

1 Introduction

1.1 Motivation and methodology

The importance of exchange rate alignments for short-term stabilization has been stressed in post-war economic literature, especially for countries with high incidence of asymmetric (nation-specific) shocks (Mundell 1961), and is often regarded as self-evident in current textbooks and seminar papers. However, even without the interference of currency market disturbances and credibility problems, economic stabilization through realignment of the exchange rate is more involved than is often implied. Exchange rate re-alignments are by definition a source of sudden and, sometimes, sizable shifts in relative prices, which if anticipated create an incentive for substitution between tradables and non-tradables, as well as intertemporal substitution. This is especially the case for small, open and specialized economies for which prices of tradables are set in foreign markets and are faced with cyclical variations in the terms of trade due demand changes following business cycle movements in the larger economies. For countries in this category, a currency appreciation in the face of a positive export shock could thus be perceived as an omen of a future depreciation, creating an incentive for a consumption binge while the price of tradables is temporarily low.

This tendency for intertemporal substitution has been strongly indicated in natural experiments associated with trade liberalizations under imperfect credibility in less developed economies. Many LDCs have attempted to establish more outward-oriented trade regimes by reducing protection of the import competing sector, although such attempts have failed at least as often as they have succeeded (for further discussion see Michaely et al. 1991). Consequently, when lower tariffs are announced, the change is considered non-credible and temporary and is followed by a surge in consumer imports inconsistent with plausible values for price and income elasticities of demand, see, e.g., Calvo (1987) and Buñe (1995). The consequent reserve loss suffered by the central bank is often the main reason for the abandonment of the reforms, in which case failure can be considered self-fulfilling (Buñe 1999).

The same dynamics apply to stabilization programs based on a pre-announced path for the nominal exchange rate in the face of high inflation, as have been frequent in the Southern-Cone countries of South-America. As a general rule, these programs were not fully credible at time of implementation and as inflation raged on, the real exchange rate appreciated and

people formed expectations about devaluation and abandonment of the exchange rate target. Consequently, consumption of imported tradables and non-tradables expanded very rapidly at the initial stages of such programs, although at later stages the boom was followed by a recession. Calvo and Vegh (1994) observe; "the business cycle associated with the exchange-rate based stabilization runs counter to conventional wisdom - according to which stabilization is expected to be accompanied by an immediate contraction - and has been a source of confusion and puzzlement for economic theorists and policy makers alike."

The main goal of this thesis is to seek answers as to whether short-term stabilization policy can have non-negligible side effects associated with consumption dislocation across time and commodity groups: Such factors may be able to explain the rather unfortunate experience many resource-based export economies within the OECD had with such policies supported with capital controls, especially in the 70's and 80's, the prime examples being, Australia, Iceland, Finland, New Zealand and Norway. In other words, the very same countries that due their asymmetric production structure ought to benefit the most from exchange rate alignments, according to conventional economic theory.

Although these countries faced substantial external disturbance, the impact of the shocks on aggregate demand, and on imported goods in particular, was both quicker and powerful than one would expect from the direct impact on national income. This led to inflationary pressures, consumption volatility and current account movements inversely related to terms of trade changes which is in contrast to classic economic theory of consumption smoothing as deficits were observed right in the wake of positive export price changes. This occurred in Australia from 1988-9, when the terms of trade improved by 22%, although at the same time the trade deficit reached a record high 6% of GDP in 1989. Similar things happened in Iceland 1986-88 and in New Zealand 1974-75.

In this thesis I will attempt to capture such dynamics in a simple perfect foresight model, describing a small open economy with a specialized export sector that has to cope with terms-of-trade shocks. The short-term stabilization policy will be characterized as a set of instrumental rules, related to performance in the export sector, which aim to insulate the domestic economy from external shocks. This is only a formal presentation of a classical stabilization policy revolving around terms-of-trade changes and corrections for excess domestic cost increases. However, rather than investigating the

policy performance in relation to a single shock in isolation, the time horizon is expanded to include a shock sequence which allows for a more realistic evaluation in countries that are subject to frequent shocks.

The main focus is on the main aggregate variables of macroeconomic importance with the aim of mapping behavioral relationships from micro-based theory. It is clear that inflation and unemployment are generally considered undesirable, although no attempt will be made to rank the solutions on the basis of social utility. Moreover, a real comparison will be provided for by picking Iceland out as a source of structural parameters for calibration and simulation. This is done, not only because of the comparative advantages of the author, but also because exchange rate targeting in Iceland was very explicit during 70's and 80's with the extreme success of keeping a stable low unemployment rate (below 2%) for two decades, (1970-1990) though at the cost of high inflation and volatility of private consumption. Furthermore, due to its small size and almost complete specialization, the economy has many of the stereotypical characteristics of the textbook small open economy. Thus, a set of simplifying assumptions can be credibly imposed on the model without losing reference to reality. Predictability and persistence of the shocks must be a key determinants for the transmission of monetary policy aimed at short-term stabilization.

1.2 Main results

The thesis is organized into three main parts, all describing a completely specialized small open economy. In ...rst chapter capital controls are in place and prices are perfectly flexible. In the second chapter, delayed labor market clearing is imposed on the same setup and different assumptions are made about the wage bargaining process. In the third and ...nal chapter, the capital controls are lifted and foreign bonds are available to domestic residents.

The general conclusion is that if the shocks are unanticipated and permanent, short-term stabilization works as predicted by conventional economic theory. The exchange rate policy is advantageous in terms of current account and price stability, even though domestic prices are perfectly flexible. Not only is the initial blow of the shock considerably softened, the overall nominal change in cash holdings and prices is smaller across steady states. The advantages for output stabilization also become very clear as soon as the nominal wage adjustment process is delayed. The monetary authorities are able to stabilize the labor market with exchange rate interventions, and

without too excessive inflationary consequences.

When the shocks become multiple and anticipated, (i.e. when they follow a cycle) the policy performance is altered. The policy experiment carried out in all three cases consists of an unanticipated transitory positive shock, followed by an expected transitory negative shock three years down the line. Given this sequence, there should be a strong tendency to save the early windfall in order to sustain consumption in the subsequent, more adverse period, as is the case if the exchange rate is fixed. Then, a significant trade surplus would be observed during the three first years, which is then followed by a deficit. However, the short-term stabilization policy, if expected, weighs counter to these savings incentives. The prospect of a large devaluation in the third year will encourage inter-temporal substitution and dissaving in the periods leading up to the adverse shock. Thus, a lower trade surplus is observed and possibly even a deficit if the degree of inter-temporal substitution is sufficiently high. The policy rule will promote a pro-cyclical bias in consumption and hence increases its volatility.

The inflationary consequences will depend on cross-price elasticity of demand for non-tradables. If the elasticity is low, an increased demand for imported goods will spill into the market for non-tradables, creating a general consumption boom in the three years leading up to the shock. The consequent real exchange rate appreciation will create a need for a relatively large correction through the exchange rate as soon as the terms-of-trade deteriorate. However, if the cross-price elasticity is relatively large, demand will shift from non-tradables to tradables prior to the negative terms-of-trade shocks and hence inflation is not very apparent at first. However, when the devaluation occurs consumption will shift back towards non-tradables afterwards and thus increasing the inflationary impact on domestic markets. In any event, the application of the exchange rate will contain an inflationary bias that was not observed when the shocks were permanent and unanticipated.

These dynamics of the current account and private consumption become more pronounced when delayed labor market clearing is introduced. If the labor unions demand instant nominal wage increases in response to anticipated exchange rate interventions, they can effectively prevent the real wage from falling. In that case, the labor market will clear slowly after a massive devaluation and a period of sustained inflation. An agreement with unions on a nominal wage freeze is the key to lowering the real wage and controlling inflation. However, the large but short-lived fall in the real wage will accel-

erate consumption in the preceding periods, since higher utility is gained by purchasing consumer goods prior to the shock rather than accumulating cash balances that will significantly decrease in value in subsequent period because of the sharp devaluation. As the result, savings incentives are reversed and significant current account deficits are likely to be observed in the wake of a positive export shock. Moreover, the application of this exchange rate policy combined with minimal nominal wage increases facilitates a drop in real wage that goes far below what is needed in order to clear the labor market and a considerable excess demand is observed. It is clear that the application of the exchange rate rule will prevent cyclical unemployment. Although it should be noted that due to the transitory nature of the shocks, they will not affect employment in a non-interventionist regime as if they were permanent.

When the capital account was closed and cash was the only financial asset available, saving as well as dissaving was discouraged since changes in money holdings incurred rising opportunity costs. Swift variations in the current account could occur, although an imbalance would never persist since the cost of holding either too much or too little cash, given the expenditure level, was too large. Therefore, when a negative income shock was expected, a trade surplus or deficit would emerge at a small scale and then rapidly built up to reach a peak just before the shock. When the private agent has the option of holding foreign bonds and the use of money as an asset becomes secondary to transaction services it provides. Money demand and expenditure will therefore tend to move in same direction since dissaving implies a higher expenditure and increasing numbers of transactions and vice versa. Thus, changes in asset holdings are quicker, less costly and a current account imbalance becomes much more persistent.

However, these implications of free capital transactions differ widely between the two regimes. In the non-interventionist regime, the consequence is a complete demand stability. In an interventionist regime, the increased likelihood and greater persistence of a trade deficit prior to a negative shock have the potential of actually increasing demand fluctuations. On the other hand, the counter-cyclical pull of policy interventions on the price level will be weakened because it is less costly to move consumption in time. Consumers will be more sensitive to anticipated price changes and the degree of inter-temporal elasticity becomes more relevant for their decisions. In fact, given a sufficiently high degree of inter-temporal substitution and low degree of cross substitution, an exchange rate appreciation in the wake of a transitory positive shock will actually lead to inflation in the price of non-tradable

goods. The final implication is that given a perfect capital mobility, exchange rate interventions run the risk of causing huge portfolio adjustments between domestic and foreign assets, with the corresponding out-or in-flow of foreign funds. These results are well in line with the "hot-money" problems which many countries have experienced after capital account liberalization. However, if the exchange rate is fixed, then capital account liberalization is undeniable beneficial as predicted by classical economic theory since economic agents are better able to smooth their consumption by adjusting their assets to meet temporary disturbances in income.