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# EXCHANGE RATE POLICIES, PATTERNS OF SPECIALIZATION AND ECONOMIC DEVELOPMENT: THEORY AND EVIDENCE IN DEVELOPING COUNTRIES<sup>1</sup>

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## Abstract

The objectives of this paper are twofold. First, it intends to provide theoretical elements to analyze the relation between real exchange rates and economic development. Our main hypothesis is very much in line with the Dutch disease literature, and states that competitive currencies contribute to the existence and maintenance of the manufacturing sector in the economy. This, in turn, brings about higher growth rates in the long run, given the existence of increasing returns in the industrial sector, and its importance in generating technological change and increasing productivity in the overall economy. The second objective of this paper is empirical. It intends to analyze examples of successful exchange rate policies, such as Chile and Indonesia in the eighties, as a benchmark for comparison with countries where currency overvaluation has taken place, such as Brazil. In the latter case, the local currency is being inflated by large capital inflows, due to high domestic interest rates and to a boom in demand and prices of commodities in the international markets. It will be argued that the industrial sector bears most of the burden when the currency appreciates, and that Brazil risks at de-industrialization if there are no changes in the exchange rate regime.

**Key words:** Exchange rate policy, patterns of specialization, economic development

**JEL Classification:** F3 (International finance); F4 (Macroeconomic aspects of international trade and finance); O2 (Development Planning and policy).

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## **Introduction**

There is now large empirical evidence and a relatively robust econometric literature on the relation between currency over(under)valuation and long term per capita growth rates. Competitive exchange rates have been associated with most East and Southeast Asian successful growth strategies in the last 30 years. Growth periods in Chile, Uganda and Mauritius in the 1980s and China in the 1990s are also related to undervalued currencies. While the empirical literature on this issue is relatively rich, theoretical analysis of channels through which real exchange rate levels could affect economic growth and development are very scarce, and mostly related to the so-called Dutch Disease.

The idea of a Dutch disease refers to problems observed in the Netherlands in the end of the sixties and beginning of the seventies when new gas reserves were found. The rapid increase of gas exports had severe consequences in the Dutch economy. The appreciation of the currency resulting from the new gas revenues caused severe problems to the manufacturing sector, increasing unemployment and reducing growth. The new gas reserves were, paradoxically, bad news for the Dutch economy. Several other cases of “resource curse” were analyzed in the literature. Australia in the 19<sup>th</sup> century and Spain in 17<sup>th</sup> century are good examples of manufacturing involution because of gold findings or flows. In general terms, the syndrome of a Dutch disease is related to the problems brought about by flows of income from natural resources such as gold, diamonds, oil and gas.

By making production and exports of manufactures to world markets profitable, a competitive exchange rate would stimulate economic development, avoiding the problems of the so-called Dutch Disease. Resource rich countries would have difficulties in building a non-traditional export sector because of recurrent appreciation cycles originating from commodities exports. By avoiding excessive appreciations, monetary authorities would contribute to the development of an advanced manufacturing industry which would provide positive externalities for the rest of the economy.

In our view, one of the main threats to development in resource rich countries today, such as Brazil and South Africa, is Dutch Disease. China, on the other hand, offers a very good example of development led by exports and manufacturing production for world markets. In Brazil, exchange rate appreciation is starting to dismantle the production of manufactures, threatening, thus, the recent boom in exports in the last 5 years. The recent Brazilian

appreciation is certainly related to the boom in metal prices, especially iron. According to the development approach to exchange rates, Brazil seems to be following a problematic path regarding exchange rate policy. China, on the other hand, is the perfect example of why a competitive and stable real exchange rate may promote growth.

The objectives of this paper are twofold. First, it intends to provide theoretical elements to analyze the relation between real exchange rates and economic development. Our main hypothesis is very much in line with the Dutch disease literature, and states that competitive currencies contribute to the existence and maintenance of the manufacturing sector in the economy. This, in turn, brings about higher growth rates in the long run, given the existence of increasing returns in the industrial sector, and its importance in generating technological change and increasing productivity in the overall economy. Alternatively, one can say that currency overvaluations may be one of the causes of de-industrialization, given the loss of competitiveness of domestic industries in the tradable sector.

More specifically, this paper will use a Keynesian-Kaldorian perspective to explore two main theoretical channels through which exchange rates may impact per capita growth rates. The first channel, based on Bhaduri and Marglin (1990), relates to the effects of the exchange rate on real wages and profit margins. By defining an aggregate investment function that depends on capacity utilization and on profit margins and a consumption function that depends on real wages, it is possible to set up a macro model where savings and investment levels are a function of real exchange rate levels. In this case, exchange rate policies may influence the pace of capital accumulation and, therefore, affect long-run growth.

The second theoretical channel relates to the Kaldorian idea that the industrial sector is the engine of growth. The existence of increasing returns to scale in the manufacturing industry is expressed by increases in productivity in response to increases in total output. The existence (and level) of increasing returns in the manufacturing industry, in conjunction with the ability to attain higher rates of export growth determine if a country can engage in a virtuous cycle of growth or if this same country will be locked in a path of low growth rates. In addition, we will also explore the connection of export competitiveness and growth, as discussed in models of cumulative causation (e.g. Dixon and Thirlwall, 1975).

The second objective of this paper is empirical. It intends to analyze examples of successful exchange rate policies, such as Chile and Indonesia in the eighties, as a benchmark for

comparison with countries where currency overvaluation has taken place, such as Brazil. In the latter case, the local currency is being inflated by large capital inflows, due to high domestic interest rates and to a boom in demand and prices of commodities in the international markets. It will be argued that the industrial sector bears most of the burden when the currency appreciates, and that Brazil risks at de-industrialization if there are no changes in the exchange rate regime.

Therefore, the main policy recommendation derived from this study is that developing countries may achieve higher per capita growth rates and find a stairway to economic development by expanding their industrial sector and avoiding de-industrialization, and that competitive currency policies may be an useful instrument towards that goal.

### **Keynesian effects**

One of the most important real effects of exchange rate levels in long term growth is on aggregate investment. Based on Bhaduri and Marglin (1990) we can show in formal terms how a competitive currency may increase investment, savings and thus stimulate capital accumulation. By defining an aggregate investment function that depends on capacity utilization and on profit margins and a consumption function that depends on real wages, it is possible to set up a macro model where savings and investment levels are a function of real wages and, thus, real exchange rate levels.

We start, following Bhaduri and Marglin (1990), with a savings function  $S$  that depends on a fixed share  $s$  of capitalists' profits. Workers don't save in so far as they consume all their income.

$$S = sR = s(R/Y)(Y/Y^*)Y^* \quad (1)$$

where  $R$  is the capitalists' income and  $Y^*$  potential output. By defining  $h = R/Y$  as the capitalists' share of total income,  $z = Y/Y^*$  as capacity utilization and normalizing potential output  $Y^* = 1$ , we have:

$$S = shz \quad (2)$$

$$1 > h > 0 \quad (2.1)$$

$$1 > z > 0 \quad (2.2)$$

By following a traditional mark-up pricing rule, we can define profit margins or mark-ups as follows:

$$m = (p/bw) - 1 \quad (3)$$

where  $p$  is the price level,  $w$  the nominal wage,  $1/b$  the productivity level and  $m$  a mark-up over labor costs. By defining  $W/Y$  as the labor share in income,  $N$  as the level of employed workers and  $b = N/Y$ , we have the labor share in income as a function of the mark-up level,

$$W/Y = wN/pY = bw/p = 1/1+m \quad (4)$$

and the capitalists' share in income  $h = R/Y$  will be,

$$h = R/Y = (pY - wN)/pY = 1 - W/Y = m/1+m \quad (5)$$

Equations (3), (4) and (5) give us the traditional distributive relations. For given productivity levels, there is an inverse relationship between mark-ups and real wages. The higher the mark ups, the lower the real wages and the higher the share of profits in income  $h$ .

It is important to introduce at this point a crucial, but fairly ignored, issue: the role of real exchange rate levels on the determination of real wages and profitability in the short run and, thus, in the distributive relations. As discussed in the previous section, the more overvalued the domestic currency is, the higher real wages will be in so far as the prices of tradable consumption goods, especially commodities, will decrease alongside with the appreciation. If we assume that workers receive a nominal wage  $w$  and consume tradable and non tradable goods, their cost of living will depend on the nominal exchange rate level and on the share of tradable goods in their consumption basket. According to this kind of reasoning, real wages and profits will, thus, depend on the level of the real exchange rate, besides the patterns of income distribution and productivity levels.

If we assume that the price level can be defined as an average of tradable  $pt$  and non tradable  $pnt$  prices,

$$p = \alpha pt + (1 - \alpha)pnt \quad (6)$$

and, further assuming that tradable prices in domestic terms are exogenously determined by the nominal exchange rate level  $e$  and international prices  $p^*$ ,

$$p_t = p^* e \quad (7)$$

we can see how profitability and the real wage will depend on the real exchange rate level (defined as the ratio of tradable to non tradable prices) using again the mark-up pricing rule (3),

$$m = \{ \{ (\alpha p^* e) + (1 - \alpha) p_{nt} \} / bw \} - 1 \quad (8)$$

A devaluation of the exchange rate, causing increases in tradable prices as compared to the nominal wage, means a reduction in real wages and an increase in profits as long as eventual increases in  $w$  due to the devaluation are lower than the increases in the nominal exchange rate, for given international price levels. This usually happens if nominal wages remain constant or move slower than prices of goods. We are, thus, assuming here the hypothesis of nominal wage rigidity and real wage flexibility as opposed to nominal flexibility and real rigidity.

By assuming that workers don't save, as Bhaduri and Marglin (1990) do, we can then conclude that higher real wages and appreciated currencies are associated with lower saving rates and higher consumption levels. As a consequence, aggregate demand can increase or decrease because of higher real wages, depending on the effects of lower profit margins on aggregate investment. If, following Bhaduri and Marglin (1990), we define an investment function that depends only on profit margins:

$$I = I(h) \quad (9)$$

$$\partial I / \partial h > 0 \quad (9.1)$$

Equilibrium in the goods market is achieved by the traditional savings = investment identity, in other terms an IS curve:

$$shz = I(h) \quad (10)$$

Capacity utilization levels will vary as a function of profit margins according to the following derivative:



$$\partial z / \partial h = (I_h - sz) / sh \quad (11)$$

$$I_h = \partial I / \partial h > 0 \quad (11.1)$$

As  $sh$  is always positive, capacity utilization will increase or decrease depending on  $(I_h - sz)$ . If investment is inelastic to changes in profit margins, real wage falls will be recessionary because decreases in consumption will not be compensated for increases in investment ( $I_h < sz$ ). This is the classical under-consumptionist thesis, where low real wages lead to low consumption and aggregate demand. On the other hand, real wage increases will be expansionary compensating for low investment levels. This kind of “consumption-led” growth, can, nevertheless, be problematic in the long run because of installed capacity constraints. If investment is elastic to profit margins, we have the opposite effect. Lower real wages will increase profit margins and investment, stimulating aggregate demand, capacity utilization and savings. Growth will then be “investment-led”.

Building up on this simple model, Bhaduri and Marglin (1990) introduce capacity utilization as a direct determinant of investment levels. Responses of aggregate investment depend now on capacity utilization  $z$  and on profit margins and profit shares in income  $h$ , which leads to a new goods market equilibrium:

$$I = I(h, z), I_h > 0, I_z > 0 \quad (12)$$

$$shz = I(h, z) \quad (13)$$

$$\partial z / \partial h = (I_h - sz) / (sh - I_z) \quad (14)$$

By imposing the Keynesian condition that equilibrium in goods market is achieved through changes in savings rather than investment  $(sh - I_z) > 0$ , they arrive at the same qualitative conclusions of the simple case where investment depends only on profit margins and profit shares in income  $h$ . In a final step Bhaduri and Marglin (1990) extend the model to the open economy case with real exports  $X_e$  and imports  $X_m$  that depend respectively on the real exchange rate  $\theta$  and on capacity utilization  $z$ , with the following elasticities:

$$(dX_e / d\theta)(\theta / X_e) = \eta_e \quad (15)$$

$$(dX_m / d\theta)(\theta / X_m) = -\eta_m \quad (16)$$

$$(\partial X_m / \partial z)(z / X_m) = u \quad (17)$$

In the new goods market equilibrium total savings plus imports in nominal terms  $M$  equals total investment plus exports in nominal terms  $E$

$$shz + M = I(h, z) + E \quad (18)$$

The partial derivative of capacity utilization  $z$  with respect to profit margins and profit share  $h$  is very similar to the closed economy case (11):

$$\partial z / \partial h = (I_h - sz)(gu + sh - I_z) \quad (19)$$

where  $g$  represents the initial share of imports and exports over GDP and  $u$  is the elasticity of imports with respect to capacity utilization. By assuming that  $(gu + sh - I_z) > 0$ , we arrive again at the same conclusions of the simple case.

In the open economy case, a real devaluation decreases the real wage and increases profit margins, for given productivity levels. Income, exports and investment will increase as long as those two macro functions are sufficiently elastic. In the case of exports and imports, the overall effect on external accounts will be positive if the Marshall-Lerner condition holds, an assumption used throughout the paper ( $\eta_e + \eta_m > 1$ ).

To sum up, this simple model presents possible responses of a system to exogenous variations in real wages and exchange rates from a broad Keynesian perspective. The real exchange rate plays an important role in the capital accumulation process by defining real wages and profits. The model applies mainly to the short run, when productivity is held constant. For given productivity levels, a competitive currency tends to stimulate investment and exports. When productivity increases in the long run, there is pressure for the real exchange rate to appreciate because wages and prices of non tradables go up. So if the strategy works, there is always the tendency of the exchange rate to appreciate as a consequence of increases in per capita income (Balassa-Samuelson effect). The next section discusses in greater detail the idea that productivity increases may be a consequence of successful exchange rate policies, with positive impacts on long-run growth rates.

## Kaldorian effects

The second channel describing the influence of exchange rate on growth comes from models of circular and cumulative causation in the Kaldorian tradition. The basic argument is that an initial growth in output induces productivity gains that allow for reduction of unit labor costs and, given a mark-up pricing rule, for fall in prices, increasing the competitiveness of a country or region. These gains, in turn, allow for further output expansion through increasing exports, which reinitiate the cycle. In conclusion, once a country or region acquires a growth advantage, it will tend to keep it through the process of increasing returns and consequent competitive gains that growth itself induces.

Kaldor (1970) developed the broad ideas and mechanisms behind the cumulative causation model in an intuitive and verbal way. A few years later, Dixon and Thirlwall (1975) provided the first formalization of the standard cumulative causation model. The basic model is well-known, and can be summarized in equations (20) to (23) below. First, the rate of growth of output is a function of the growth of exports (autonomous component of demand):

$$y_t = \gamma \cdot x_t \quad (20)$$

where  $y_t$  refers to the rate of growth of output;  $x_t$  is the rate of growth of exports and  $\gamma$  is the elasticity of output growth with respect to export growth.

The growth rate of exports, in turn, can be expressed as:

$$x_t = \eta \cdot (pd_t - pf_t) + \varepsilon z_t \quad (21)$$

where  $pd_t$ ,  $pf_t$  are the growth rates of domestic and foreign prices, respectively;  $z_t$  is the growth rate of world income;  $\eta$  ( $< 0$ ) is the price elasticity of demand for exports and  $\varepsilon$  is the income elasticity of demand for exports.

The rate of growth of domestic prices is given by a mark-up pricing equation:

$$pd_t = w_t - r_t + \tau_t \quad (22)$$

where  $w_t$ ,  $r_t$  and  $\tau_t$  represent the rates of change of money wages, of the average product of labor and of the mark-up on unit labor costs, respectively.

Finally, “the linchpin of the system” (Dixon and Thirlwall, 1975, p. 205) is given by the Verdoorn equation, specified as:

$$r_t = r_a + \lambda \cdot y_t \quad (23)$$

where  $r_a$  is the rate of autonomous productivity growth and  $\lambda$  the Verdoorn coefficient. This equation provides the basic mechanism for cumulative causation in the model. The growth of output raises labor productivity, and promotes a reduction of domestic prices (equation 22), leading to higher export growth (equation 21) and further output growth (equation 20).

Combining equations (20), (21), (22) and (23), the expression of the equilibrium growth rate of output can be obtained:

$$y_t = \frac{\gamma \cdot [\eta(w_t - r_a + \tau_t - pf_t) + \varepsilon z_t]}{1 + \gamma \cdot \eta \cdot \lambda} \quad (24)$$

Equation (24) shows that output growth depends positively on the growth rates of productivity ( $r_a$ ), foreign prices ( $pf_t$ )<sup>4</sup>, and the world income ( $z_t$ ), and on the income elasticity for exports ( $\varepsilon$ ). Also, output growth is a negative function of the rates of growth of money wages and mark-ups.

Based on this model and subsequent developments in the literature, two arguments can be put forward relating exchange rate policies and growth. The first and more immediate one is that competitive real exchange rates may provide a “start up” shock on exports which may initiate a virtuous growth cycle along the lines described in the model. As Frenkel and Taylor (2006, p.5) put it: “If export demand and production of import substitutes are stimulated immediately or over time by a sustained weak RER, aggregate demand should rise and drive up economic activity and employment in the medium to long run.”

The second argument refers to the effects of exchange rate levels on the economy’s pattern of specialization, and the related Kaldorian statement that “manufacturing is the engine of growth” – also known as Kaldor’s First Growth Law (Kaldor, 1966). The starting point here is the recognition that actual experiences of long-run growth and development are associated with structural changes in the economy, generally leading to the decline of low-productivity

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<sup>4</sup> Since  $\eta < 0$ .

traditional sectors and the rise of high-productivity modern sectors. In particular, it is argued that the size and dynamism of the manufacturing sector represent a central element in successful development strategies. In other words, it implies that high growth rates are usually found in cases where the share of manufacturing industry in GDP is increasing.

The explanation for the correlation between the growth of manufacturing output and the overall performance of the economy is to be found on the impact of the former on the growth of productivity in the economy. There are two possible reasons for such effect. The first relates to the fact that the expansion of manufacturing output and employment leads to the transfer of labor from low productivity sectors (or disguised unemployment) to industrial activities (that present higher productivity levels). The outcome is an increasing overall productivity in the economy and little or no negative impact on the output of the traditional sectors, given the existence of surplus labor. According to Kaldor, this process is characteristic of the transition from “immaturity” to “maturity”, where an “immature” economy is defined as one in which there is a large amount of labor available in low productivity sectors that can be transferred to industry.

The second reason for the relation between manufacturing growth and productivity relates to the existence of static and dynamic increasing returns in the industrial sector. Static returns relate mainly to economies of scale internal to the firm, whereas dynamic returns refer to increasing productivity derived from learning by doing, ‘induced’ technological change, external economies in production, *et cetera*.

The role of exchange rate policies can be analyzed from this perspective. Excessively appreciated currencies affect mostly the profitability of investments in the manufacturing (tradable) sector where increasing returns are ubiquitous. By relocating resources to non-manufacturing sectors, especially non-tradable activities and commodity production, where decreasing returns rule, overvaluations affect negatively the overall productivity dynamics of the economy. Undervaluations, on the other hand, tend to boost profitability and investment in increasing returns sectors. With sufficiently elastic investment and export responses, the economy would get into an investment-led pattern of growth and structural change.

From a Kaldorian perspective, the real exchange rate level is, therefore, a key variable affecting development in an open economy environment. By defining the relative prices of tradables to non-tradables and, therefore, the level of profitability in most manufacturing

industries, the real exchange rate determines which sectors are viable or not. In a developing economy, intense overvaluations tend to shut down entire industries, blocking the channel of productivity increases in the overall economy through the relocation of abundant labor from low-earning and low-productivity jobs to high-earning and high-productivity jobs in manufacturing. In other words, overvaluations may prevent developing economies from reaching a “mature” state where surplus labor has been exhausted. Relative undervaluations may, on the other hand, contribute to productivity increases by integrating workers in increasing returns sectors, avoiding the problems raised by the Dutch disease literature.

There is an additional way of looking at the relation between pattern of specialization and growth, and the effects of exchange rate policies. A basic proposition from the well-known Balance-of-Payments constrained growth model developed by Thirlwall (1979) is that economic growth in the long run is bound by the country’s ability to keep its external balance<sup>5</sup>. Under restrictive assumptions, it is shown that an economy’s growth rate in the long run is given by the ratio between export growth ( $x$ ) and the income elasticity of imports ( $\pi$ ) – the so-called Thirlwall’s Law:

$$y_{BP} = \frac{x}{\pi} \quad (25)$$

In this case, it can be argued that the income elasticity of imports is not independent from the patterns of specialization of the economy, in the sense that different sectors show different responses in terms of imports when the economy is growing. This idea is put forward in a formal model by Araujo and Lima (2007). They develop a multi-sectoral model based on Pasinetti’s structural dynamics approach (Pasinetti, 1981, 1993) in which the aggregate income elasticities of imports and exports depend on the sectoral elasticities as well as on the share of each sector in the total of imports and exports. Taking this result along with Thirlwall’s Law, it is straightforward to conclude that the economy’s pattern of specialization affects its balance-of-payments constrained growth rates.

If we follow the view from classical development economists according to whom primary products show low income elasticities and manufactures present high income elasticities, it becomes clear that promoting a pattern of specialization based on manufacturing exports may

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<sup>5</sup> A detailed description of Thirlwall’s model and of the large literature on the topic is beyond the scope of this paper. See, in this respect, McCombie and Thirlwall (1994, 2004).

benefit growth, and that processes of de-industrialization may harm economic growth in the long run.

The implications in terms of exchange rate policies reinforce the arguments put forward in this paper. I.e., by stimulating non-traditional industries, a competitive exchange rate may be able to change the share of each sector in aggregate exports or imports, and therefore cause a decline in the overall income elasticity of demand for imports, with positive effects on long run growth. On the other hand, “a prolonged period of exchange-rate appreciation can be detrimental for growth in the long run, because it may induce a change in the structural determinants of the BoP constraint” (Barbosa-Filho, 2006, p.3)

An adequate exchange rate policy can, thus, help stimulate the non traditional tradable sector of developing economies, particularly the ones related to export manufactures. As Williamson (2003) argues in his “development approach” to exchange rates, a competitive currency would provide stimulus for the development of a non commodity dependent tradable sector, therefore avoiding Dutch disease problems and premature deindustrialization (Palma, 2003b). By stimulating the production of industrial manufactures to the world markets, a competitive exchange rate would help developing countries to climb up the technological ladder. Learning by doing and cumulative technological progress would depend heavily on the development of the manufacturing sector (Williamson, 2003; Palma, 2003b). The argument is especially relevant for resource-rich countries. Appreciated currency levels originating from high commodity exports would prevent the development of an industrial sector with its related economies of scale and technological spill-overs. In this sense, by avoiding overvaluations, exchange rate policy could work as an effective industrial policy tool.

To sum up, following all these approaches, competitive exchange rates would contribute to capital accumulation by stimulating investment. On technological grounds, it would encourage the development of the non traditional tradable sector, helping countries go through structural change and climb up the technological ladder. By increasing productivity, the development of a dynamic non traditional tradable sector could also increase real wages, counteracting the negative effects of a weak currency for workers.

In the next two sections, we describe the successful experiences of Indonesia and Chile in order to illustrate how competitive exchange rates may play a role in long-run growth and development.

## **The case of Indonesia**

In spite of large oil reserves, rubber and lumber, Indonesia was amongst the poorest and most populous nations of the world in the 1970s. Its real GDP per capita in that time was around US\$715 (at 1985 US dollars) and its population was 129 million. The technocrats that came to power with General Suharto after the 1967 coup launched a very successful economic plan within the following lines: stabilization, investments in agriculture, industry and infrastructure, trade and exports promotion, fiscal austerity and financial reform. The foreign exchange market was unified, the rupiah devalued and a fixed exchange rate regime adopted after 1971. In the beginning of the seventies some good results could already be seen: inflation came under 10% per year, agriculture and industry prospered and foreign reserves increased. Tax proceedings increased from 4% of GDP in 1965 to 10% in 1970.

In the mid 1970s, the fixed exchange rate regime – along with an increase in inflation caused by negative supply shocks and by increase in domestic demand – led to a significant appreciation of the real exchange rate. According to Gelb (1988, p. 207), the real exchange rate index moved from 100 in 1970-1972 to 133 in 1978. Government responded with tightening of fiscal and monetary policies. Also in 1978, the rupiah was devalued, from 415 to 625 per dollar. Many analysts<sup>6</sup> stress that the devaluation was not associated with balance of payments problems, since foreign resources kept flowing in the country due to oil exports. Gelb (1988) argues that the main goal of the authorities was to protect the (non-oil) tradable goods sectors, especially rubber, coffee and the incipient manufacturing industry. In addition, the increases in public revenues given by the raise in oil prices in 1973-4 were largely used in infrastructure expenditures in agriculture and manufacturing.

After the second oil shock, the reaction of the authorities was also very positive. The country was able to keep its fiscal balance and in some cases to obtain surpluses. In terms of balance of payments, Indonesia moved from a current account deficit of 1.6% of GDP (excluding mining activities) to a surplus of 2.3% of GDP in the late 1970s. The foreign reserves increased from US\$ 2.6 billion in 1978 to US\$ 5 billion in 1980, despite the high external debt the country had. Between 1978 and 1982, the real exchange rate was roughly stable (Gelb, 1988). After the decrease in oil prices in the early 1980s and the consequent deterioration of the current account results, the government promoted an additional devaluation of the rupiah – to 970 per dollar in 1983.

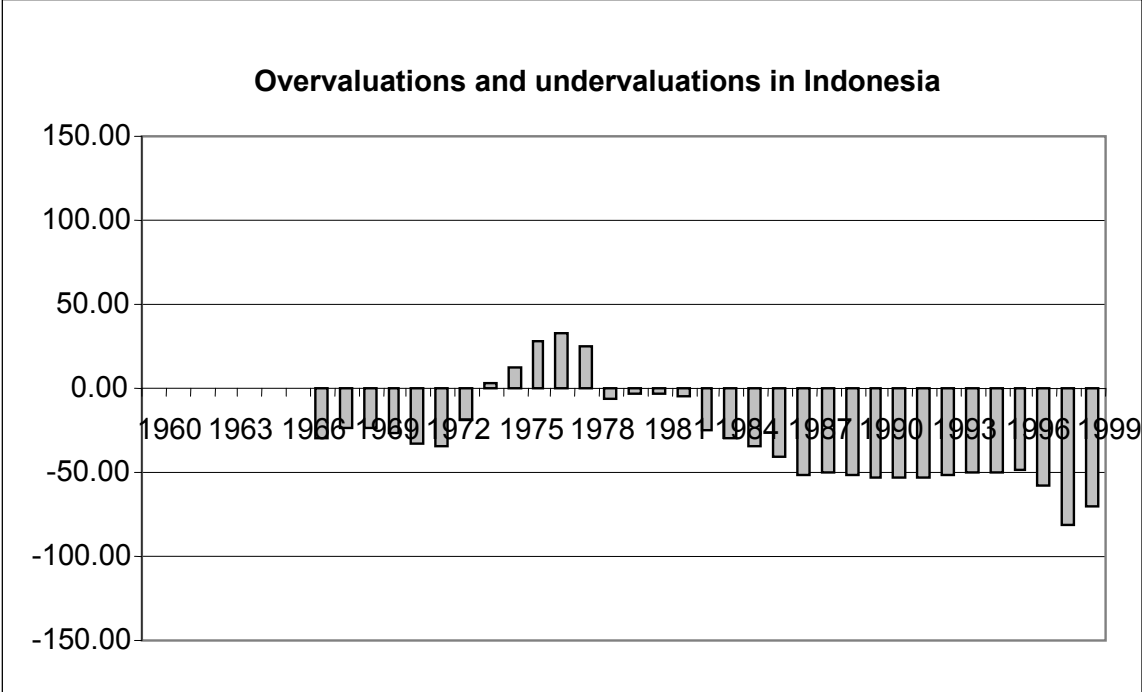
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<sup>6</sup> See, for instance, World Bank (1993, p. 127) and Hill (2000, p. 16).



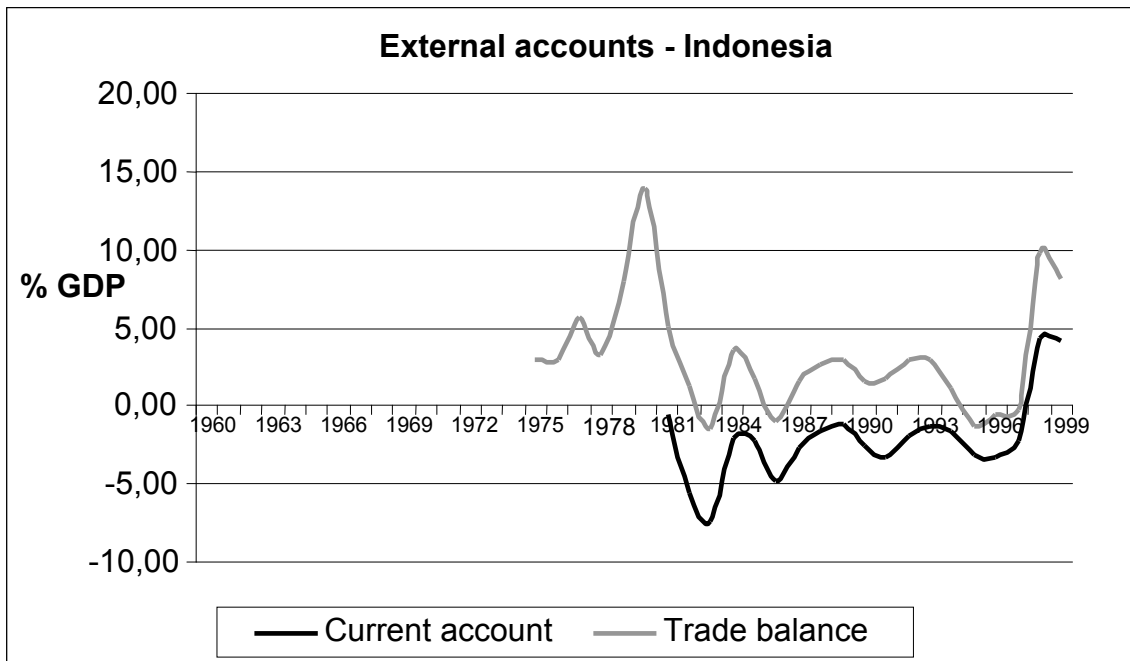
During the 1980s, exchange rate policies included another devaluation in 1986 as a response to a new decline in oil prices, and the subsequent adoption of a crawling peg regime until early 1990s. At first the rupiah followed the dollar, which depreciated after the Plaza agreements, especially in comparison with the Yen. After the stabilization of the dollar and some appreciation in the early 1990s, the authorities in Indonesia followed a broader crawling peg, promoting the devaluation of the rupiah in relation to a basket of currencies. Graphs 1 and 2 below show the behavior of the foreign accounts and of the real exchange rate of the rupiah to the US dollar in the last decades. Values above zero mean overvaluations and below zero undervaluations (Easterly 2001 data).

**Graph 1**



\*Source: Author’s calculation using data from Easterly (2001).

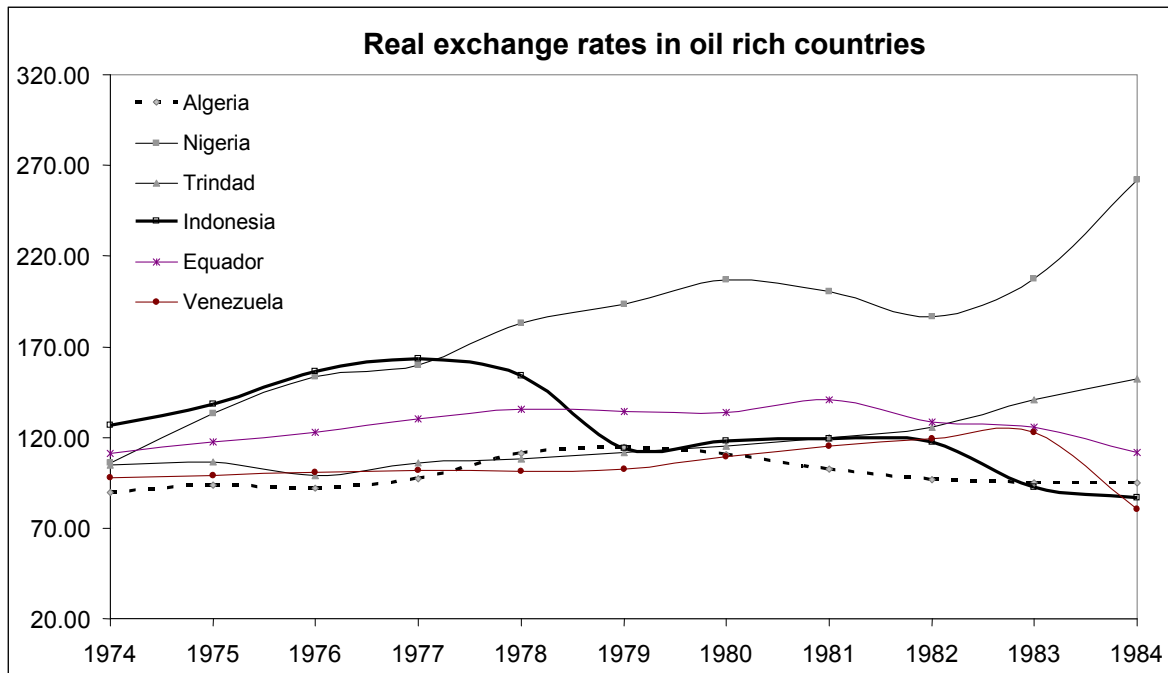
Graph 2



\*Source: World Bank.

Graph 3 below shows the evolution of real exchange rates for oil rich countries in the 1970s and 1980s. Indonesia shows considerable depreciation after 1978, especially when compared to the Nigerian case (Easterly 2001 data).

Graph 3



\*Source: Author's calculation using data from Easterly (2001).

Collier et al (1999) highlight the superiority of exchange rate management in Indonesia when compared to Nigeria during the 1970s and 1980s, “the difference in visions was reflected in different exchange rate strategies. By the late 1970s Indonesian policymakers chose to sacrifice part of the public investment program to achieve exchange rate undervaluation, thereby protecting competitiveness. Because Indonesian nontraditional exports grew rapidly in response, the policies were vindicated by success and became more secure. By contrast, not only did the Nigerian government allow the exchange rate to appreciate during the oil boom, with dramatic consequences for non-oil exports, but also, as the boom receded, the government chose to maintain the exchange rate at its now overvalued level. A task force on inflation, which reported in 1982, recommended this as an appropriate counterinflation policy”<sup>7</sup>.

The most successful performance in the Indonesian economy was in non-oil exports. From 1982 to 1992, the exports of non-oil products increased 300%. In 1979, after the first devaluation took place, manufacturing exports increased 260%. Similar behavior was seen after the 1983 devaluation (Gelb, 1988, p. 220). The sharp increase in manufacturing exports was one of the main responsible for keeping up the Indonesian economy after the decline in oil prices in the mid-eighties. In this case, foreign direct investment in export-led sectors had also an important role after 1986. In terms of export composition, there was a significant change during the decade. In 1980, 3% of Indonesian exports were manufactured goods. In 1983, this percentage is 7% and in 1992 it reaches 50%. However, despite the importance of exports in the structural transformation of the economy, the country did not follow a typical export-led growth path, as did its neighboring countries in Asia. Until the early 1990s, exports never grew above 31% of GDP.

Table 1 shows the composition of Indonesian exports over time. The five categories below represent the degree of technological complexity of export goods. The data shows a clear increase in exports of low, medium and high technology goods from the 1980s on, and a significant reduction of primary goods and natural resource-based manufactures.

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<sup>7</sup> Collier et al 1999, pg.4.

Table 1  
Composition of Exports – Indonesia, 1960s-1990s

Product Category	1960s	1970s	1980s	1990s
Primary products	70,6%	49,0%	47,5%	18,1%
Natural resource-based manufactures	24,3%	48,5%	37,2%	31,2%
Low technology	3,1%	1,0%	9,3%	30,2%
Medium technology	1,1%	0,7%	4,0%	13,0%
High technology	0,6%	0,8%	2,0%	7,40%
Total	100,0%	100,0%	100,0%	100,0%

\*Authors' calculation based on Lall (2001), Ocampo and Parra (2005), and UNCTAD, Handbook of international statistics online.

Gelb (1988) concludes that Indonesia represents one of the most successful responses to the oil shocks. The country was able to strengthen the agricultural sector and to develop a manufacturing exports base despite the large revenue inflows from oil exports. In fact, Indonesia underwent a significant structural transformation during the period 1970-1990. In the mid sixties, agriculture represented 53% of GDP, moving to 19% in the early nineties. The share of employment in agriculture fell from 73% in 1961 to 50% in 1990. Therefore, we can say that Indonesia was able to avoid the “Dutch Disease” by taking several preventive measures, including adequate exchange rate policies.

The real devaluations in the late 1970s and 1980s seem to have strongly influenced the good performance of the economy. Azis (1990) stresses the positive role of the exchange rate policy during the period, especially regarding the stimulus for the manufacturing exports sector: “A series of adjustment programs were undertaken with fair success despite some social costs involved. Two major devaluations were implemented, one in March 1983 (28%) and the other in September 1986 (31%) followed by more active adoption of managed floating system resulting in a 55% depreciation in the real effective exchange rate during 1981-1988. The results have been very encouraging from the viewpoint of boosting the non-oil exports. In fact, it is believed that the impacts of devaluation were greater than those of the trade deregulation, at least as for the last two years” (Azis, 1990, p. 242).

The good macroeconomic performance of Indonesia in the 1980s and 1990s are obviously not to be explained only by the virtues of the exchange rate policy. A broader analysis of the macroeconomic and industrial policies during the period is beyond the scope of this paper. However, the importance of the exchange rate policy as a central piece in the successful development strategy of Indonesia seems to emerge from the evidence described above. Given the abundance of natural resources in the country, a *laissez-faire*-type management of

the macroeconomic policy would most likely lead to greater dependency of international commodity markets – with the well-known risks and problems pointed out by the economic development literature. The advance of a non-traditional tradables sector and its integration to the world market seems to be an essential prerequisite in the successful trajectory of Indonesia until the late 1990s.

The experience of Indonesia is in line with the empirical literature that stresses the importance of competitive exchange rates as an explanation for the relative success of South Asian countries in the last 30 years, especially when compared to the disappointing performance of developing countries in Africa and Latin America (Bresser-Pereira, 2006; Cottani et al, 1990; Dollar, 1992; Benaroya and Janci, 1999; Fajnzylber et al, 2002). For that reason, Indonesia represents an interesting case-study for this topic, which has central importance in the developing world today.

### **The case of Chile**

After the military coup that brought to power the Pinochet government, a strong orthodox and recessionary policy was adopted to control Chilean internal and external disequilibria<sup>8</sup>. Government spending is severely cut, the currency is devalued and a liberal agenda of trade and financial opening is adopted. The fiscal deficit is reduced from 25% of GDP in 1973 to 2.5% in 1975 and GDP falls by more than 15% in 1975. Falling imports and increasing exports help to put the current account on positive grounds in 1976. Growth picks up in the following years but inflation remains worryingly high, leading the government to adopt an exchange rate based stabilization policy, the so called tablitas. As in the 1971-1973 period, there is strong currency overvaluation which eventually leads to a major financial crises in 1982. Chile experiences two major currency crises in less than 10 years.

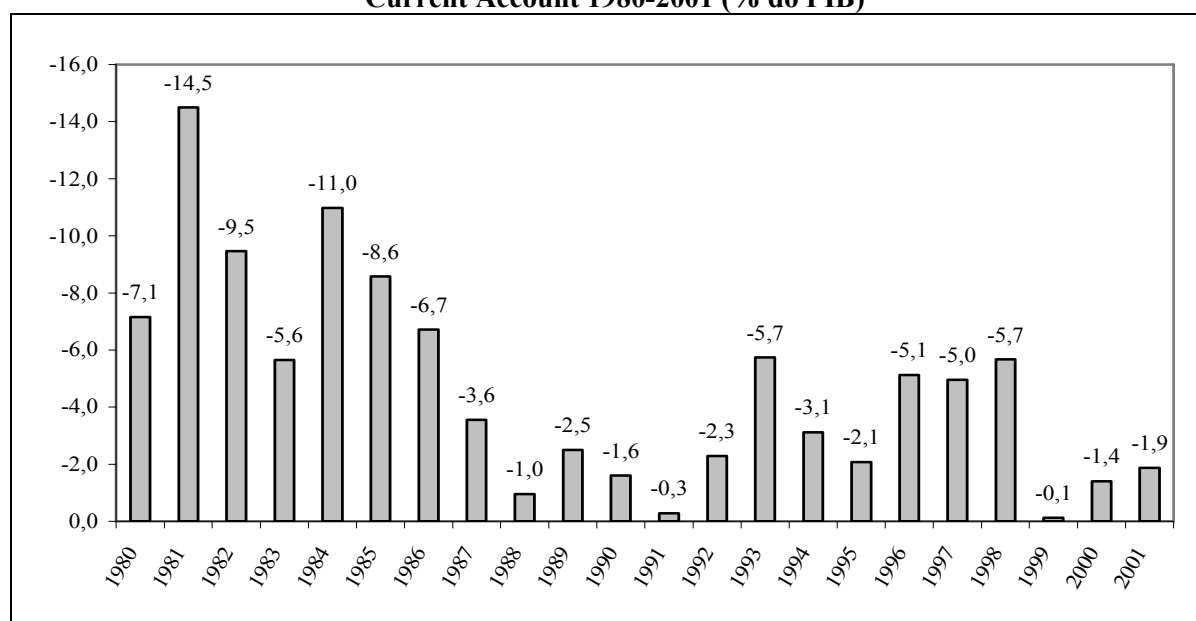
Current account deficits in the beginning of the 1980s were in the range of 7% of GDP, peaking at 14,5% in 1981 (Graph 4). Capital flow reversals due to the monetary shock in the US and the Mexican default finally lead the fixed exchange rate regime to a collapse in Chile. A major devaluation of currency takes place again. The failure of the stabilization plan resulted in severe crises. GDP fell around 15% in 1982 and a banking crises hit the Chilean financial sector, which was eventually rescued by the Central Bank.

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<sup>8</sup> French-Davis (2002, p. 24).

Since then economists and monetary authorities in Chile started to deal with exchange rate issues more carefully. Chief among the worries were the overvaluation of the currency and current account deficits. The failure of the regime adopted from 1979 up until 1982 is usually referred to as something not to be repeated. “Después de una experiencia fallida de tipo de cambio fijo en 1982, que derivó en una devaluación y una recesión, se instauró un sistema de tipo de cambio reptante. Este tenía como objetivo implícito el promover un tipo de cambio real depreciado que estimulara las exportaciones y ayudara en la recuperación generando los recursos necesarios para pagar la enorme deuda externa”<sup>9</sup>. Or in terms of current account deficits and policy mandates, “la ley impone como objetivo el logro del equilibrio externo, lo que se interpretó como una afirmación de que el déficit en la cuenta corriente de la balanza de pagos importa, y de que es necesario asegurar que dicho déficit esté dentro de un rango preestablecido”<sup>10</sup>.

**Graph 4**  
**Current Account 1980-2001 (% do PIB)**



Obs.: (-) déficit. World Development Indicators, 2003.

As a reaction to the problems of the beginning of the 1980s, the second part of the Pinochet government that goes from 1982 to 1990 is much more pragmatic in terms of policy orientation. The Central Bank adopts a policy of mini-devaluations and crawling peg with the objective of maintaining real competitiveness. In August 1984 a formal band that would last up until 1999<sup>11</sup> is introduced. Several devaluations in the center of the band (*taxa acuerdo*)

<sup>9</sup> De Gregório et al (2005, p. 2)

<sup>10</sup> Zahler (1998, p. 51)

<sup>11</sup> For a detailed discussion see Williamson (1996).

during the 1980s contributed to a real devaluation of the Chilean currency of approximately 130% between 1982 and 1988. There is some appreciation in the end of the 1980s because of increases in copper price, but the widening of external deficits in 1989 and 1990 due to high growth end up devaluing the currency again to the bottom of the band<sup>12</sup>.

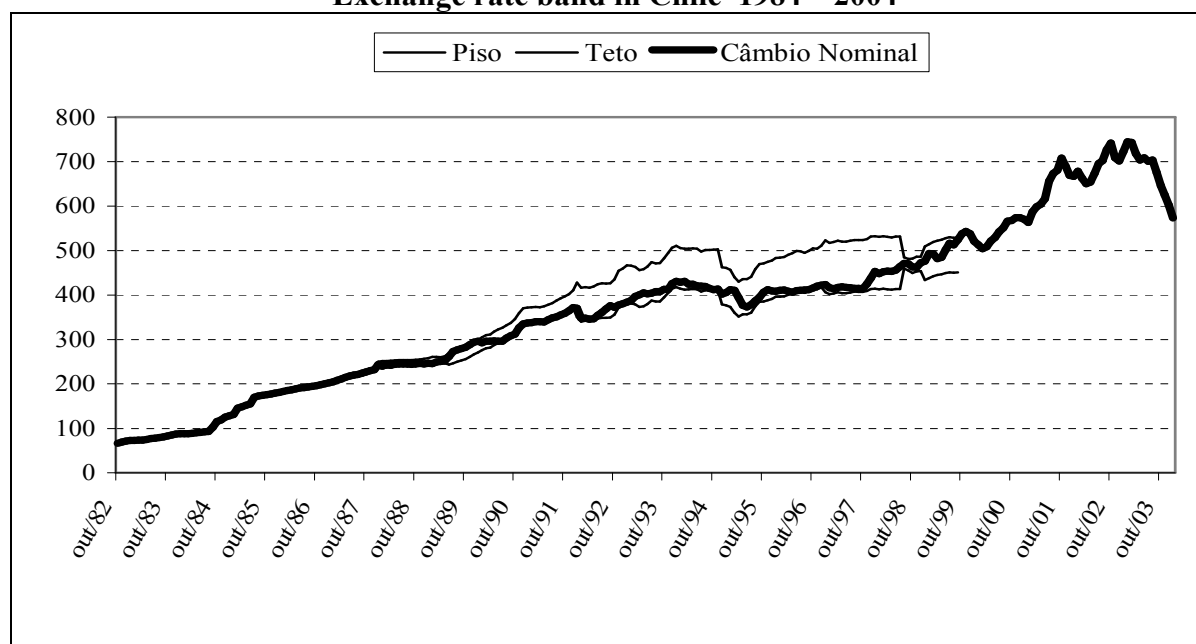
During the 1990s the regime was adapted to the new global liquidity environment and capital flows abundance to emerging economies. The new democratic government increased the focus on inflation control, but the external sector was consolidating itself as the country's growth engine. Capital inflows put appreciation pressure in the currency and the band was very important to avoid strong appreciation cycles. Current account deficits were monitored and the targets were set to 3%-4% of GDP. Average deficits for the period 1990/1995 was -2,5 % do PIB and for the 1996/1998 period -5,2% (Graph 4).

The new democratic government and the return of Chile to international financial markets attracted large capital inflows. Besides strong interventions and accumulation of reserves, the Central Bank adopted capital controls in 1991 in the form of non remunerated deposits. Its main objective was to avoid severe short term capital inflows and to maintain the parity of the peso. Eventually the rate was increased from 20% to 30% in 1993 and only reduced to 10% and then finally abolished in the Asian financial crises in 1998. Capital outflows were also liberalized in the beginning of the 1990s with the aim of maintain competitiveness. Exports proceedings, for example, were allowed to stay outside the country. As graph 5 shows below, despite all those measures, some appreciation was observed in Chile, and the exchange rate was permanently testing the floor of the band.

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<sup>12</sup> French-Davis 2002, p.148.

**Graph 5**  
**Exchange rate band in Chile 1984 – 2004**



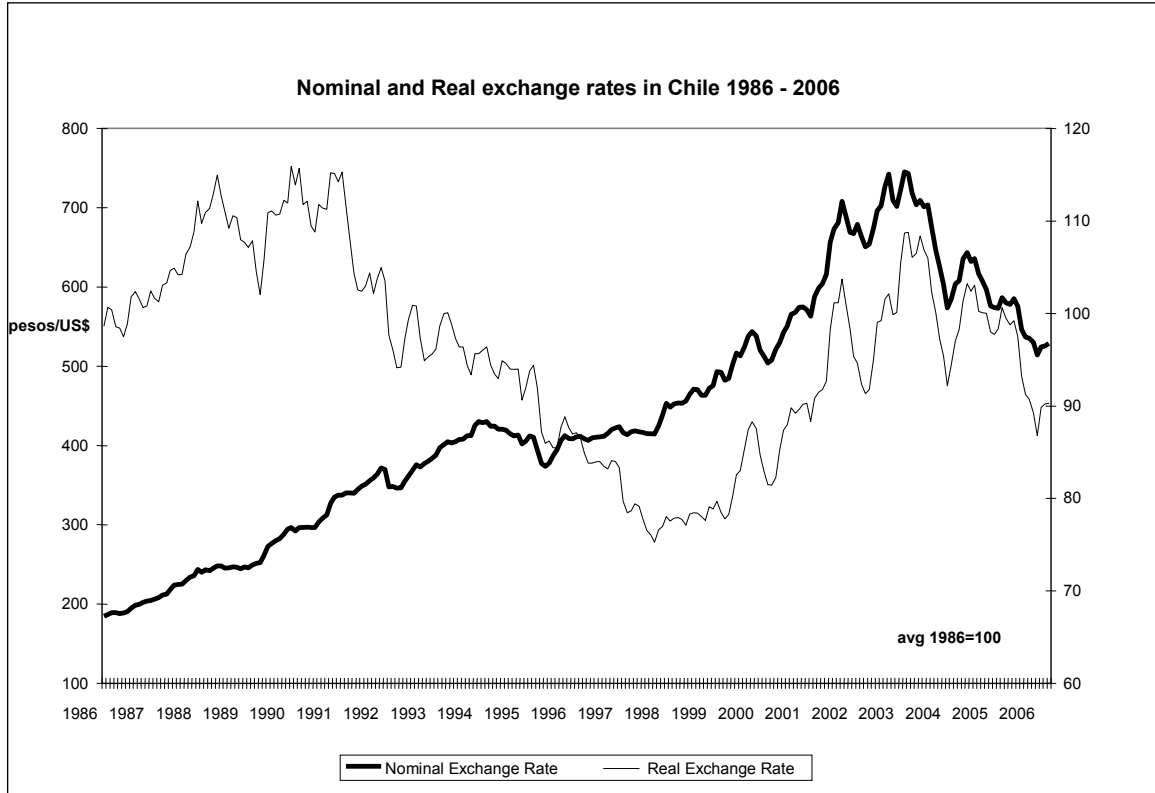
\*Central Bank of Chile

The central bank adjusted the center of the band with discrete valuations. In 1994 the reference currency basket for the band was changed, and the dollar lost space (from 50% to 45%). Other reference currencies were the Deutsch Mark and the Japanese Yen. All those measures tried to introduce some uncertainty in exchange rate management as a form of avoiding arbitrages and also as way of maintaining real competitiveness.

All those measures were not able to avoid some appreciation of the currency in the beginning of the 1990s as shown in graph 6. The Central Bank used this in part to help controlling inflation. Some appreciation maybe also be credited to increases in productivity and a considerable upgrading of the economy since the crises in the beginning of the 1980s. But still, when we compare appreciations in Brazil, Mexico and Argentina in the same period, the appreciation of the Chilean peso was not significant. According to Ffrench-Davis' (2004, p.209) calculations, in 1994 the Chilean peso was 3,6% stronger than in 1987-1990 whereas this number for the rest of Latin America was 24%. During the period 1995-1997 more appreciation is observed in Chile and this number goes up to 16%, when the Asian crises hits the economy devaluing the currency.



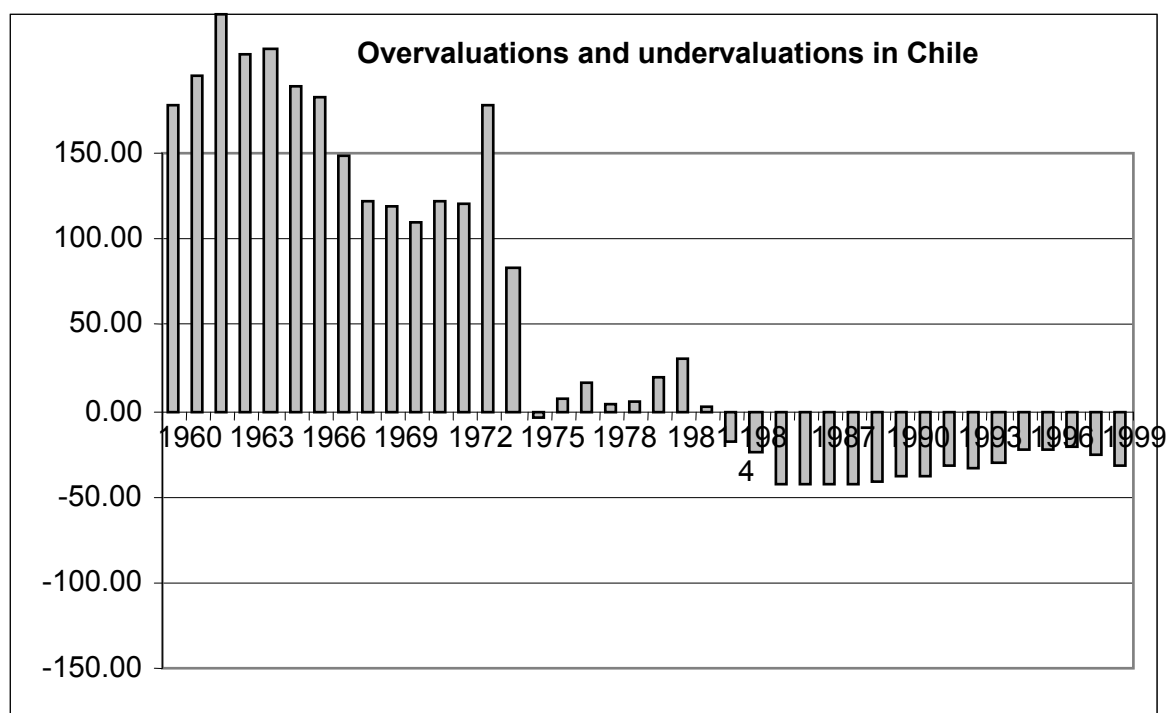
**Graph 6**



\*Central Bank of Chile.

Chile tried to maintain competitiveness and to avoid overvaluation that would cause trouble to exports. Up until the Asian crises, exports were growing above 10% per year. Graph 7 shows overvaluations and undervaluations for the Chilean real exchange rate based on Easterly (2001) calculations for the 1970-1999. Values above zero mean overvaluations and below zero undervaluations. It's easy to see from the graph below that after the crises in the beginning of the 1980s, the country moved to a new approach regarding real exchange rate programming.

**Graph 7**



\*Source: Author's calculation using data from Easterly (2001).

Several authors have identified this kind of policy stance in Chile during the 1980s and 1990s. As Morandé e Tapia (2002) put it, “the fact that the band’s center followed the difference between domestic and external inflation reveals that there was a concern with misalignments of the real exchange rate with respect to a PPP concept, as well as an attempt to manage - at least partially - the real exchange rate” (Morandé e Tapia 2002, p.1). According to Zahler (1998), there was a concern among policy makers that current accounts should be kept under control and that development should be mainly financed with internal savings<sup>13</sup>.

When analyzing the last three decades of economic policy in Chile, Ffrench-Davis (2004) highlights the role of competitive exchange rates and its contrast with liberal reforms, “em suma, durante las três ultimas décadas Chile presenció um período de excepcional crecimiento de sus exportaciones. Tan notable desempeño estuvo asociado, durante lãs últimas dos décadas, a políticas heterodoxas más bien activas que procuraron preservar um tipo de cambio real competitivo y generar capacidad exportadora, en contraste com la implantación, unicamente, de reformas económicas ortodoxas, como ocurrió em los setenta”<sup>14</sup>.

<sup>13</sup> Zahler (1998, p.54).

<sup>14</sup> Ffrench-Davis 2004, p.225.

Exports growth in the period 1960-1973 was 3,5%, keeping the pace in the 1973-1983 period and then jumping to 5,5% in 1983-2002<sup>15</sup>. Table 2 below summarizes the composition of Chilean exports over time. The main point is the continuous decline in the exports of primary products, and a simultaneous increase in the exports of resource-based manufactures.

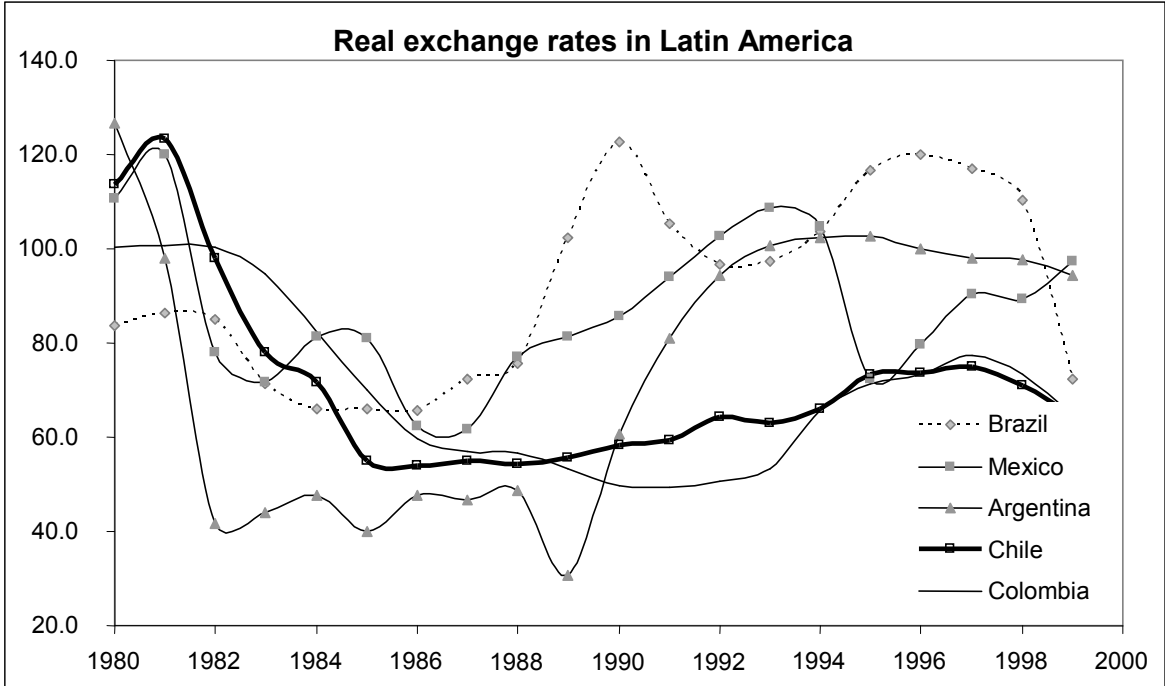
Table 2  
Composition of Exports – Chile, 1960s-1990s

Product Category	anos 60	anos 70	anos 80	Anos 90
Primary products	73.2%	67.1%	65.0%	58.2%
Natural resource-based manufactures	24.5%	29.5%	31.7%	33.4%
Low technology	0.4%	1.0%	0.9%	3.1%
Medium technology	1.6%	2.2%	2.1%	4.8%
High technology	0.1%	0.1%	0.2%	0.5%
Total	100.0%	100.0%	100.0%	100.0%

\*Authors' calculation based on Lall (2001), Ocampo and Parra (2005), and UNCTAD, Handbook of international statistics online.

Graph 8 below shows the evolution of real exchange rates for Brazil, Argentina, México, Colombia e Chile since 1979 based on Easterly's (2001) data. There is a clear (and well known) pattern of real appreciation during the 1990s for Brazil, Argentina and México, not observed in Chile and Colombia.

Graph 8



\*Source: Author's calculation using data from Easterly (2001).

<sup>15</sup> Alvarez 2004, p.123

In a book on exchange rate regimes for developing countries, Williamson (1996) highlights the importance of exchange rate policy in the Chile as a way of avoiding Dutch disease, “Chile emerged from the 1982 crisis with a strong national consensus that Dutch disease is indeed dangerous. Although that consensus seems to be beginning to fray in the financial sector, it still dominates the thought of the policymaking community. The implication is that the Chilean authorities will not revise the target current account deficit upward, or at least not by enough to resolve the tension. The options that leave are to continue sterilizing a large part of the inflow, to reduce the incentive for the inflow by lowering the interest rates in Chile, to choke off more of the inflow through tighter capital controls, or to increase the outflow”<sup>16</sup>.

Several economists point out to the Chilean experience as a relative success in terms of exchange rate management during the 1980s and 1990s. Montiel (2003), Cardoso (2003) and Dornbusch et al (1995) see in the Chilean exchange rate policy one of the keys to understand its success. Chile was probably the only country in Latin America that changed to a free floating regime voluntarily in the end of the 1990s, not as a consequence of currency crises. Again, the successful Chilean growth experience on those years cannot be reduced to exchange rate management but it seems fair to say to it played a major role in that process, especially if we take in to account the relative copper abundance in the country. Again a *laissez-faire*-type management of the macroeconomic policy would probably lead to greater dependency of copper prices and the well-known problems pointed out by the economic development literature. Finally, the growing non-traditional tradables sector and its integration to the world market seems to have played a role in Chilean successful trajectory as it did in Indonesia.

## **Conclusions**

This paper provided theoretical elements to analyze the relation between real exchange rates and economic development. Our main hypothesis is that competitive currencies contribute to the existence and maintenance of a dynamic manufacturing sector in the economy. This, in turn, brings about higher growth rates in the long run, given the existence of increasing returns in the industrial sector, and its importance in generating technological change and increasing productivity in the overall economy.

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<sup>16</sup> Williamson 1996, p.30.

The empirical evidence analyzed here support our main hypothesis, and show a recurrent concern of the governments in Chile and Indonesia regarding the maintenance of competitive real exchange rates in the 1980s and 1990s. The high growth rates observed in these countries during the period is in line with the empirical literature that stresses the importance of competitive currencies for the overall performance of the economy.

Therefore, the main policy recommendation derived from this study is that developing countries may achieve higher per capita growth rates and find a stairway to economic development by expanding their industrial sector and avoiding de-industrialization, and that competitive currency policies may be an useful instrument towards that goal.

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