Y/Y_f)^\phi b} = [1 + \sigma(q)^\theta] q^{(1-\alpha)} \quad (25)$$

Under conditions of a flexible mark-up, constant elasticities of the mark-up and the target real wage, and given levels of labor productivity, this expression accounts once again for the combinations of output, Y , and competitiveness, q , at which the claims for real profits by firms are compatible with the claims for real wages by workers. For a constant (or zero) inflation equilibrium, a high level of output on the LHS of expression (25) requires a lower level of competitiveness. Expression (25) also embodies a framework in which economic activity (or unemployment) acts as a regulator of worker's aspirations and the real exchange rate acts as a regulator of the desired mark-up.

Having set out both the conditions under which a strategy of flexible mark-ups applies as well as the respective competing claims equilibrium relationship, it is appropriate to look at how the small open economy adjusts when it is shocked by the deterioration in the terms of trade. An example may be a fall in the world price of competitive imports, p^* (which generates a fall in q). The analysis is straightforward. Assuming, that both the YY locus and the BP schedule have positive slopes, the fall in the price of competitive imports will enable the economy to move from "a" to "b" (as shown in Figure 6). As is clear from Figure 6, a possible new equilibrium is at point "b" with a lower level of

output (higher unemployment) and lower competitiveness. The trade shock implies a lower real cost of imports (ep^*/p) but also depresses activity through the usual goods market equilibrium channel and this in turn reduces the target real wage. Therefore when the economy moves to point “b”, an incipient process of deflation appears. However, the fundamental problem associated for example with point “b” in the figure is that there is a balance of payments deficit. Under the strategy of a fixed mark-up, the possibility of changing the exchange rate can reduce the output cost of the adjustment to point “b” but if the exchange rate is fixed, the adjustment may be neglected in the short-run.

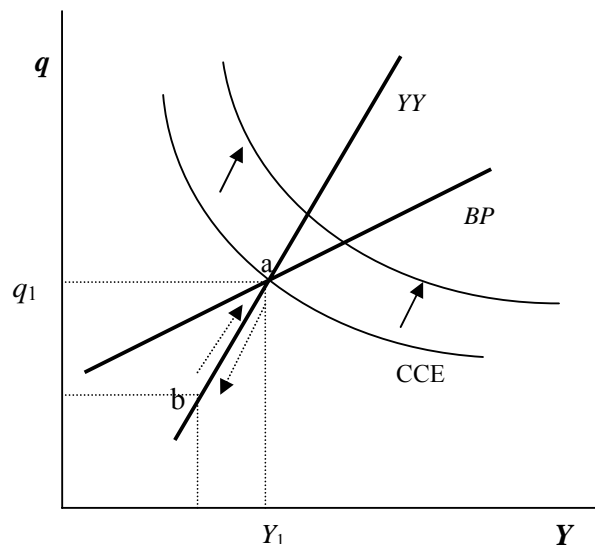


Figure 6. A fall in the world price of competitive imports

In contrast, in the case in which firms use a strategy of a flexible mark-up, the exchange rate adjustment is avoided and the impact of the fall in the world price of competitive imports will be absorbed by a fall in the target mark-up. The fall in the mark-up induces in turn a fall in the domestic price level so that the real exchange rate is adjusted to make net exports sufficiently competitive to balance the external sector. As shown in Figure 6, the economy moves back to point “a” but also the CCE curve shifts upward. Hence, the economy persists in a process of chronic deflationary spiral.

5. How to Explain Global Disinflation?

Recent years have witnessed a dramatic decline in inflation both in industrialized and in developing countries. IMF (2006) figures, for instance, show that inflation has

generally declined around the globe in the last fifteen years, and although inflationary pressures are rising now to levels not seen for as long as two decades (in part due to a significant rise in commodity prices), inflation itself is still relatively tame.¹¹

It's long been an article of faith among mainstream economists that the increasing independence of central banks contributed heavily to this global decline in inflation. From this perspective the increasing independence of central banks around the world has increased credibility and helped to address the time or dynamic inconsistency problem. Moreover, substantial progress made over the past years in the theory and practice of monetary policy along with the ongoing institutional changes in which many countries have preferred a monetary policy framework of inflation targeting might have enhanced a mandate to achieve price stability. These explanations not only seem to be based on dubious monetarist grounds, but also it would appear that the default framework for thinking about a global phenomenon continues to be the closed-economy framework.

Former Chief Economist and Director of Research at the IMF, Kenneth Rogoff (2003), has gone a step further and recognizes that the increased level of competition -in both product and labor markets- that has resulted from the interplay of increased globalization, deregulation and a decreased role for governments in many economies may explain the process of global disinflation. However, he argues that the major influence of this increased world competition on prices has been working through the political economy process that governs central bank behavior. Accordingly, the real effects of unanticipated monetary policy have become smaller and more transitory and hence, there is less cause for central banks to inflate, and less incentive for politicians to pressure them to do so.

Other alternative explanations for the recent disinflation performance —while not directly captured in the mainstream view described earlier— may contribute to the

¹¹ According to the IMF (2006), average inflation in industrial countries has been low since the early 1990s, reflecting success in stabilizing inflation after the 1970s and early 1980s. Specifically, inflation rates have fluctuated around an average of 2–3 percent, with very little dispersion across countries. The declines in inflation and inflation volatility in the major developing economies have lagged the declines in industrial countries. High inflation remained a problem, for instance, in Latin America, until the early 1990s. Since then, however, progress in stabilizing inflation at single-digit levels has been remarkable. In the so-called emerging market economies of Asia, inflation typically was close to levels observed in the industrial countries.

debate. External developments during the last two decades may be of paramount importance. These external developments have decisively influenced the antagonistic forces or rival claims over the distribution of income and the intensity of distributional conflict. Looking across the different regions and experiences a variety of factors can be identified. First, as discussed by some mainstream literature, increased competition, and lowered “quasi-rents” to monopolistic firms may have account for some of decline in global inflation. Globalization and the associated rise in trade integration have reduced the barriers to market access by foreign producers. This tends to bolster world price competition. As a result, the prices of traded goods or services typically decline. In addition to such direct effects, increased competition may also have indirect effects by moderating domestic producer prices, input prices, and markups in some industries more generally, given the availability of close substitutes produced abroad. Second, as seen from the specification for exports, higher global growth fuels exports and, *ceteris paribus*, relaxes the foreign exchange constraint. This in turn, contributes to alleviate pressures on the exchange rate market and to avoid inflationary exchange rate adjustments. The growth of China, India and other emerging Asian countries stand out as a very illustrative case. These economies have fuelled demand for products and services of other countries, specifically developing countries. This has produced a dramatic hoarding of international reserves in developing countries. Indeed, as remarked by Aizenman (2007) econometric evaluations suggest several structural changes in the patterns of reserves hoarded by developing countries with a notable change occurred in the 1990s, a decade when the international reserves/GDP ratios shifted upwards; a trend that intensified shortly after the East Asian crisis of 1997-8, but subsided by 2000. Thus, though developed countries would continue to remain important drivers of global growth, Asia, in many ways, has become an engine of growth for the world economy in recent years. Finally, the increasing access to global capital markets should in principle be beneficial for disinflation. The sustained return of capital flows and positive resource transfers to developing countries have amply shown that the availability of adequate foreign financing has been an important component of different stabilization processes (Solimano 1989).

We illustrate the thrust of the previous argumentation by looking at the canonical model, couching it in terms of some the adjustment mechanisms that we have highlighted. Suppose, the small open economy is initially on the *YY* locus at the

intersection of the YY locus and the BP schedule at a position such as “a” in Figure 7. It is clear that at point “a” there is no reconciliation of the competing claims for output and conflict inflation is endemic (since the CCE schedule is below point “a”). Suppose now an external event, for instance, a fall in world prices as a consequence of increasing competition in international markets. In principle, this produces a decrease in competitiveness (the real exchange rate) and the economy moves to point “b” where there is a balance of payments deficit. However, if the mark-up is flexible, firms may adjust profits and domestic prices to keep the level of competitiveness. Now from the perspective of workers the overall price index of the economy Q is falling since both p^* and p have decreased, so they may achieve their target in equation (2) with a lower nominal wage, w . Hence the domestic price level can fall even further. Under these circumstances, it is clear that, the required or unique real exchange rate consistent with the objectives of both firms and workers could be higher (at any given level of output). Then the CCE curve shift to the right and the economy can return to point “a” but this time the economy is in competing claims equilibrium.¹²

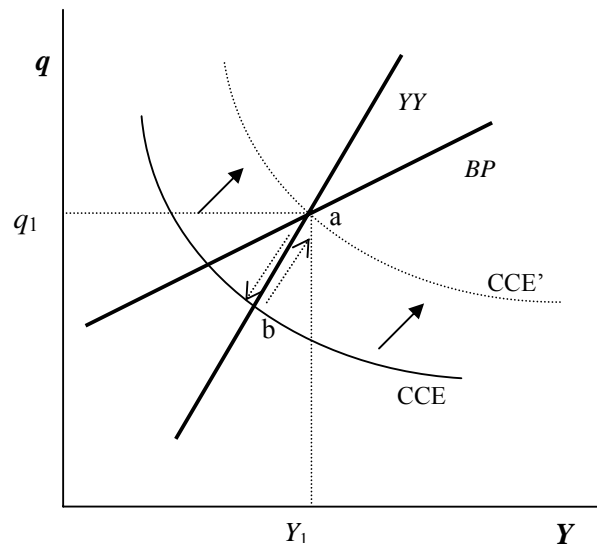


Figure 7. *The adjustment to increasing competition in international markets.*

The phenomenon of disinflation returns to characterize the situation in which the world economy experiences higher growth. Consider again a point such as “a” in Figure 8. Here, the economy does not achieve competing claims equilibrium. Now higher global

¹² The contrast with the case of a fixed mark-up is striking: there competing claims equilibrium is achieved at point “b” but with a lower equilibrium level of output.

growth and world demand will trigger the demand for exports and relax the foreign exchange constraint. The BP locus shifts to the right and the equilibrium rate of inflation will fall automatically. An exactly parallel argument in the same direction can be made for an increase in foreign capital flows or lower foreign interest payments.

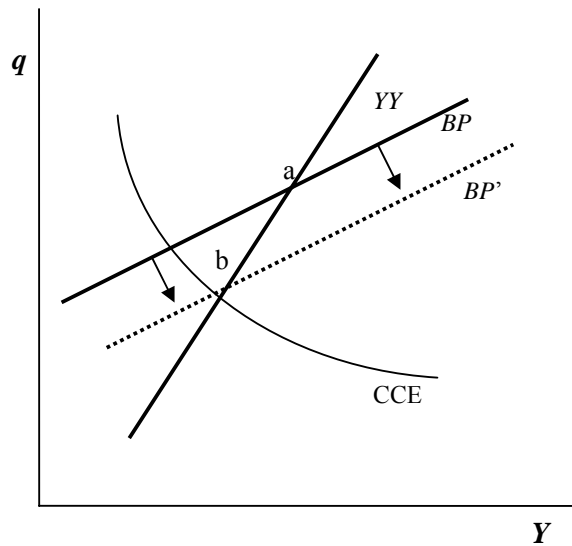


Figure 8. *The adjustment to higher world demand or a positive net resource transfer*

6. Conclusions

Using a simple model of a small open economy that produces one good, we have highlighted the importance of external factors in explaining conflict inflation. Specifically, we disentangle the adjustment mechanism that explains how an adverse balance of payments shock, like war (or debt) reparations, a sudden stop of external capital or higher foreign interest payments, may lead eventually to the breakdown of the conflicting claims equilibrium. Depending on the exchange rate regime, initially and just after the shock the economy might absorb the deterioration in the balance of payments; however, there will be a limit to the length of time for which the economy can sustain an external imbalance. We extended the conflict inflation model in two ways: first, by considering the case in which an increase in the real exchange rate deteriorates the external balance, and second by introducing a flexible mark-up. In the first case, the previous results do not hold. Hence, the trade off between the external balance and the competing-claims equilibrium disappears and a financial external shock does not necessarily lead to higher output and higher inflation. In second case, we have

evaluated the impact of a fall in the price of foreign competitive goods and found that downward price adjustments can be successful in sustaining the external balance.

Finally, our analysis points out that the happy coincidence of strong growth with low inflation that small open economies of the world have enjoyed until now is not necessarily the result of a move towards inflation targeting and the associated greater central bank independence and credibility across countries. In view of the model sketched, the forces of globalization, sustained and higher world demand and strong global competitiveness, have been helping central banks in their efforts to keep inflation low and stable.

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