

DOLLARIZATION AND SUSTAINABILITY IN EMERGING MARKETS:

Lessons from Ecuador and Bolivia

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## 1. *Introduction*

Financial turbulence that hit emerging markets during the 1990s has prompted a huge volume of research on the sustainability of the current global financial architecture. The fact that each successive crisis<sup>1</sup> was more severe and complex than the previous ones, makes the study of factors influencing crises a crucial one. Many studies show that intermediate exchange rate regimes played a major role in fueling crises (Eichengreen, 2002; Levy-Yeyati and Sturzenegger, 2000; Fisher, 2001; Chang, 2002). Fisher (2001) shows that most countries affected by crises and its waves had exchange rates that in different versions were close to fixed exchange rate regimes. A key debate therefore centers on which exchange rate system best serves the global financial architecture. Intermediate regimes lack credibility as such are likely to trigger crises by encouraging speculative activity. Proposals call for rigid regimes such as dollarization, currency board arrangements or independent floating (Mussa et al., 2000; Dellas and Tavlas, 2002). This view termed as the “bipolar view” (Fisher, 2001; Summers, 2000) is based on the premise that any intervention in the exchange rate system should be credible otherwise exchange rate determination should be left to market forces.

The “bipolar view” centers on the impossible trinity argument (Frankel, 1999), that says that it is impossible to have free capital mobility, a fixed exchange rate and an independent monetary policy. Therefore flexible regimes can allow for integration and

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<sup>1</sup> The debate arose from crises that hit Mexico (1994), East Asia (1997), Russia (1998) and Brazil (1999). All four were different from crises in the 1980s.

monetary independence, while hard pegs can combine integration with exchange rate stability (Braga de Macedo, Cohen and Reisen, 2001)

Most emerging markets have tended to float due to IMF policies that promote capital account liberalization. However, Chang (2000) argues that these markets tend to intervene in their regimes due to what he terms "fear of floating" (p.3). These interventions in the presence of high levels of inflation encourage speculative activity. Therefore a more credible option would be dollarization. Dollarization is supported on the premise that if a country cannot build credibility for monetary policy at home, it can presumably import credibility by fixing the value of its currency to a more stable one (Larraine and Valesco, 2001).

Proponents of dollarization argue that by introducing credibility, dollarization reduces speculative activity by eliminating currency risk. In addition it results in the restoration of private sector confidence, stabilization of prices and interest rates (Levy-Yeyati and Sturzenegger, 2001; Goldfajn and Olivares, 2001; Zuniga and Duett, 2001). Berg and Borensztein (2000) argue that dollarization leads to an increase in Foreign Direct Investment (FDI) and trade flows thereby inducing long term growth. By stabilizing economic fundamentals, dollarization makes it easier for weaker economies to fully integrate into global financial markets.

The choice of dollarization is however a crucial one. By dollarizing a country loses its monetary and exchange rate policies as tools of macroeconomic adjustment. Further,

there are losses associated with seignorage revenues, role of the central bank as the lender of last resort, economic and political sovereignty, and competitiveness. Larraine and Velasco (2001) argue that exchange rate stability through dollarization entails that external shocks would be corrected through adjustment in employment and output. Chang, Cespedes and Velasco (2001), conclude that fixed regimes are recessionary, because a devaluation can only take place through price deflation, which if nominal wages are sticky, exacerbates contraction in employment and output.

To illustrate conditions when it is beneficial to adopt a fixed exchange regime over a flexible regime, Mundell (1961), McKinnon (1963) and Kenen (1969) introduce the Optimal Currency Area (OCA) Theory. They create a case when microeconomic benefits of unifying a currency outweigh macroeconomic costs of abandoning the exchange rate as an instrument of monetary adjustment. They show that under conditions of perfect labor mobility and flexibility, shock symmetry, production diversity, small and open economies are more likely to benefit from fixing their currencies to a more stable one. Later contributions to the theory include financial market integration, fiscal integration, and trade integration. In the absence of these conditions taking a rigid exchange rate policy may entail larger costs than benefits

The objective of this paper is to examine the long term sustainability of dollarization as a policy decision. By acknowledging the importance of initial conditions, the paper looks at factors that lead to this phenomenon. It seeks create an understanding of the role exchange rate policy plays in macroeconomic and external performance, and the

reduction of vulnerability of emerging markets. While global turbulence has calmed down, examining the initial conditions that make economies susceptible to contagion may help in shading more light on the necessity and sustainability of dollarization.

The paper examines the cases of Ecuador and Bolivia, both which have taken different approaches to the question of stability and inflation management. These countries present significant lessons to the development of literature on international financial and emerging markets. They exhibit similar macroeconomic fundamentals, they are both small economies that historically have been highly depended on the export of one main primary product, their economic problems have been closely tied to political developments, they are members of the Andean Community<sup>2</sup>, they have undergone IMF reforms and prior to Ecuador's full dollarization had a high degree of financial dollarization and asset substitution.

The paper is organized into six sections. Section two gives a background on the theory of dollarization, its origins, as well as the main arguments for and against. This section presents arguments based on the flexible and fixed exchange regime debate, then build on the OCA theory to determine conditions under which dollarization may be successful. Section three and four examine initial conditions based on the cases of Ecuador and Bolivia respectively. Section five presents a comparative analysis of both cases and section six gives recommendations and conclusions.

## 2. *Background and Literature Review*

### 2.1 *Definitions*

Dollarization refers to the case where a country abandons its own currency in favor of a more stable one like the US dollar (Berg and Borensztein, 2000; Chang, 2000; Levy-Yeyati and Sturzenegger, 2001). Dollarization can be either unilateral where a country adopts the currency of another country or multilateral<sup>3</sup> such as a currency board arrangement like the European Union. A broader definition refers to it as a situation where savings are held, payments are made and prices quoted in a different currency other than the domestic one (Levy-Yeyati and Sturzenegger, 2001).

Dollarization can be de-facto or de-jure. De-facto dollarization is usually the initial stage of dollarization; it is characterized by currency substitution and financial dollarization. It is often referred to as unofficial dollarization because it is not backed by any legislation. De-facto dollarization is present in many liberalized economies with floating exchange rates because these economies are subjected to high rates inflation. Inflation erodes the store of value and the medium of exchange functions of money. In an effort to hedge against currency and exchange rate risks, economic agents hold money and assets in a more stable currency. Calvo (2000) shows that de facto dollarization severely affects the

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<sup>2</sup> Bolivia, Chile, Columbia, Ecuador and Peru.

<sup>3</sup> In multilateral or bilateral arrangement, a collective agreement is made between countries to use a certain currency, for instance the US dollar or Euro which would be under the control of a common monetary authority. As such a country retains some monetary control.

viability of a flexible exchange rate regime in emerging markets, because it makes dollar indebted firms vulnerable to exchange rate movements.

Unlike de facto dollarization, de jure dollarization is official and is backed by the necessary legislation fully adopting a foreign currency as a legal tender. Currently very few countries have de-jure regimes. Levy-Yeyati and Sturzenegger (2001) argue that, de facto dollarization reduces both costs of a transition to de-jure dollarization and exchange rate flexibility is lost in the processes. It is likely that most countries having de-facto schemes are more likely to consider adopting full dollarization.

De-jure dollarization is considered to be irreversible<sup>4</sup> and has broad implications for growth and stability of a country. A country's currency is completely replaced by the US dollar for instance; the function of the Lender of Last Resort (LLR) of the central bank is transferred to the Federal Reserve Bank; monetary policy ceases to be a tool of macroeconomic adjustment; a country loses revenue obtained from money creation and economic sovereignty (Berg and Borensztein, 2000; Chang, 2000; Goldfajn and Olivares, 2001).

## 2.2 *Origins of dollarization*

Before 1990s, dollarization was adopted at independence prior to the establishment of national currencies<sup>5</sup>. Crises in the 1990s led to changes in the international financial architecture that have seen the shift towards extreme forms of exchange rate arrangements of such as dollarization.

Acceleration of globalization through increased financial integration, internationalization of production structures and macro economic interdependence, has made competition stiff and the choice of exchange regime has become a crucial factor in determining growth and survival of emerging economies in this environment. Most countries that undertook IMF reforms adopted floating exchange rate regimes in order to improve their international competitiveness. However one aspect of flexible regimes is that they are inflationary and as a result have led to increased currency substitution and financial dollarization. Levy-Yeyati and Stuzenegger (2000) observe that the inherent currency mismatch introduced by widespread dollarization makes the financial sector (as well as the economy) highly vulnerable to exchange rates fluctuations. Recent crisis<sup>6</sup> in emerging markets show just how vulnerable these economies can be, while studies confirm that there is a strong link between financial sector imperfections, exchange rate policy and

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<sup>4</sup> Irreversibility is associated with the cost of abandoning the peg. Under de jure dollarization, laws are enacted and institutions put in place, abandoning the peg would require the creation of a new currency. The cost of abandoning the peg is therefore very high (see Levy-Yeyati and Sturzenegger, 2001)

<sup>5</sup> Table 1 shows a list of dollarized economies, most of which adopted the US dollar at independence, before they created any national currency.

<sup>6</sup> Crisis in Mexico (1994-95), Asia, Russia and Brazil (1997-1980). These demonstrated how destabilizing devaluations were as stimulated debate on what the ideal exchange rate regime would be.

financial crisis. The instability introduced by intermediate regimes, is what is currently driving most countries to consider extreme exchange rate arrangements.

The historical origins of the debate on dollarization can be best understood by analyzing the fixed versus flexible exchange debate pioneered by Mundell and Flemming in the 1960s and refined by Dornbush in the 1970s (Yeyati and Sturzenegger, 2001). The debate centres on the trade off between credibility and flexibility.

Initial literature on flexible exchange rates can be found in an article by Milton Friedman published in 1953. He pointed out that flexible rates were expected to insulate a country from disturbances and to help reconcile countries divergent rates of monetary growth. Following Friedman (1953) logic, real shocks can be accommodated through a change in the nominal exchange rate that restores long run full employment equilibrium. Market forces are therefore able to restore balance of payments equilibrium through automatic adjustments in the exchange rates. Further, when the exchange rate acts as an adjustment tool, balance of payments deficits and surpluses should be smaller in size and shorter in duration. Monetary policy is therefore freer to pursue domestic goals. Mundell (1963) argues that is shocks to goods markets are prevalent than nominal shocks, a flexible exchange rate would be preferable to fixed rates.

Evidence has however shown that flexible exchange rates can be highly volatile inducing uncertainty and instability in international trade. The fact that high fluctuations in

exchange rates encourage a high degree of speculation increases the risk premium associated with international trade transactions and investment, discourage both trade and capital flows. This reduces efficiency in global resource allocation. This is however a highly debatable issue, in that proponents of flexible exchange rate regimes argue that, flexible exchange rates encourage international trade and investment. This argument is backed by a large volume of literature that states that financially open economies are best served by more flexible regimes (Stiglitz, 2002). In the 1980s and 1990s volatility of flexible rates and high rates inflation associated with them and the fact that they did not bring about instantaneous correction of balance of payment disequilibrium, led to a shift towards intermediate regimes<sup>7</sup>.

Unlike flexible rates, fixed exchange rate regimes are suitable for the correction of nominal shocks such as domestic inflation. Specifically, when shocks emanate from the domestic money market, fixed exchange rates are able to automatically prevent them from affecting the real economy. Further, fixed exchange regimes are said to reduce costs associated with exchange rate fluctuations, and therefore instill confidence in international trade transactions and investment.

In the case of a real shock, restoration of external balances would require a devaluation, reevaluation or adjustments in domestic prices. In the absence of flexible prices, this would entail a period of depressed domestic demand and high unemployment. As such fixed exchange rates turn out to be more contractionary than flexible rates, since fixed exchange rates imply that a real devaluation can only take place via price deflation which

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<sup>7</sup> Managed float, dirty float, various pegs.

if nominal wages are sticky, exacerbates the contraction in employment and output. Goldfajn and Olivares (2001) say that adopting a fixed exchange rate without necessary preconditions may entail larger costs. Eichengreen and Hausman (1999) add that fixed exchange rate regimes are more prone to banking crises than flexible ones.

Dollarization has several important advantages over the conventional fixed regimes. Because of its high exit costs, it is extremely credible. In the case of a conventional peg the possibility depreciation is not eliminated, Beckerman and Cortes-Douglas (2002) argue that residual fears of depreciation could affect financial intermediation.

The crises that followed the initial ones in the early 1990s were more severe and happened at a faster pace. As a result the debate on flex versus fix took a new twist putting more emphasis on aspects of crises and vulnerability. Dollarization either unilateral or multilateral is seen by an increasing number of policy makers as a way to create stability in the global financial system. In analyzing the preconditions necessary for dollarization we borrow from work done on Optimal Currency Areas (OCA) by Mundell (1961), McKinnon (1963) and Kenen (1969).

### 2.3 *Optimal Currency Area Criteria*

The OCA criteria set out conditions necessary for benefits to exceed costs of a country belonging to a currency union. The theory centres on balancing microeconomic benefits arising from enhancing the usefulness of money by expanding effective domains of individual currencies through currency unification (dollarization has come to be included) or fixed exchange rates against the macroeconomic costs of giving up the exchange rate as an instrument of balance of payments adjustment and therefore subjecting macroeconomic policies to a binding balance of Payments constrain (Willet, 1999). While the requisite criteria for an OCA have evolved over time, the initial literature centered on labor mobility (Mundell, 1961), size and openness (Mundell, 1961; McKinnon 1963) production diversity and shock asymmetry (Kenen, 1969).

#### 2.3.1 *Labor Mobility*

According to Mundell (1961) flexible labor markets are essential to the success of a fixed exchange rate. He defines optimality, as an exchange rate regime that can maintain an external balance without causing unemployment therefore an OCA is a region with high internal factor mobility. Mundell (1961) argues that regions between which there is a high degree of labor mobility are better candidates for a currency area membership because factor mobility would provide a substitute for exchange rate flexibility in promoting external adjustments. Dellas and Tavlas (2001) add that “external adjustments can also be accomplished by a change in labor costs denominated in domestic currency”

(p. 335). In the absence of sufficient labor mobility, correction of shocks would be difficult without monetary or exchange rate policy (Stockman, 2001).

Mundell (1961) also shows that in countries that maintained a fixed exchange rate, production and employment in the smaller country would have to be restored through a shift in nominal wages, labor migration or expansionary fiscal policy.

### 2.3.2 *Size and Openness*

Mundell (1961) and McKinnon (1963) state that the usefulness of a domestic currency is trivial in a small and highly open economy. McKinnon (1963) defines openness as value added of trade in total output. He argues that the significance of exchange rate adjustments to equilibrate traded rests on the lower propensity to import. Willett (1999) adds that small and highly open economies have little liquidity value to their currencies, as such there would be few non-traded goods and services. A depreciation therefore, would “result in primarily a rise of domestic currency prices undercutting the effectiveness of exchange rate changes in promoting balance of payments adjustment” (Willet, 1999, p.5). Willet (1999) further contends that if there is a high level of international currency substitution a flexible rate would be subject to changing fluctuations and the value of the domestic currency would be further reduced. Openness also relates to how shocks impact domestic and external balances.

### *2.3.3 Production diversity and shock asymmetry.*

Adding on the initial work by Mundell (1961), Kenen (1969) introduces that aspect of production diversity and asymmetry of shocks. Production diversification insulates a country from a variety of shocks, Kenen (1969) argues that the more a group of countries or regions specialized in production of particular goods, the more likely that external shocks would have asymmetric effects. Evidence also shows that effects of a disturbance are much more destabilizing on economies with narrow production structures. While shocks will not necessarily be inflationary on a country with a small productive base, they will lead to huge wage cuts, unemployment and inefficiency through lack of capacity utilization. Thus those countries with more are able to transfer resources from one sector to another without any adjustment in the exchange rate (Eichengreen, 1999).

### *2.3.4 Fiscal Integration*

Over the years economists have introduced additional criteria. Harris and Tavlas (2001) emphasize the importance of fiscal integration between two areas. They argue that the presence of fiscal integration between two areas enhances their ability to correct diverse shocks through endogenous fiscal transfer from a low employment region to a high employment region.

### 2.3.5 *Trade Integration*

Eichengreen (1994) argues in a currency union, the smaller country must have substantial trade ties with the country whose currency it is fixed to. He further contends that “the more concentrated is a country's trade with a subset of partner countries the greater the saving in transaction costs associated with the use of a single currency” (Eichengreen 1994, p.80). Pegging to one currency means floating against others, therefore country with substantial trade with other countries would be affected by fluctuations in these currencies.

### 2.3.6 *Financial Market Integration*

A healthy financial market that is integrated internationally is necessary for the sustainability of dollarization. A healthy financial market with strong institutions, improved prudential regulatory norms and supervisory systems prevents banks from engaging in risky behaviour. Integrated markets are more sensitive to outside influence and are quick to adjust to certain macroeconomic shocks. Lack of financial integration limits a country's capacity to absorb external shocks. Mareno-Villalaz (1999) says that adjustments will often take place through the banking system portfolios, a key means of access to capital markets which will act as an escape valve in cases which lack a surplus of financial resources. Eichengreen (1994) points out that those countries with underdeveloped financial markets will experience relatively high exchange rate volatility.

In addition to the OCA Criteria, there must be a strong need to import monetary stability, an absence of credible public institutions or unusually large exposure to nervous international investors, a desire for further close integration with the host country, an economy which is already partially dollarized, and an access to an adequate level of reserves ( Frankel, 2001; Lorraine and Velasco, 1999).

#### 2.4 *Implications of dollarization*

Dollarization is said to enhance policy credibility resulting in lower inflation rates, lower exchange rate volatility and possibly deepening of the financial system. It reduces the scope of sharp relative prices changes of the kind that often accompany inflationary processes (Calvo, 2000). Such changes are often a key reason for the vulnerability of external market economies to external shock. Given that, inflation erodes the medium of exchange and store of value functions of a currency; when a country dollarizes its inflation rates slowly converge to the currency of the issuer's inflation rate, restoring credibility and confidence. Proponents also argue that the possibility of a speculative attack is greatly reduced. Acosta (2002) counters this stating that "while the dollar would seem to eliminate speculative pressure on the exchange rate, speculation is a product of international financial markets and many countries in the region are a caricature of it, such that dollarization would not eliminate risk of runs on banks"(p.10). He concludes that dollarization plays no role in strengthening a country's financial system.

The fact that dollarization requires the abandonment of basic tools of economic policy has attracted a huge debate on the usefulness and importance of these policy tools. Monetary policy plays the role of an economic adjustment tool to manage money supply, interest rates, and exchange rates in order to foster higher growth. Loss of monetary policy as an adjustment tool means that fiscal policy is the only policy tool at a countries disposal. The scope of fiscal policy is however limited for countries with huge external debt and structural weaknesses in the tax system, undue pressure is put on a government to seek alternative means of financing. Based on the asymmetry of shocks between the USA and Ecuador, Stiglitz (2002), points out that giving up the conventional monetary policy instruments would impair the country's ability to stabilize the economy.

#### *2.4.1 Reduced transaction costs*

Lower transaction costs associated with currency stability lead an increase in the volume of trade and investment. Dollarization eliminates the wealth effects of devaluations as a result, increases the value of domestic assets such as real estate. Devaluations on the other hand reduce investor's net worth. Copeland (2000) shows that dollarization lowers transaction costs in international trade and investment, however, its impact on savings is likely to be small. While the reduction of exchange rate uncertainty would be beneficial to firms, their net exposure to risk which is much more important would be small in multi national corporations. Acosta (2002) gives a contrary argument that lowering of transaction costs may not necessarily increase investment because investment depends of

a number of factors in addition to the stability of the exchange rate, such as administrative factors, convenience and the rate of return.

#### *2.4.2 Sovereignty*

When a country dollarizes it sacrifices monetary policy autonomy in favour of a mechanism for correcting balance of payments, as a result it sacrifices policy sovereignty in the field of money (Dellas and Tavlas, 2001). Dellas and Tavlas (2001) further illustrate this by showing that a country sacrifices its currency loses sovereignty to the USA (in case of the dollar), which gains because it manages a larger currency area. Acosta (2002) states a country files away its monetary and exchange rate policy without obtaining anything in exchange.

Levy-Yeyati and Sturzenegger (2001) state that the fixed parity can provide important credibility benefits to a country, first by forcing a passive monetary policy it eliminates the inflationary bias a la Barro Gordon by which a government may be tempted to inflate the economy through unanticipated money injections.

#### *2.4.3 Seignorage*

The right to create one's currency has political implications because it is tied to a nation's identity and sovereignty. Seignorage is a tax that a government resorts to in its effort to raise revenue, in the absence of this the government is forced to resort to other ways of raising

revenue like increasing taxes, reducing capacity, creating unemployment and other practices that can be distortionary. In addition most emerging economies have huge debt burdens and inefficient tax systems, which reduce the scope of fiscal policy. Eichengreen (1994) argues that seignorage accounts for a significant fraction of government receipts in countries with underdeveloped financial markets, but for a small fraction of GNP in developed countries. This argument is strengthened by Levy-Yeyati and Sturzenegger (2001) who try to measure the loss of seignorage due to dollarization; they conclude that when measured correctly the loss can be quite substantial. In addition they find that the value of the future increase in demand for money represents a larger part of seignorage costs. Chang (2000), analyses the loss of seignorage which would occur if Mexico, Brazil or Argentina dollarize, he finds that in countries where money creation accounts for a significant share of government revenue, loss of seignorage is quite substantial.<sup>8</sup> On the other hand, Lopez (2001) gives a contrary view that revenue through the creation of money is hidden tax inflation; as such eliminating it can hardly be a social cost. He argues that it is in fact a social benefit because the population is no longer subject to the imposition of a tax without representation.

#### *2.4.4 Lender of last resort (LLR)*

The lender of last resort function of a central bank enables it to bail out domestic banks in cases of liquidity problems in order to prevent banking crises. The absence of this role increases the likelihood of financial crisis in much the same way as lack of deposit

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<sup>8</sup> According to his analysis, Chang (2000) shows that seignorage revenue per year is about one third of a percent for Argentina (1.2 billion dollars a year), 1.3 percent of GDP for Brazil (10 billion dollars a year).

insurance is viewed as increasing the probability of bank runs (Frankel, 2001). McKinnon (1999) brings in the aspect of indebtedness showing that highly indebted countries can issue debt at a significantly reduced cost if investors know that there exists a purchaser of last resort to intervene in the markets in the event of a debt run.

Lopez (2001) counters these arguments by stating that the lender of last resort function may be small and that it creates a moral hazard as evident in the weak banks, corruption in banks administration and very expensive bailout of failing bank.

#### *2.4.5 Credibility*

One area that is unclear is the definition of credibility associated with adopting an extreme fix. Goldfajn and Olivares (2001) discuss the issue of credibility in terms of costs and benefits of abandoning a particular regime. They argue that the most credible regimes are those that have high exit costs. Other studies such as the one by Yeyati and Sturzenegger (2000) discuss the issue in terms of policy credibility. They argue that dollarization enhances policy credibility and therefore leads to lower inflation rates, exchange rate volatility and deepening of the financial system. Drazen and Mason (1994) offer a contrary view stating that, in the presence of persistent unemployment, taking a tough policy stance in a given period may “lower rather than increase credibility of a no-devaluation pledge in subsequent periods”.

#### 2.4.6 *Competitiveness*

Rigid exchange rates reduce external competitiveness (Acosta, 2002). For instance if Argentina devalues its currency, its goods would be cheaper than those of Ecuador, while this would benefit consumers in Ecuador at the expense of the country's competitiveness. Given that Ecuador cannot devalue, it would have to boost competitiveness by cutting down wages and laying off workers. In the presence of inflexible labour and inefficient financial markets, this would lead to distortions in the domestic market in terms of unemployment and underutilization of capacity.

Stiglitz (2002) argues that dollarization is not a viable solution for countries engaged in trade with many different countries, for example Japan, Europe and USA, simply because of the huge volatility of exchange rates among their currencies. Fixing the exchange rates to the dollar means firms face enormous risks in the exchange with Japan and Europe.

#### 2.4.7 *Vulnerability*

According to Chang, Cespédes and Velasco (2001), fixed exchange rates exacerbate rather than ameliorate the adverse effects of financial friction. This is closely linked to lack of financial integration. When financial institutions are weak, taking a rigid exchange rate system may entail more costs on domestic banks. Studies also show that dollarization weakens a countries ability to strengthen and protect its domestic market and would wait for the development to be triggered externally. The other argument is that

when the signal mechanism provided by nominal exchange rates break down economic agents are not able to discern crises early.

#### *2.4.7 Interest Rates*

The effect of full dollarization on the domestic interest rates depends more on the degree of liberalization of the financial system than on the regime itself. Goldfajn and Olivares (2001) say that adverse currency risk should imply lower domestic interest rates but not necessarily lower spreads on foreign currency debt. Acosta (2002) argues that in rigid regimes domestically significant inflow of capital tend to boost the use of credit and internal demand, encouraging consumption, which does not necessarily benefit the whole population or production system (which is normally weak), which will have to compete with growing imports. In the case of defending a rigid exchange rate in face of a current account deficit or capital flight, interest rates will rise, in an effort to curb the capital flight and a resultant economic downturn to curb imports. The country would have to apply counter cyclical policies to correct the problem.

### 3. *ECUADOR: Stabilization through Dollarization*

Ecuador is among the few developing countries that experienced a “take off”<sup>9</sup> in the early 1970s. The “take off” was however not sustained and the country did not mature into the next stages of development. Its economy is based on a large services sector accounting for 71.1 percent of the labor force, a manufacturing and agricultural sector which account for 21 percent and 7 percent of the labor force respectively. 50 percent to 69 percent of its labor force is informal (ILO, 2000)<sup>10</sup>. Ecuador’s trade structure is such that it has a high volume of trade with the United States and Latin American countries.

The main export item is petroleum which has historically accounted for the bulk of export revenues. Other export items include bananas and shrimps. Ecuador is currently the largest supplier of fresh bananas to the USA and the world second largest producer of farmed shrimps, after Thailand, accounting for close to 20 percent of the world production (UNCATD, 2001). Historically imports are composed of inputs for the manufacturing sector.

In analyzing Ecuador’s economic history it is best to look at events in three phases. The pre-boom phase and the boom years of 1969s and 1970s, crisis and stabilization years of 1980s and more importantly the 1990s that led to the dollarization of the economy.

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<sup>9</sup>Rostow (1971) defines this as the third stage of development. It is take off into sustained growth, industries and investments expands rapidly, so do resources and methods of entrepreneurs, the use of natural resources and methods of production.

<sup>10</sup> International Labor Organization

### 3.1 *Import substitution, oil discovery and oil price boom (1960-1979)*

Prior to the discovery of oil in 1967, Ecuador was mainly an agrarian economy with very few linkages to the manufacturing and exports sectors. Succession of military dictatorships financed industrialization through import substitution policies.

During the 1970s, the discovery of oil and increased import substitution industrialization led to an increase in investment, of which gross capital formation formed the largest part. During the period 1970-77 investment grew by 11.1 percent per year, while gross capital formation grew from 16.2 percent of GDP in 1960s to 23.8 percent of GDP between 1970 and 1977 (De Janvry, Sadoulet and Fargiex, 1991). The oil crisis of 1973-1974 had a favorable impact on the country's economy. It led to a six fold expansion in exports and GDP growth rates averaging 8.6 percent during the period 1970-1977 (IDB, 1988). By 1974 Ecuador's trade surplus averaged US\$ 340m. The boom in the petroleum sector led to an appreciation of the exchange rate. The non tradable sectors grew rapidly, while the tradable sector stagnated<sup>11</sup>. The non-tradable, in particular services accounted for the largest share of GDP, while the manufacturing and agricultural sectors lagged behind. Growth in the agriculture sector stagnated to 1.3 percent which was below the population growth rate of 1.8 percent; as a result the sector was unable to meet the consumption needs of its population (De Janvry et al., 1991). The deficit in food was imported.

While exploration in the petroleum sector grew and oil revenues increased, the government intensified its import substitution industrialization program by importing

close to 80 percent of all industrial inputs, of which capital goods accounted for a larger share. It also fixed the exchange rate at 25 sucres/US\$ and fixed domestic prices of petroleum products. In order to control foreign borrowing, Ecuador set up an institution called *Comite de Credito Externo* in 1973. With this institution in place, Ecuador followed a prudent debt policy until 1977. Further, Ecuador implemented a massive social investment program aimed at increasing levels of literacy and improving health. However its domestic resource mobilization institutions were inefficient with only 5 percent of the economically active population contributing to income tax. The outcome was a heavy reliance on the export sector to finance public debt, with oil revenues accounted 50 percent total public revenue.

By 1977 these policies started to take a toll on the ability of the country to sustain balance of payments and fiscal discipline. The exchange rate become overvalued, the external and agricultural sectors became uncompetitive. This was evident in the shift from a balance of payments surplus of US\$ 350 million in 1973 to a deficit of US\$ 34 million. In part, this was caused by increased imports and the increase in deficits in the non-financial public sector. By 1977 the *Comite de Creditor External* was abolished, this lifting restraints on external borrowing and capital made it easy to borrow commercially. The external debt grew from US\$ 340 million in 1973 to 2.6 billion dollars in 1979 (De Janvry et al., 1991).

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<sup>11</sup> This phenomenon is called the "Dutch disease".

### 3.2 *Debt crises era (1980s)*

By the beginning of the 1980s the buoyancy from private sector optimism had faded, exports of petroleum declined averaging 1 percent per year and the country faced a huge and increasing debt burden. The oil shocks and the debt crises of the early 1980s took a further toll on the economy. De Janvry et al. (1991)<sup>12</sup> say that “the result of eight years of oil boom and import substitution industrialization was that in 1982, before the onset of the debt crisis, the economy of Ecuador had been shaped in a very peculiar manner that made it highly vulnerable to external shocks”. Ecuador was highly vulnerable because, firstly, its industry relied heavily on imported inputs which accounted for 80 percent of all imports, secondly, the agricultural sector lacked dynamism, and thirdly, the structure of the economy was such that very few linkages were formed across the sectors. In addition the fixing of domestic oil prices led to structural rigidities, the erosion of the supply of petroleum for exports and heavy reliance on export revenues. The structure of the economy was one with a huge services sector accounting for close to 57 percent of GDP, while manufacturing and agriculture accounted for 17.5 percent and 13 percent of GDP respectively (IDB, 1988).

As the crises worsened Ecuador terms of trade, capital flight accelerated and GDP growth stagnated to levels below the population growth rate. Both public and external deficits worsened. Public expenditures grew from 27 percent of GDP in 1975 to 33 percent of GDP in 1981 without a corresponding increase in revenue (IDB, 1988). In response to

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<sup>12</sup> They show that while the manufacturing sector had the highest growth rate in Latin America, it was highly vulnerable because of the exchange rate appreciation and the absence of tariff protection and

this, the government raised interest rates to encourage private deposits. While deposits increased, central bank financing of fiscal debt could not be met, the government therefore resorted to money creation. This coupled with the devaluation that followed led to an increase in inflation, by 1983, Ecuador's inflation rose to 48 percent (Fargeix, 1990). In addition the government imposed restrictions on imports in order to restore its external balances.

In 1981 the government made its first attempt at the reform process and devalued the exchange rate from 25 sucre/US\$ to 33.15 sucre/US\$ in 1982. In 1983 it had a second devaluation to 42 Sucre/US\$ followed by a series of small devaluations. However the reform process was formalized in 1984, under President Febres Cordero. The reform package under stabilization included a series of devaluations, privatization and public sector restructuring aimed at reducing the public debt.

The country's external position improved. It experienced a trade surplus, but still had a balance of payments deficit. It also experienced a major contraction in GDP and an acceleration of inflation. The reforms suffered major setbacks when world oil prices collapsed in 1986 and an earthquake hit Ecuador a year later. Oil pipelines were destroyed and oil exports were paralyzed for about eight months. Exports resumed in 1987 after the pipeline was repaired. Public expenditures grew such that the deficit grew to 10 percent of GDP. Table 2 in appendix I shows main macroeconomic developments in Ecuador between 1975 and 1985.

### 3.3 *Exchange Rate management*

Prior to the debt crisis in 1982, the official rate was devalued twice, in 1961 and 1970. During the 1970s Ecuador maintained a multiple exchange rate regime consisting of a free market rate, and official rate fixed to the US\$ at 20sucres/US\$ and an intervention rate introduced by the central bank in 1976. The intervention rate was used by the central bank to intervene in the market to purchase foreign exchange. It moved parallel to the free market rate. However from 1982 as Ecuador gradually liberalized its exchange rate regime, the official rate underwent a series of devaluations leading to a large gap between the official rate and the free market rate. In 1984 the interventionist rate was applied to different categories of exports as Ecuador liberalized various sectors of its economy. By 1983 the market rate was twice the official rate and by 1986, Ecuador unified the interventionist and official rate, before liberalizing its exchange rate regime fully and adopting a float. By floating the Sucre, all transactions were unified under a single equilibrium rate.

Figure 2 shows that between 1975 and 1982 the nominal official exchange rate moved parallel to the inflation rate. According to De Janvry et al (1991), the official exchange rate appreciated in real terms from 1971 to 1981. Repeated exchange rate depreciation between 1981 and 1985 led to two long lasting consequences; firstly it increased the private sectors debt service obligations and secondly, it set an incentive to convert private wealth into dollars (Beckerman, 2002).

The central bank undertook a stringent monetary policy to head off exchange rate depreciation, but was forced to abandon the floating regime when the exchange rate came under a speculative attack (Beckerman, 2002).

#### 3.4 *Structural adjustment and stabilization (1990s)*

Reforms resumed in 1990. Most of the restrictions on trade were lifted by 1992, the capital account and financial sectors were liberalized and a unified exchange rate regime was adopted within a pre-announced crawling band. Other reforms included restructuring of the tax structure, completion of the privatization program, modernization of social security, expenditure cuts and public employment squeeze. In 1996, Ecuador became a member of the World Trade Organization.

The performance in the external sector improved markedly between 1990 and 1998. The composition of exports also broadened as Ecuador gained access to foreign markets for fruits, horticulture, shrimps and tuna. For a few of these, Ecuador ranks the world's top five exporting countries (UNCTAD, 2001). Improvements were also made in the country's industrial sector. As a result of expenditure cuts, the fiscal deficit dropped close to zero in 1993. Despite increased growth, inflation went unabated.

Characteristic of the 1990s was the turbulence in international markets, sharp drops in oil prices and the El Niño weather pattern. More than a decade of reforms did not help the country to build institutions necessary for a strong domestic sector. Initially, Ecuador

experienced modest capital flows, global crisis however led to a reversal of these flows. Another cause of the country's economic problems was lack of political stability as was evident in the change of four presidents within a period of four years. In addition, until 1998, Ecuador had been involved in a long standing border conflict with Peru. With political tension, it was impossible to maintain fiscal austerity designed in the reform program.

While resources were channeled to fighting political wars, the financial sector was neglected leading to crises in the banking sector. Eight banks were declared bankrupt between February and March 1999. GDP performance worsened, exports declined and Ecuador's balance of payments position worsened. Rising inflation and the worsening of the external debt led to currency substitution and dollarization of financial assets. By 1999 close to 80 per cent of all financial assets were dollar denominated. In 2000 Ecuador became the first country ever to default on Brady bonds and Eurobond which further damaged the credibility and increased capital flight and devaluation (UNCTAD, 2001). Expectations of devaluations and inflation grew as the Sucre lost its value. Between April 1999 and January 2000 the Sucre depreciated from 7000 Sucre/US\$ to 25 000 Sucre/US\$ (Central Bank of Ecuador, 2003).

Dollarization and currency substitution grew rapidly between 1989 and 1999. Table three shows that in 1989, currency dollarization was 9.7 percent, but rose to 47.4 percent in 1999. Loan portfolios shows a faster increase in dollarization with only 1.5 percent of the

loan portfolio denominated in dollars in 1989 increasing to 66.4 percent in 1999 (Central Bank of Ecuador, 2003).

Years of de facto dollarization led to the weakening of the financial sector. Financial liberalization was not accompanied by adequate development of banking supervision. Banks maintained risky activities such as offshore banking and aggressive interest rate competition. Exchange rate depreciation exposed private firms and individuals to positions of insolvency. To shield the already fragile banking system, the government closed all banks for a week in 1999 and froze all bank deposits for one year (UNCATD 2001). Later in assessing the sectors viability international auditors found that 60 percent of bank assets were absorbed by the government. Capital flight, dismal expectations and the high levels of inflation rates weakened the country's investment position. Crises in Brazil and Asia worsened Ecuador's already dismal balance of payments and fiscal positions. Ecuador's international competitiveness declined from 53<sup>rd</sup> in 1999 to 68<sup>th</sup> in 2001<sup>13</sup> (Global Competitiveness Report, 2001). In order to restore external balances, confidence into the economy and international competitiveness, the government enacted legislation adopting the US dollar as the country's official currency, in March 2000.

The move to dollarize was unilateral meaning that Ecuador did not require a mutual agreement from the United States. Under dollarization Ecuador has abandoned the exchange rate and monetary policy as instruments of macro economic adjustment as such

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<sup>13</sup> The world competitiveness index measures competitiveness in 75 economies. The criteria is based on openness of the economy, developed financial markets, quality of infrastructure, role of the government budget quality of technology, quality of business management, labor flexibility and the quality of judicial and political institutions.

these instruments can not be used to manage external accounts, accommodate the public deficit and assist failing banks. In addition it forfeits seignorage revenue which goes to the Federal Reserve Bank of the United States.

While full dollarization implies scrapping the central bank, Ecuador has maintained its central bank with limited operations. Using allocated and borrowed foreign exchange resources the central bank would be able to carry out some degree of liquidity management and to provide limited amounts of credit to banks undergoing liquidity stress (Beckerman and Cortes-Douglas, 2002). It will therefore have a “limited Lender of Last Resort function”, limited in the sense that it will not be able to create money.

### *3.5 Post dollarization*

Ecuador adopted dollarization at a time when it's banking, fiscal and external structure were weak. It was at the time when deposits were unfrozen, oil export prices were high and private wages were compressed. This compression of wages due to the fact that the exchange rate chosen for the conversion of the money supply in Sucre to dollars (25 Sucre/dollar) was very undervalued.

Initial results however show that dollarization succeeded in stabilizing expectations, as indicated by the declining interest rates and induced capital repatriation. The economy started to pick up in the latter part of 2001. Inflation fell to 37.7 percent in 2001 compared to 96.1 percent in 2000 (World Bank, 2002). Real GDP grew at 5.4 percent. It

also recorded a surplus in the non financial public sector of US\$15 million compared to a 300 million deficit in 1998 (Beckerman, 2002). Oil export earnings accounted for 2 percent of GDP in 2000 compared to 6 percent in 1998. Unemployment has since declined and real wages have also stabilized although they remain repressed in dollar terms. After a 40 percent depreciation in 1999, the real exchange rate appreciated, mainly due to the depreciation on the Brazilian real and appreciation of the US\$.<sup>14</sup>

#### 4. *BOLIVIA: A different approach to price stability*

Bolivia is another classic case of how heavy reliance on external finance disrupts the economy. Bolivia is an economy heavily reliant on the production and export of tin. Exports of tin, gold, natural gas and zinc account for close to 80 percent of total export earnings. Until recently Bolivia, had high export earnings from the illegal coca trade. It also has a manufacturing sector based on imports of capital goods and raw materials, and a thriving agricultural sector. According to the IMF (2003), Bolivia's chief export markets are the America's (39 percent)<sup>15</sup>, European Union (27 percent) and the countries of NAFTA<sup>16</sup> (20 percent). The structure of Bolivia's labor force has been very complex with various protectionist policies over the years. According International Labor Organization (ILO) the labor force participation rate is only 40.7 percent.

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<sup>14</sup> This phenomenon has been observed in countries that adopted currency board arrangements such as Argentina, Estonia and Lithuania. The case of Argentina shows that failure to correct this phenomenon can generate recession.

<sup>15</sup> This includes Andean community 21% and MERCUSOR 18%.

<sup>16</sup> North American Free Trade Agreement, consisting of USA, Canada and Mexico. The bulk of trade with NAFTA is with the USA.

Bolivia has undergone many phases of economic restructuring dating as far back as the late 1950s. More relevant to our analysis is the period between 1970 and 2000.

#### 4.1 *Pre crisis boom (1970-1979)*

Bolivia's economic performance has been tied to the exchange rate. Bolivia maintained an exchange rate fixed to the dollar at 20 pesos/US\$ during the 1970's (Pastor, 1992). It experienced a relatively stable exchange rate during the early of this period. However, due to the rigidity of the exchange rate and the oil crisis in 1973 and 1977, Bolivia lost external competitiveness and the exchange rate became overvalued. Inflationary pressures slowly began to mount, but owing to the social and political tensions in the country, the government pursued policies aimed at maintaining the real wage value. The exchange rate remained fixed, while the country's ability to attract resources declined. The combination of inflation and an overvalued currency led to the deterioration of the external account. Cole (1987) shows that between 1974 and 1979 imports more than doubled while exports declined by 30 percent, a new development considering that exports in Bolivia had historically exceeded imports.

The overvaluation of the peso eroded the government's capacity to maintain the exchange rate indefinitely and consequently confidence losses. Decline in business confidence caused major capital flight leaving the financial sector weak and vulnerable to external shocks. Public sector debt rose from US\$ 640.4 million to US\$ 2.7 billion between 1973 and 1981. To compensate for declining export revenues and finance the public debt, the

government was forced to borrow externally. According to Cole (1987) "the external debt financed a large share of the flight of private capital" (p. 80). Between 1975 and 1976 debt as a percentage of GDP increased from 12 percent to 22 percent. Characteristic of Bolivia's debt was a large percentage of the debt owed to private banks. This type of debt was much more costly and had a shorter maturity date than other debt instruments. In addition Bolivia's debt was highly sensitive to changes in international interest rates.

#### *4.2 Debt crisis, hyperinflation and stabilization 1980-1989*

Political instability between 1978 and 1982 contributed to the lack of policy commitment by the government. Mounting economic pressures were ignored for a long time. Though Peso was devalued to 25pesos/US\$ in 1979, it remained overvalued. One result of this was stifling the development of the non traditional sector. This served to further weaken Bolivia's external position. In addition the increasing debt burden suggested that Bolivia had already reached its credit limit (Cole, 1987).

In 1981, exchange controls were introduced. The irony behind this was that Bolivia had depleted its foreign exchange reserves and as a result had no foreign currency to allocate. A parallel market flourished and by December 1981 the parallel rate stood at 50pesos/US\$. The following year the official rate was devalued to 44pesos. And shortly after this the government adopted a floating exchange rate. The new system was dual, with a free market rate and an official market rate fixed at 44 pesos. All imports were purchased at the market rate while exports were sold at the official rate. The market rate

rose as a result there was a wide gap between the cost of imports and the weighted average exchange rate. Exports stalled and by October the official exchange rate stood at 200 pesos/US\$. Within 10 months the Peso had devalued by more than 300 percent. The collapse of world commodity prices led to a marked decline in tin production in 1983. As expressed in figure 3, the price and production of tin exhibited a declining trend since the onset of the 1980s crises and have not been able to recover to levels prior to the crises.

In the midst of political turmoil and unrest, the government attempted to reform the economy. Among the measures adopted were: controls on foreign exchange requiring exporters to turn over 100 percent of their dollar earnings (at the official exchange rate); qualitative and quantitative restrictions on imports; increased export taxes and a policy to protect real wages by instituting a trigger mechanism that would fully adjust the minimum wage after a 40 percent rise in the price level. The government also converted all dollar dominated contracts into pesos. Despite all these policies the key institutions such as the tax and financial system remained inefficient. Between 1982 and 1985, the government attempted five separate reform packages.

In the initial stages of the 1982 reforms inflation declined slightly. However Bolivia experienced a capital shock owing to the regional debt crisis and the collapse in the confidence of the banking sector. It is estimated that the economy experienced capital flight averaging US\$ 600 million between 1980 and 1981. GDP contracted by 7 percent while prices rose and imports declined (Pastor, 1992). The contraction of GDP led to a contraction of fiscal revenues and given the inefficient tax system, the public debt

worsened. One aspect of the inflation was the decline in real revenues, according to Pastor (1992), the fiscal debt increased by 70 percent.

In order to finance the deficit the government resorted to money creation. One characteristic of Bolivia's inflation was the role played by expectations. As evident in Figure 4, prices increased more than money supply<sup>17</sup>. The money creation continued despite the increased inflation, according to empirical evidence the cost of printing new bills was US\$20 million per annum making it the third largest import item after wheat and mining (Cole, 1987). In 1983 inflation stood at 330 percent, in 1984 at 2300 percent and by the beginning of 1985 at 29,800 percent. In the third quarter of 1985 public expenditures in nominal terms were 9 times higher than the previous quarter and after adjusting for inflation it was 6 times higher.

Dynamics in the exchange rate were such that they moved parallel to the inflation rate. In 1982 the floating exchange rate was abolished, while the official rate was devalued to 200 pesos/US\$. In the parallel market the rate continued to rise and reached 400 pesos in 1983. A series of devaluations followed the official rate and it reached 2000 pesos in 1984, 10 times higher than in 1982. The official rate followed the parallel rate. The government adopted a multiple exchange rate system with the official rate pegged at 2000 pesos/US\$ for "preferential" transactions. The other official rate was pegged at 5000 pesos/US\$ for other "official" transactions and the street rate was also used for other transactions (Cole, 1987).

During the first week of 1985 the street rate stood at 50,000 peso's, a month later the official rate was devalued to tally with the street rate. Two months later, the official rate was devalued to 75000pesos/US\$. By August 1985 the official exchange rate stood at 1million pesos/US\$. As the cost of holding pesos grew, currency substitution and financial dollarization increased. During the period 1981 -1985 it is estimated that CPI increased by more than 380,000 percent (Cole, 1987).

In 1985 the government announced the New Economic Policy (NEP) aimed at targeting inflation. The main tenets of this policy package were: the abolishment of the fixed exchange rate regime, removal of all food subsidies, abolishment of price controls, liberalization of external and financial sectors as well as the privatization of state owned companies. In addition to these, prices of gasoline and oil products were increased and on 31<sup>st</sup> December 1985, government froze public wages.

GDP rebound in mid 1986. Within three months inflation practically dropped to single digits and by mid 1986 prices had stabilized. During the same year world tin prices collapsed and inflation resumed. It was however contained but had adverse effects on the economy. Both external shock and the manner in which NEP was implemented contributed to the GDP contraction and the worsening social indicators. Also evident was the overvalued currency, rising trade deficits and a renewed dependence on credit.

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<sup>17</sup> Money supply declined in real terms.

### 4.3 *Busts and booms (1990-2000)*

Main developments in the 1990s were the eradication of coca farming, an activity that generated between US\$ 200 million and US\$ 400 million per year (Zuniga and Duett, 2001); increased FDI flows; credit booms and a crunch. According to Jemio and Weibelt (2002), FDI increased by US\$ 800 million between 1997 and 2000. It peaked in 1999 at US\$ 1 billion before falling by 30 percent in 2000. Bolivia experienced large private capital outflows averaging US\$ 300 million per annum. These outflows mainly resulted from an attempt by banks to reduce exposure to the Bolivian financial market. This was due to increased risk perception of banks about Bolivia's economic and financial future. Volatile capital flows led to cyclical swings in the financial sector with a credit boom in 1997 and 1998, and a crunch in 1999, 2000 and 2001 (Jemio and Weibelt, 2002).

During the 1990s Bolivia adopted a flexible exchange rate regime. For a large part of the 1990s, Bolivia maintained fairly stable macroeconomic indicators. GDP averaged close to 4 percent through out the 1990s, per capita GDP grew by 2 percent and investment flows increased. A study by UDAPE<sup>18</sup>(2001) shows that the real effective exchange rate constantly appreciated during the second half of the 1990s. This coupled with turbulence in emerging markets slowed down growth. Global turbulence had an adverse impact on the economy due high dependence of the Bolivian on the exports of a few primary products. In 2000 most of Bolivia's economic aggregates had improved. GDP stood at 4.5 percent, inflation stabilized at 4.5 percent (Central Bank of Bolivia, 2003). Commercial bank deposits registered an increased of more than 100 percent since 1998,

figures for July 2000 show that deposits stood at US\$ 4.2 billion. Bolivia has also seen a marked increase in international reserves totaling US\$ 1.1 billion in 2000 (World Bank, 2002).

Bolivia currently maintains a crawling peg exchange rate regime. It has a dual currency system due to high levels of de facto dollarization, an open trade regime and a large fiscal deficit. De-facto dollarization stands at 82 percent, placing Bolivia among the highest unofficially dollarized nations in the world. Figures from July 2000 show that close to 94 percent of the US\$ 4.2 billion deposits in the Bolivian financial system were denominated in dollars (Central Bank of Bolivia, 2003). The structure of the economy and its lack of institutions demonstrate the high degree of vulnerability in this economy.

## 5. *Implications of intermediate and dollarized regimes on long term sustainability*

### 5.1 *Implications for domestic markets*

In analyzing the sustainability of full dollarization on Ecuador, and de facto dollarization on Bolivia we examine the domestic market strength and external viability. We look at the major factors that determine the success of dollarization based on the literature review in section two.

### *5.1.1 Fiscal policy*

Both Ecuador and Bolivia have had a history of huge public debt. Large fiscal deficits usually indicate unstable macroeconomic policy stance. Most studies show that they are a symptom of more fundamental macroeconomic distortions. All things being equal, huge budget deficits tend to crowd out private sector investment. This results in lower access to bank credit or higher interest rates and a more appreciated exchange rate. Huge fiscal deficits in the presence of high dollarization limit an economies capacity to use fiscal policy as a policy tool. This is important to the functioning of any economy because it determines the use of aggregate resources and aggregate demand.

Lack of capacity to mobilize internal revenue is indicative of the extent of fiscal weaknesses in these economies. Domestic revenues depend on exports of primary products. Tax revenue as a percentage of GDP is 14.5 for Bolivia, and 18.2 percent for Ecuador. These ratios are low by international standards.

### *5.1.2 Financial sector development*

An efficient and well-functioning financial system is vital to the achievement of economic growth and stability. Firstly, it enhances domestic savings and investment, and their allocation to the most productive use, which promotes long-term economic growth. Secondly, it enables countries to attract larger volumes of foreign capital. Further a sound and efficient financial sector enhances policy credibility under different exchange

regimes. The banking crises of the 1990s indicate that Bolivia and Ecuador have fragile financial markets. Liberalization was done without a corresponding strengthening of prudential and supervisory<sup>19</sup> institutions, as a result banks were able to engage in risky activities<sup>20</sup>. The freezing of bank deposits by the Ecuadorian authorities indicates just how severe the problems of its financial sector were. To illustrate the state of financial markets in Bolivia and Ecuador, table 5, compares various financial sector indicators with those of Panama. Panama is used as a benchmark because it has financial markets that are integrated in to the global financial system. In 2000, Panama had liquid liabilities accounting for 86 percent of GDP compared to Bolivia and Ecuador that had 54.6 and 31.3 percent respectively (World Bank, 2002). More importantly is the spread over the LIBOR, while the spread averaged 30 percent between 1990 and 2000 in Bolivia, it averaged 3.7 percent in Panama during the same reference period (World Bank, 2002).

Other indicators compiled by the World Bank indicate that stock markets in Bolivia and Ecuador are underdeveloped, with low levels of capitalization and turn over. In 2001 the World Bank (2002) shows that capitalization of stock markets is US\$ 116 million for Bolivia and US\$ 1417 million for Ecuador. These figures represented 1.4 percent and 5.2 percent of GDP respectively.

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<sup>19</sup> A strong supervisory framework prevents failure of a bank spreading to other institutions. Prudential rules are therefore designed to constrain the risk exposure of banks and consequently reassure depositors that the system is sound (Beckerman, 2002).

<sup>20</sup> When liberalization is done in the absence of well functioning institutions it results in mismatches between assets and liabilities. Bank depositors tend to panic because they have incomplete information of the quality of institutions (Beckerman, 2002)

External shocks are therefore likely to have long lasting impacts on the development of both economies. To further illustrate the importance of strong and internationally integrated financial markets in cases where the exchange rate cannot do so, Beckerman (2002) cites the example of Panama. He says that because banks in Panama are integrated into the global financial system, banks tend to act as shock absorbers. For instance when government borrows abroad, international banks can offset the resulting dollar inflows by reducing their net liabilities. In addition by having overseas headquarters, international banks are able to serve as lenders of last resort (Beckerman, 2002).

### *5.1.3 Dollarization under conditions of high external debt*

The lack of financial deepening in these financial markets can be explained in part by the huge external debts. Huge external debt has a negative impact on private savings and investment. Resources used to service debt are used at the expense of development in other sectors of the economy. Table 6 shows the progression of Bolivia's and Ecuador's debt since the 1980s.

While the percentage of short-term debt flows in the total debt is low, the existence of high debt service ratios is indicative of debt overhang. As such these ratios could induce agents to transfer funds abroad. This transferring of funds may induce large scale capital flight even when a stable currency exists. Given that both countries are still undertaking reform, levels of high external debt complicate stabilization efforts and reduce the efficacy of reforms.

#### *5.1.4 Dollarization and labor markets.*

The state of labor market development in Ecuador and Bolivia is in its infancy. Both countries until late 1990s, maintained highly regulated and complex markets. Lack of flexibility of wages and mobility of labor between sectors, entail that effects of external shocks cannot be absorbed by other sectors. Any policy response to restore external competitiveness would mean more unemployment and productivity cuts.

#### *5.1.4 Dollarization under conditions of political risk*

Political uncertainty can lead to adverse shifts in market sentiments leading to capital outflows, and consequently crises. Both Bolivia and Ecuador have a long history of political instability. And stabilization performance closely tied to it. The frequent changes in governments and constitutions, increase risk and uncertainty associated to private sector activities. Such that even when a stable exchange is adopted, country risk is not eliminated. Country risk is one area rarely discussed in the debate on dollarization. Country risk may nullify most of the benefits of rigid exchange regimes. And in cases of intermediate ones, this increases the severity of a speculative attack.

## 5.2 *External viability*

Warning signal for any economy is usually the size of the current account and movements in the real exchange rate.

### 5.2.1 *Current account developments*

Vulnerability built up over a period of time is indicated through the movements in the current account since 1980, in Figure 5. The effects of the 1982, debt crisis is shown by the huge current account deficits in both countries. Effects of the nature shocks on the current account are indicated by the sharp increase in Ecuador's deficit in 1987. Crisis of the 1990s also had an effect on both countries external performance. Figure 5 indicates that the current account deficit has been persistent for both economies. Improving this phenomenon in the case of Bolivia, would require in the central bank to finance imbalances by running down reserves or borrowing. While Bolivia needs a huge amount of reserves to maintain its peg, running down reserves would not correct the current account deficit. This would lead to the abandonment of the peg. This again brings out the issue of sustainability of the peg.

The current account also reflects the movements in investment and savings and perhaps the effects of external and internal shocks on investment behavior. Improving, the current account would therefore require increases in savings and investment, specifically Foreign Direct Investment (FDI). The question of whether FDI increases under full dollarization

depends on the smoothness of Ecuador's transition into the new regime, political stability and the developments of strong domestic institutions. Dollarization itself will not guarantee improvements in the current account.

Figure 6 shows the effects of an appreciation of the real exchange rate on growth. The relative sharp appreciation in 1999 caused by the depreciation of the Brazilian Real and crisis in Argentina indicate a corresponding decline in growth. For Bolivia, investment will be more elusive given the type regime.

Improvement in the current account would also require a release of resources through an increase in national income relative to the rise in absorption. Both Ecuador and Bolivia have huge external debt, therefore the bulk of their resources are channeled to debt servicing. In addition fixed regimes whether rigid or intermediate are highly recessionary. Unless investment flows induce long term growth, the deficit is likely to persist. As such economic performance may not necessarily improve. Persistence of these deficits plays a huge role in fueling expectations that in turn lead to crises.

### *5.2.2 Movements in the real exchange rate*

The appreciation of the real exchange has had adverse effects of performance of both economies. Figure 6 shows the effect of the 1999 appreciation on GDP growth. Ecuador shows a marked decline in growth, with a negative growth rate when the real exchange rate peaked in 1999.

Under dollarization the depreciation of a major trading partners currency, for instance Brazil will, lead to an appreciation of Ecuador's real exchange rate. To restore external competitiveness Ecuador would have to adjust prices or wages. But as shown earlier, labor markets in Ecuador are highly inflexible. Ecuador would have to cut production or increase unemployment. Ecuador is not structurally capable of undergoing significant deflation. Wages are low, the economy is not diversified and it has a large informal labor force. Failure to correct a real appreciation would however, have destabilizing effect on the economy. To illustrate this further, we borrow from the recent crises in Argentina. Prior to abandoning the currency board, Argentina faced constant appreciation of its real exchange rate mainly as a result of the appreciation of the US dollar and the depreciation of the Brazilian Real. Its inability to correct the appreciation led to a loss in competitiveness, balance of payments problems and crises in the whole economy. This led to the abandonment of the currency board arrangement. The sustainability of Ecuador's regime therefore depends on its ability to correct such an appreciation. Exit costs under full dollarization are extremely high and would require the creation of a totally new currency. Therefore reversing dollarization would be even more costly.

Bolivia has the option to devalue in order to correct an appreciation. But it would do so at fuelling expectations and inflation. Given the openness of its capital account, capital reversals would be quick and destabilizing.

### 5.2.3 *Direction of trade*

The structure of trade of both economies shows that while they have high volumes of trade with the USA, they also have strong trade links with other countries. Bolivia for instance has strong trade links with Brazil, Switzerland, and other members of the Andean community. Brazil and the other members of the Andean community have floating regimes. Depreciation of any of these currencies would make Bolivian imports cheaper leading to a deficit in Bolivia's current account. Fluctuations in the Euro would also have similar effects on Bolivia's current account.

While Ecuador does the bulk of its trade with the USA (as indicated by Figure 1), it has close economic links with other members of the Andean community as well as Brazil and Argentina. Depreciations of these countries currencies would lead to current account imbalances.

### 5.2.4 *The ANDEAN Community*

The Andean Community has a membership of five Latin American countries; Bolivia, Colombia, Chile, Ecuador, Peru and Venezuela. Intra community trade is low compared to the large economies of MERCUSOR. However these economies exhibit similar macroeconomic fundamentals, as such it would benefit all member countries to harmonize their exchange regime. By adopting a similar and more stable currency these may increase trade and investment, through the benefits of a large domestic market.

They can also benefit from policy convergence. While it would take years to achieve a regime like the European Monetary system. It would be beneficial for them to borrow from the European case.

### 5.3 *Implications of the crawling peg and de facto dollarization for BOLIVIA*

Under a crawling peg, Bolivia faces four main challenges; the problem of liquidity, credibility, existence of a dual currency system and high degree of financial dollarization.

As part of its reform policies Bolivia removed all restrictions on its capital account. The problem of maintaining this type of regime under conditions of full capital account liberalization is that the country will require huge amounts of reserves.<sup>21</sup> When there are insufficient reserves to back the currency, Bolivia risks having currency crises. This happened in the 1980s, when it has no money to back its peg. The result of this is distortions in resource allocation. In addition the problem of liquidity undermines the sustainability of the peg as was the case in the Breton Woods era. This tends to increase the possibility of a speculative attack as economic actors shift their resources in anticipation of the failure of authorities to maintain the regime.

Figure 9 compares Bolivia's reserves to Ecuador's. There is a marked increase in reserves between 1992 and 2000, mainly as a result of capital inflows. Indicative of the credit

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<sup>21</sup> Stiglitz (2002) points out that this equals the total value of money supply plus short term foreign denominated credit, for any domestic currency to be converted into dollars on demand. In short the country has to have a full currency backed, equivalent to fiat money.

crunch in 1999, we see that reserves declined between 1998 and 1999. With the peg, Bolivia would have to impose restrictions on the capital account, without which capital flows would be susceptible to self fulfilling attacks<sup>22</sup>. The possibility of these attacks is heightened by liberalization of the capital account.

The possibility of devaluation makes Bolivia's regimes less credible. Possibility of devaluation means that there exists a currency risk premium. The currency premium makes trade and investment in Bolivia costly. In addition it makes the economy more fragile because any change in market perception or devaluation will cause quick capital outflows. This was evident in the Asian and Latin American crises of the 1990s.

In an effort to maintain an unstable exchange rate, the central bank is likely to resort to hiking interest rates. Interest rates are highly volatile and will cause businesses cycle fluctuations. An added disadvantage of this is the role played by political actors in central banks operations. As alluded to earlier the fragility of the financial system and lack of integration entails, longer and severe effects of banking and external crises.

De facto dollarization in Bolivia persists even after years of price stability. This can be explained by network effects<sup>23</sup> which raise the cost of reverting to the domestic currency (Beckerman, 2002; Dean, 2000). The high degree of de facto dollarization, presents major challenges to the countries reform process and the viability of the exchange regime. De facto dollarization limits Bolivia's capacity to conduct active monetary and

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<sup>22</sup> This refers to debt and currency crises, to which countries are vulnerable.

<sup>23</sup> Network effects tend to raise the cost of reverting to a domestic currency.

exchange rate policy. Its ability to use fiscal policy is curtailed due to the existence of the huge debt and lack of an efficient tax system.

The existence of a dual currency system, effects of a devaluation or depreciation are likely to be more complex and unstable. Dollar denominated financial markets lead to serious mismatches in corporation and individual balance sheets. While dollarization does not cause crises, the presence of two units of account subject to unstable exchange rate intensity, the distortionary effects of exchange rate depreciation make crises much harder to manage than in the case of a single currency system.

#### *5.4 Implications of dollarization for Ecuador*

Linking the analysis above to the OCA Criteria, we can conclude that Ecuador and USA do not constitute an optimal currency area. Under dollarization, Ecuador faces additional challenges of the loss of the central bank as the lender of last resort, loss of the exchange rate and monetary policy tools, loss of sovereignty, loss of seignorage. The transitional costs may also be high.

Currently the central bank maintains limited function and will be able to bail out troubled banks by borrowing externally. Ecuador's debt burden is however huge and limits the capacity of the central bank to borrow externally. The limited role of the central bank will be unsustainable in the long run. All functions will be transferred to the Federal Reserve Bank.

One implication of dollarization is the loss of economic sovereignty. While borders still matter, economic sovereignty is important to any nation. Ecuador not only loses economic sovereignty but also some degree of political sovereignty given that economic decisions are closely related to the politics of a country.

The question of seignorage is quite difficult to estimate, since it has only been two years since, Ecuador dollarized. Given that Ecuador was highly dollarized prior to 2000, we could conclude that the loss will be low. However Yeyati and Sturzenegger (2001), show that losses can be quite substantial.

Shocks facing Ecuador and the USA are different and would impair Ecuador's ability to stabilize the economy. Decline in oil prices entail a negative shock for Ecuador, but a positive shock for USA. The USA might follow a contractionary policy to curb inflationary pressures of effects of a boom. Ecuador, being already in a state of recession would have to apply an expansionary policy. It would be unable to because policy is controlled by the Federal Reserve Bank. Effects of such shock could be absorbed if Ecuador was integrated into global financial markets. It could respond to declining oil prices by using short term cures such as foreign loans or proceeds from privatization. It would do so, however, at a risk of depleting its resources.

Social and political costs of sharp economic fluctuations mandated from time to time by dollarization may lead to unstable economic activity. This may discourage economic

investment and lend support to increased government intervention. Lack of the exchange rate as a policy tool may induce reversals in trade policy, such as raising tariff, non tariff barriers and capital controls.

## 6. *Conclusion*

The decision to pursue a rigid exchange rate regime such as dollarization requires careful consideration and examination of initial conditions prevailing in a particular country. While losses associated with dollarization may seem less costly in the short run, they have adverse long run implications. In Ecuador the case of persistent inflation motivated the need for a stronger currency. However for countries considering dollarizing, they have to take into account labor market flexibility, financial market integration and efficiency, structural diversification and political feasibility. Our analysis above shows that neither Ecuador nor Bolivia meets the standard Optimal Currency Criteria.

While Ecuador's initial statistics show evidence of significant economic recovery, the long term sustainability of dollarization is questionable. More importantly is the ability of Ecuador to insulate itself from external shocks. While dollarization does reduce currency and country risk, external shocks are still likely to have an adverse impact on the economy as was the case with Argentina. The ability of Ecuador to correct real exchange rate appreciation is therefore vital for the success of dollarization.

Unlike Ecuador, Bolivia responded to persistent inflation using the orthodox IMF policies which worked to restore the economic stability. Bolivia currently has a crawling peg exchange rate regime and a high degree of de-facto dollarization. Therefore it still faces the risks associated with high devaluations, capital outflows and lack of confidence. The paper shows that this situation is much more volatile and dangerous than full dollarization. The possibility of devaluation associated with a peg may fuel inflationary expectations.

Lessons from Bolivia, however, show that it is possible to contain inflation and achieve stable economic growth without adopting a rigid exchange regime. Evidence from Panama shows that even dollarized economies can be affected by economic turbulence such as the one that hit markets in the 1990s. The lesson from Argentina is that rigid exchange regimes can lead to crises if economic fundamentals are not corrected.

Institutional factors also play an important role in exchange rate management and performance. The exchange rate at which the domestic currency should be changed by the foreign currency, the strength of the financial sector and the possibility of seignorage sharing should be taken into account.

Given that currently political boundaries still matter, national currencies play a useful economic role in conveying information about a country's economic fundamentals. Before taking any step to fully dollarize, countries should exhaust other possible alternatives based on the analysis on the initial conditions prevailing in that particular economy.

Sound economic policies are needed for both economies. While the dual currency system prevailing in Bolivia weakens its economy further, there are other solutions apart from dollarization that are viable. For instance countries in the Andean Community can harmonize their exchange rate system and adopt one similar currency system, without pegging it to the USA dollar. Also given that both countries are financially open economies, a flexible regime would be more favorable.

*Bibliography*

Acosta, Alberto, (2002) "False Dilemma of Dollarization." <http://www.globalpolicy.org> (January 21, 2003)

Barro, Robert and David Gordon (1983) "A positive theory of monetary policy in a natural rate model." Journal of Political Economy, 91,589-610.

Beckerman, Paul, (2002) "Longer-term origins of Ecuador's predollarization crisis." In Paul Beckerman and Andres Solimano, eds. Crisis and Dollarization in Ecuador: Stability, Growth and Equity (Washington DC: World Bank).

Beckerman, Paul and Hernan Cortes-Douglas, (2002) "Ecuador under Dollarization. Opportunities and Risks." In Paul Beckerman and Andres Solimano, eds. Crisis and Dollarization in Ecuador: Stability, Growth and Equity (Washington DC: World Bank).

Berg, Andrew and Eduardo Borensztein, (2000) "The pros and cons of full dollarization." International Monetary Fund Policy Working Paper: WP/00/50, March 2000.

Bolivia Business Online, <http://www.boliviabiz.com/> (February, 21 2003)

Braga de Macedo, Jorge, Daniel Cohen and Helmut Reisen, (2001) Don't Fix, Don't Float (Paris: OECD).

Calvo, Guillermo, (1999) "The dollarization debate mimeograph." University of Maryland.

----- (2000) "Capital Markets and Exchange Rates, With Special Reference to the Dollarization Debate in Latin America." April. <http://www.bsos.umd.edu/econ/>.

Central Bank of Bolivia, Statistical archives, <http://www.bcb.gov.bo/> (March, 13 2003)

Central Bank of Ecuador, Statistical archives, <http://www.bce.fin.ec/> (March 13, 2003)

Chang, Roberto, (2000) "Dollarization: a scorecard." Federal Reserve Bank of Atlanta Economic Review, 3<sup>rd</sup> quarter 2000, 85 (3), 1-11.

Chang, Roberto, Luis Cespedes and Andres Velasco, (2001) "Dollarization of liabilities, network effects and optimal monetary policy." Presented at NBER Conference on Crisis Prevention, Islamorada, Florida.

Cole, Julio Harold. 1987. Latin America Inflation: Theoretical Interpretation and Empirical Results (New York: Praeger).

Copeland, Lawrence, (2000). "Exchange rates and international finance." University of Stirling Addison, New York.

Dean, James, (2000) "De facto dollarization." Paper prepared for the conference "To dollarize or not to dollarize: exchange rate choices for the Western Hemisphere." October, Ottawa.

De Janvry, Alain, Elisabeth Sadoulet and Andre Fargeix, (1991) Adjustments and Equity in Ecuador (OECD, Paris).

Dellas, Harris and George S. Tavlas .2001. "Lessons of the Euro for dollarization: analytic and political economy perspectives". Journal of Policy Modelling, 23 (3), 333-345.

Dornbusch, Rudiger, (1973) "Expectations and Exchange Rate Dynamics." Journal of Political Economy, 84, 1101-1176.

Drazen, Allan and Paul Masson, (1994) "Credibility of policies versus credibility of policy makers." Quarterly Journal of Economics, 109 (3), 735.

Eichengreen, Barry, (1994) International Arrangements for the 21<sup>st</sup> Century. (Brookings Institution, Washington DC).

----- (2002) "International monetary options for the twenty-first century." ANNALS of the America Academy of Political and Social Science, January, 576, 11-25.

Eichengreen, Barry and Ricardo Hausmann, (1999) "Exchange Rates and Financial Fragility." NBER Working Paper 7418, Cambridge, MA 02138.

Fargeix, Andre, (1990) A Financial General Computable Model for the Analysis of Ecuador's Stabilization Programmers. (OECD, Paris).

Fisher, Stanley, (2001) "Exchange rate regimes: is the bipolar view correct?" Distinguished lecture on economics in government presented at the American Economic Association in New Orleans, January.

Frankel, Jeffrey, (1999) "No Single Currency Regime is Right for All Countries or at All Times." National Bureau of Economic Research, Working Paper: 7338. September.

----- (2001) "Full Dollarization: the case of Panama: Comment." Journal of Latin American and Caribbean Economic Association, Spring, 1 (2), 141-150.

Friedman, Milton, (1953) "The Case of flexible exchange rates." Essays in Positive Economics. Chicago University Press, Chicago.

Goldfajn, Ilan and Gino Olivares, (2001) Full dollarization: the case of Panama." Journal of Latin American and Caribbean Economic Association, Spring, 1(2), 101-140.

Inter-American Development Bank (1988) Economic and Social Progress Report on Latin America (Washington DC: IDB).

International Labor Organization (2001), International labor Handbook, (Geneva: United Nations).

International Monetary Fund (1990) International Financial Statistics Year Book, (Washington DC: IMF)

International Monetary Fund (2002) International Financial Statistics Year Book, (Washington DC: IMF)

International Monetary Fund (2003) Direction of Trade Statistics (March) (Washington DC: IMF)

Jemio, Luis and Manfred Weibelt, (2002) "Macroeconomic impacts of external shocks and anti shock policies in Bolivia: a CGE analysis." Working Paper, Kiel institute of World Economics, Germany.

Kenen, Peter, (1969) "Theory of Optimum Currency Areas: an eclectic view." In Robert Mundell and Alexander Swoboda, eds. Monetary Problems of the International Economy. 41-60. Chicago University Press, Chicago.

Larraine, Filipe and Andres Velasco, (1999) "Exchange policy for emerging markets: one size does not fit all." Essays in International Economics, July (New Jersey: Princeton University Press).

----- (2001) "Exchange rate policy in emerging markets: the case for floating." Essays in International Economics, December (New Jersey: Princeton University Press)

Levy-Yeyati, Eduardo and Fredrico Sturzenegger, (2000) "Exchange rate regimes and economic performance." Mimeo, Business School, Universidad Turcuato Di Tella, <http://www.utdt.edu/~ely>.

----- (2001) "Dollarization a premier." Universidad Turcuato Di Tella, <http://www.utdt.edu/~ely>.

Lopez, Franklin, (2001) "Dollarization in vulnerable economies." Paper presented at the Conference on "Forms of Monetary Unions", Fordham University, New York.

McKinnon, Ronald, (1963) "Optimum Currency Areas." American Economic Review. September, 51, 717-725.

Mackinnon, Ronald, (1999) "The East Asian dollar standard: life after death?" Paper presented at the World Bank workshop on "Rethinking the East Asian Miracle." July.

Moreno-Villalaz, Juan Luis, (1999) "Lessons from the monetary experience of Panama: a dollar economy with financial integration." Cato Journal, Winter, 18 (3), 167-175.

Mundell, Robert, (1961) "A Theory of Optimum Currency Areas". American Economic Review, September, 657-665.

----- (1963) "Capital mobility and stabilization policy under fixed and flexible exchange rates." Canadian Journal of Economics, November, 29, 475-485.

Mussa, Michael, Paul Masson, Alexander Swoboda, Esteban Jadresic, Paulo Mauro, and Andrew Berg, (2000) "Exchange rate regimes in an increasingly integrated world economy." Occasional Paper 193. Washington DC, International Monetary Fund.

Pastor, Manuel (1992) Inflation, Stabilization and Debt: Macroeconomic Experiences in Peru and Bolivia (Oxford: West View Press).

Rostow, Whitman Walt, (1971) Politics and the Stages of Growth 2n ed. (New York: Cambridge University Press)

Stiglitz, Joseph, (2002), "Capital market liberalization and exchange rate regimes: risk without rewards." ANNALS of the America Academy of Political and Social Science. January, 579, 219-260.

Stockman Allan (2001) "Optimal central bank areas, financial intermediation and Mexican dollarization." Money, Credit and Banking Journal, May, 3 (2), 648-665.

Summers, Lawrence, (2000) "International financial crises; causes, prevention and cures." American Economic Review Papers and Proceedings, May, 90, 1-16.

UNCATD (1999) International Monetary Issues for the 1990s. (Geneva, United Nations)

UNCTAD (2001) Investment Policy Review: Ecuador (Geneva: United Nations)

UDAPE (2001), Social and Economic Statistics for Bolivia. Vol. 11, CD-ROM. Unidad de Anlisis de Politicas y Economicas Ministerio de Hacienda. La Paz.

Willett, Thomas, (1999) "The OCA Approach to Exchange ate Regimes: A Perspectives on Recent Developments." Presented at the conference on "Should Canada and the US Adopt a Common Currency?" Western Washington University, April 30.

Williamson, John, (2000) "Exchange rate regimes for emerging markets: reviving the intermediate option." In Policy Analysis in International Economics (Washington, DC: Institute for International Economics).

World Bank (1991) Ecuador: Public Sector Reforms for Growth in the Era of Declining Oil Output (Washington DC: The World Bank).

World Bank (2002) World Bank Development Indicators (Washington DC: The World Bank).

World Economic Forum (2001) Global Competitiveness Report (Davos: World Economic Forum).

Zuniga, Manuel and Edwin Duett, (2001) "Dollarization in Ecuador." Mississippi State University.

*Appendix I: Tables*

Table 1

List of Dollarized Economies

| Country                  | Population | Political Status                     | Currency used                    | Since       |
|--------------------------|------------|--------------------------------------|----------------------------------|-------------|
| Andorra                  | 63,000     | Independent                          | French franc and Spanish peseta  | 1278        |
| Bhutan                   | 1.5m       | Independent                          | Indian rupee                     | 1948        |
| Channel Islands          | 140,000    | British dependencies                 | Pound sterling                   | 1797        |
| Cocos Islands            | 600        | Australian external territory        | Australian dollar                | 1955        |
| Cyprus, Northern         | 180,000    | De facto independent                 | Turkish lira                     | 1974        |
| Greenland                | 56,000     | Danish self governing region         | Danish Krone                     | Before 1800 |
| Guam                     | 150,000    | U.S. territory                       | U.S. dollar                      | 1898        |
| Kiribati                 | 80,000     | Independent                          | Australian dollar                | 1943        |
| Liechtenstein            | 31,000     | Independent                          | Swiss franc                      | 1921        |
| Marshall Islands         | 60,000     | Independent                          | U.S. dollar                      | 1944        |
| Micronesia               | 120,000    | Independent                          | U.S. dollar                      | 1944        |
| Monaco                   | 30,000     | Independent                          | French franc                     | 1865        |
| Nauru                    | 8,000      | New Zealand self governing territory | Australian dollar                | 1914        |
| Niue                     | 2,000      | New Zealand self governing territory | New Zealand dollar               | 1901        |
| Norfolk Island           | 2,000      | Australian external territory        | Australian dollar                | before 1900 |
| Northern Mariana Islands | 48,000     | U.S. Commonwealth                    | U.S. dollar                      | 1944        |
| Palau                    | 18,000     | Independent                          | U.S. dollar                      | 1944        |
| Panama                   | 2.5m       | Independent                          | 1 balboa=US\$1 (US dollar notes) | 1094        |
| Pitcairn Islands         | 56         | British dependency                   | New Zealand and U.S. dollars     | 1800s       |
| Puerto Rico              | 3.5m       | U.S. Commonwealth                    | U.S. dollar                      | 1899        |
| Saint Helena             | 6,000      | British colony                       | Pound sterling                   | 1834        |
| Samoa, American          | 60,000     | U.S Territory                        | U.S Dollar                       | 1899        |
| San Marino               | 24,000     | Independent                          | Euro (Italian lira since 1897)   | 1999        |
| Tokelau                  | 1,600      | New Zealand territory                | New Zealand dollar               | 1926        |
| Turks and Caicos Islands | 14,000     | British Colony                       | U.S Dollar                       | 1973        |
| Tuvalu                   | 10,000     | Independent                          | Australian dollar                | 1892        |
| Vatican City             | 1,000      | Independent                          | Euro(Italian lira since 1929)    | 1999        |
| Virgin Islands,          | 17,000     | British dependency                   |                                  |             |
|                          |            | U.S. territory                       | U.S dollar                       | 1973        |

|                              |         |             |             |      |
|------------------------------|---------|-------------|-------------|------|
| British Virgin Islands, U.S. | 100,000 |             | U.S dollar  | 1917 |
| Ecuador                      | 12.9m   | Independent | U.S. dollar | 2000 |
| El Salvador                  | 6.1m    | Independent | U.S. dollar | 2001 |
| Austria                      | 8.1m    | Independent | Euro        | 1999 |
| Belgium                      | 10.2m   | Independent | Euro        | 1999 |
| Finland                      | 5.2m    | Independent | Euro        | 1999 |
| France                       | 58.8m   | Independent | Euro        | 1999 |
| Germany                      | 82m     | Independent | Euro        | 1999 |
| Ireland                      | 3.7m    | Independent | Euro        | 1999 |
| Italy                        | 57.6m   | Independent | Euro        | 1999 |
| Luxemburg                    | .43m    | Independent | Euro        | 1999 |
| Netherlands                  | 15.7m   | Independent | Euro        | 1999 |
| Portugal                     | 10m     | Independent | Euro        | 1999 |
| Spain                        | 39.4m   | Independent | Euro        | 1999 |

Source: Levy-Yeyati and Sturzenegger (2001).

Table 2

## Macroeconomic stabilization in Ecuador, 1975-1987

|                              | 1975  | 1976 | 1977  | 1978 | 1979 | 1980 | 1981 | 1982  | 1983  | 1984 | 1985 | 1986 | 1987 |
|------------------------------|-------|------|-------|------|------|------|------|-------|-------|------|------|------|------|
| <b>Real Exchange Rates</b>   | n.a   | 97.8 | 100.9 | 99.4 | 98.6 | 100  | 11.8 | 109.4 | 104.1 | 86   | 89.3 | 71.9 | 55.3 |
| <b>Government Budget</b>     |       |      |       |      |      |      |      |       |       |      |      |      |      |
| Current Revenues             | 26.5  | 25.1 | 24.3  | 24.4 | 27.4 | 27.4 | 27.5 | 27.8  | 26.7  | 27.1 | 31.6 | 27.9 | 25   |
| Current Expenditures         | 20.9  | 20.5 | 22.5  | 20.9 | 21.6 | 23.7 | 24   | 25.2  | 22.3  | 21.2 | 22.4 | 22.9 | 20.7 |
| Interest Payments            | 0.9   | 1.2  | 1.6   | 1.7  | 2.4  | 2.6  | 3.2  | 4.9   | 4.4   | 3.8  | 4.4  | 4.1  | 2.8  |
| Other expenditures           | 20    | 19.3 | 20.9  | 19.2 | 19.2 | 21.1 | 20.8 | 20.3  | 17.9  | 17.4 | 18   | 18.8 | 17.9 |
| Total expenditures           | 27.4  | 27.7 | 28.8  | 27.4 | 27.5 | 31.3 | 33.2 | 33.3  | 27.6  | 25.6 | 27.5 | 28.9 | 26.9 |
| Deficit                      | -0.9  | -2.9 | -4.5  | -3   | -0.1 | -3.7 | -5.7 | -5.5  | -0.9  | 1.2  | 4.1  | -2.4 | -3   |
| <b>Total Public Sector</b>   |       |      |       |      |      |      |      |       |       |      |      |      |      |
| Current revenues             | 29.7  | 28.9 | 30.2  | 30.1 | 36.1 | 35.5 | 33.6 | 34.6  | 34.6  | 36.9 | 41.6 | 34.6 | 30.1 |
| Total expenditures           | 31.9  | 32.2 | 35.7  | 35.1 | 36.6 | 40   | 39.4 | 42.1  | 36.8  | 35.5 | 37   | 37   | 33.1 |
| Interest payments            | 1.1   | 1.4  | 1.7   | 2.1  | 2.8  | 3.1  | 3.8  | 5.5   | 4.7   | 4.2  | 4.7  | 4.5  | 3.2  |
| Other expenditures           | 30.8  | 30.8 | 34    | 33   | 33.8 | 36.9 | 35.6 | 36.6  | 32.1  | 31.3 | 32.3 | 32.5 | 29.9 |
| Deficit                      | -2.2  | -3.3 | -5.5  | -0.5 | -4.5 | -5.8 | -7.5 | -2.2  | 1.4   | 4.6  | -2.4 | -2.4 | -3   |
| <b>Monetary Policy</b>       |       |      |       |      |      |      |      |       |       |      |      |      |      |
| Total domestic credit        | 18.8* | 20.2 | 18.9  | 19.4 | 18.4 | 18.5 | 18.7 | 19.8  | 26.4  | 23.7 | 17.3 | 18.4 | 19.8 |
| Credit to the private sector | 20.6  | 21.8 | 21.9  | 22.8 | 22.9 | 22.6 | 24.6 | 25.9  | 30.9  | 28.2 | 25.9 | 24.2 | 23.4 |
| Money supply M1              | -1.8  | -1.6 | -3    | -3.4 | -4.5 | -4.2 | -5.8 | -6.1  | -4.2  | -4.5 | -8.6 | -5.8 | -3.5 |
| % of GDP                     | 14.4  | 16.1 | 15.8  | 15.6 | 15   | 15.3 | 14.4 | 14.5  | 14    | 13.7 | 12.4 | 12   | 12.1 |
| Money growth                 |       | 38.1 | 22.9  | 13.5 | 17   | 28   | 11.7 | 20.2  | 30.4  | 42.2 | 23.6 | 20.4 | 32.2 |

Source: Central Bank of Ecuador

Table 3

Dollarization indicators for Ecuador, 1989-1999  
Year-end percentage in US\$

| Year | Quasi Money | Deposits | Loan Portfolio |
|------|-------------|----------|----------------|
| 1989 | 9.7         | 14.7     | 1.9            |
| 1990 | 7.4         | 13.3     | 1.5            |
| 1991 | 7.5         | 14.5     | 3.0            |
| 1992 | 10.8        | 20.0     | 6.8            |
| 1993 | 12.6        | 16.9     | 13.4           |
| 1994 | 15.7        | 15.6     | 20.3           |
| 1995 | 24.3        | 19.2     | 28.3           |
| 1996 | 28.0        | 22.3     | 32.6           |
| 1997 | 36.9        | 23.6     | 45.1           |
| 1998 | 43.9        | 36.6     | 60.4           |
| 1999 | 47.7        | 53.7     | 66.4           |

Source: Central Bank of Ecuador

Table 4

CPI and exchange rates in Bolivia

| Year     | CPI      | Exchange rate (P/US\$) |          |
|----------|----------|------------------------|----------|
|          |          | Official               | Parallel |
|          | 1975=100 |                        |          |
| Dec 1972 | 0.51     | 20                     |          |
| Dec 1973 | 0.69     | 20                     |          |
| Dec 1974 | 1.02     | 20                     |          |
| Dec 1975 | 1.07     | 20                     |          |
| Dec 1976 | 1.19     | 20                     |          |
| Dec 1977 | 1.34     | 20                     |          |
| Dec 1978 | 1.96     | 20                     |          |
| Dec 1979 | 2.24     | 25                     |          |
| Dec 1980 | 3.03     | 25                     |          |
| Dec 1981 | 12.03    | 25                     |          |
| Dec 1982 | 51.6     | 200                    | 283      |
| Dec 1983 | 1174     | 500                    | 1244     |
| Dec 1984 | 968866   | 9000                   | 22100    |
| Dec 1985 |          | 75000                  | 1600000  |
| Dec 1986 |          | 100000                 | 1900000  |

Source: Central Bank of Bolivia

Table 5

Financial depth indicators for Bolivia, Ecuador and Panama  
1990 and 2000

| Country | Domestic credit from banking sector. |      | Liquid liabilities. |      | Quasi-liquid liabilities. |      | Ratio of liquid reserves to bank assets. |      | Interest rate spread. lending minus deposit rate percentage points |      | Spread over LIBOR (lending rate minus LIBOR percentage points) |      |
|---------|--------------------------------------|------|---------------------|------|---------------------------|------|--|------|--|------|--|------|
|         | In percent of GDP                    |      | In percent of GDP   |      | in percent of GDP)        |      | In percent                               |      | 1990   | 2000 | 1990   | 2000 |
|         | 1990                                 | 2000 | 1990                | 2000 | 1990                      | 2000 | 1990                                     | 2000 | 1990   | 2000 | 1990   | 2000 |
| Bolivia | 30.7                                 | 64.7 | 24.5                | 54.6 | 18                        | 46   | 18.8                                     | 5.8  | 18   | 23.6 | 33.5   | 28.1 |
| Ecuador | 15.0                                 | 39.9 | 20.4                | 31.3 | 11.3                      | 21.3 | 22.6                                     | 3.8  | -6   | 8.9  | 29.2   | 9.7  |
| Panama  | 52.7                                 | 111  | 41.1                | 86.9 | 33                        | 75.1 | ...                                      | ...  | 3.6  | 3.1  | 3.7  | 3.6  |

Source: World development Indicator, World Bank (2002).

Table 6

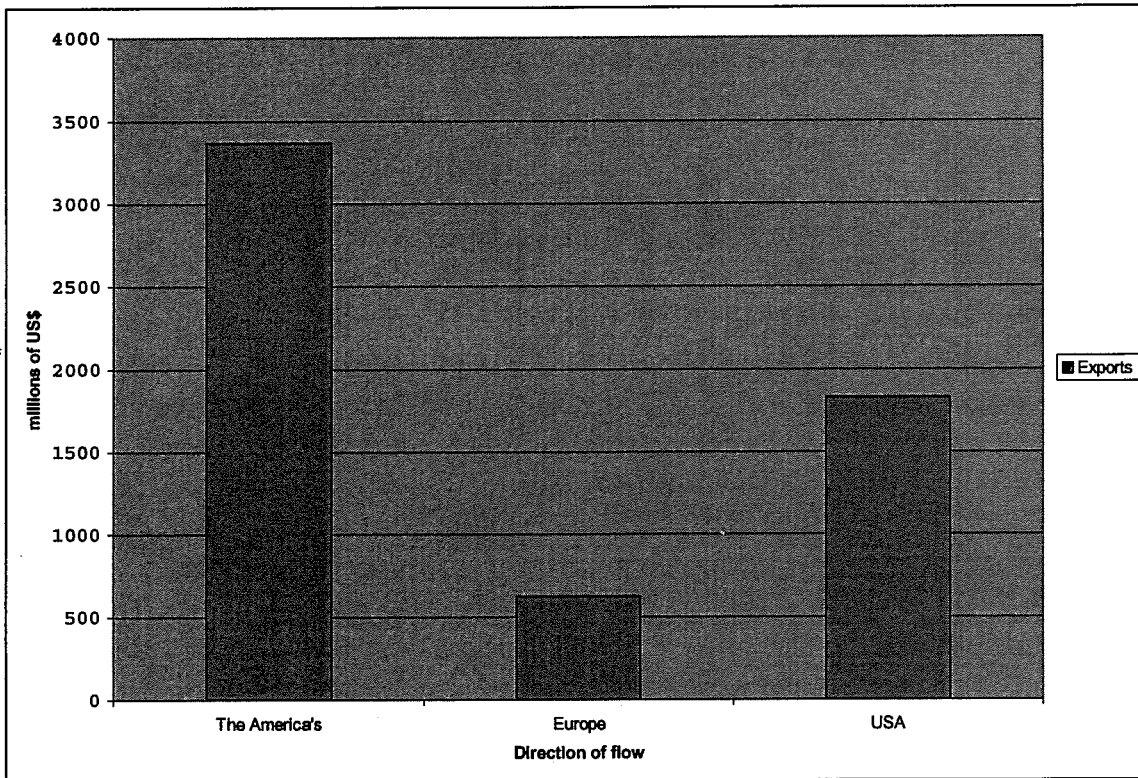
External debt indicators for Bolivia and Ecuador  
1980-2000

| Year | Bolivia    |                     |  |                    | Ecuador    |                     |  |                    |
|------|------------|---------------------|--|--------------------|------------|---------------------|--|--------------------|
|      | Short term | Total external debt | Percentage of short term external debt | Debt service ratio | Short term | Total external debt | Percentage of short term external debt | Debt service ratio |
| 1980 | 302.6      | 2702.4              | 11.2                                   |                    | 1575.1     | 5997.5              | 26.3                                   |                    |
| 1985 | 656.1      | 4804.6              | 13.7                                   |                    | 989.3      | 8702.8              | 11.4                                   |                    |
| 1990 | 154.4      | 4275.0              | 3.6                                    | 22.9               | 1814.0     | 12107.3             | 15.0                                   |                    |
| 1991 | 145.0      | 4061.3              | 3.6                                    | 20.6               | 2188.1     | 12459.2             | 17.6                                   | 22.1               |
| 1992 | 175.9      | 4234.7              | 4.2                                    | 25.3               | 2244.1     | 12270.8             | 18.3                                   |                    |
| 1993 | 207.2      | 4306.9              | 4.8                                    | 26.9               | 3856.9     | 14135.8             | 27.3                                   |                    |
| 1994 | 300.1      | 4876.6              | 6.2                                    | 23.3               | 4093.5     | 15060.5             | 27.2                                   |                    |
| 1995 | 306.6      | 5275.0              | 5.8                                    |                    | 1312.4     | 13993.6             | 9.4                                    | 16.0               |
| 1996 | 374.2      | 5194.7              | 7.2                                    |                    | 1586.3     | 14495.1             | 10.9                                   | 22.5               |
| 1997 | 429.5      | 5236.6              | 8.2                                    |                    | 2068.9     | 16418.5             | 12.6                                   | 17.5               |
| 1998 | 413.0      | 5615.6              | 7.4                                    |                    | 2271.6     | 15640.2             | 14.5                                   | 34.3               |
| 1999 | 412.6      | 5548.5              | 7.4                                    |                    | 1246.5     | 15305.3             | 8.1                                    | 26.6               |
| 2000 | 402.4      | 5762.0              | 7.0                                    |                    | 982.2      | 13281.2             | 7.4                                    | 34.5               |

Sources: World Bank Development Indicators (2002), Central Bank of Ecuador and Bolivia Business Online.

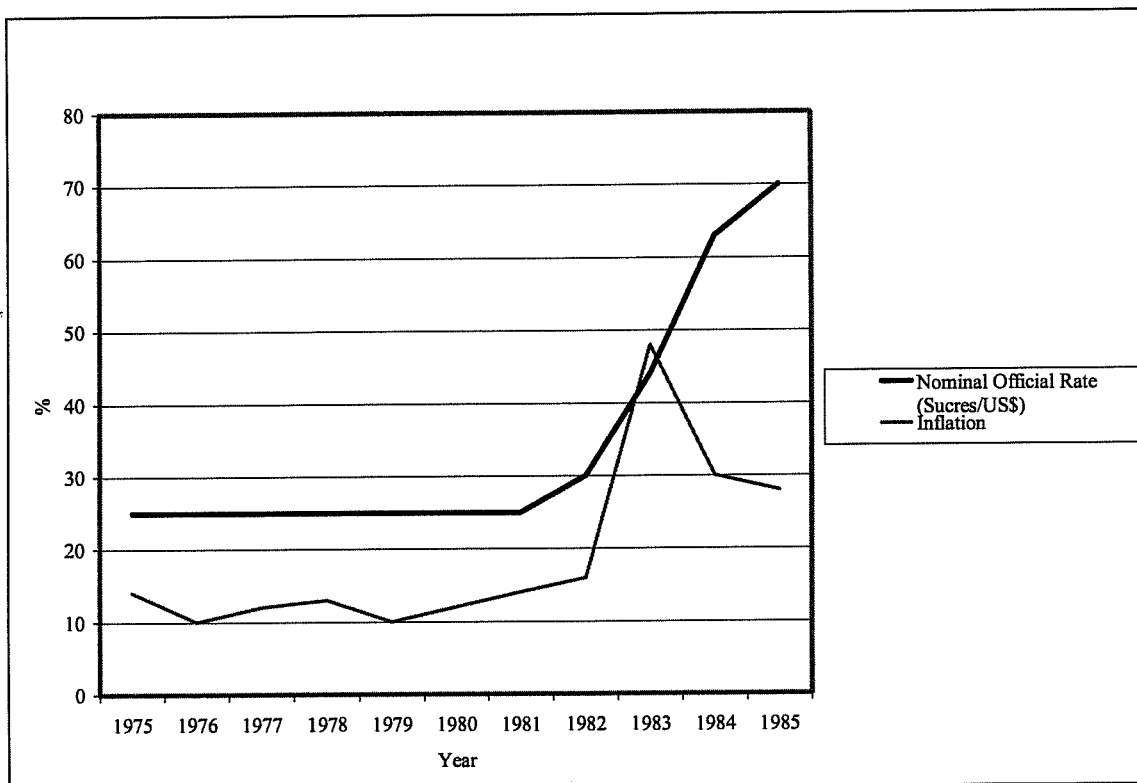
*Appendix II: Figures*

Figure 1

Destination of Exports  
Ecuador

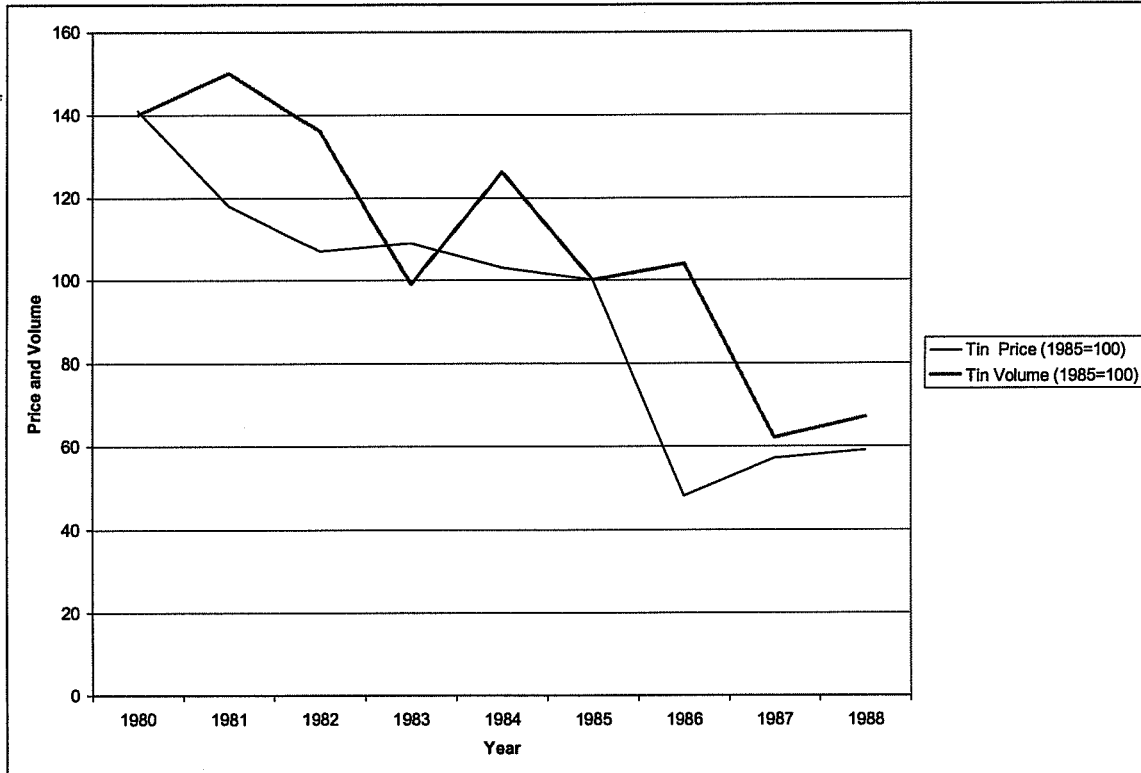
Source: compiled by author from direction of trade statistics, IMF, March 2003.

Figure 2

Exchange rate and inflation movements in Ecuador  
1975-1985

Source: compiled by author using central bank of Ecuador statistics

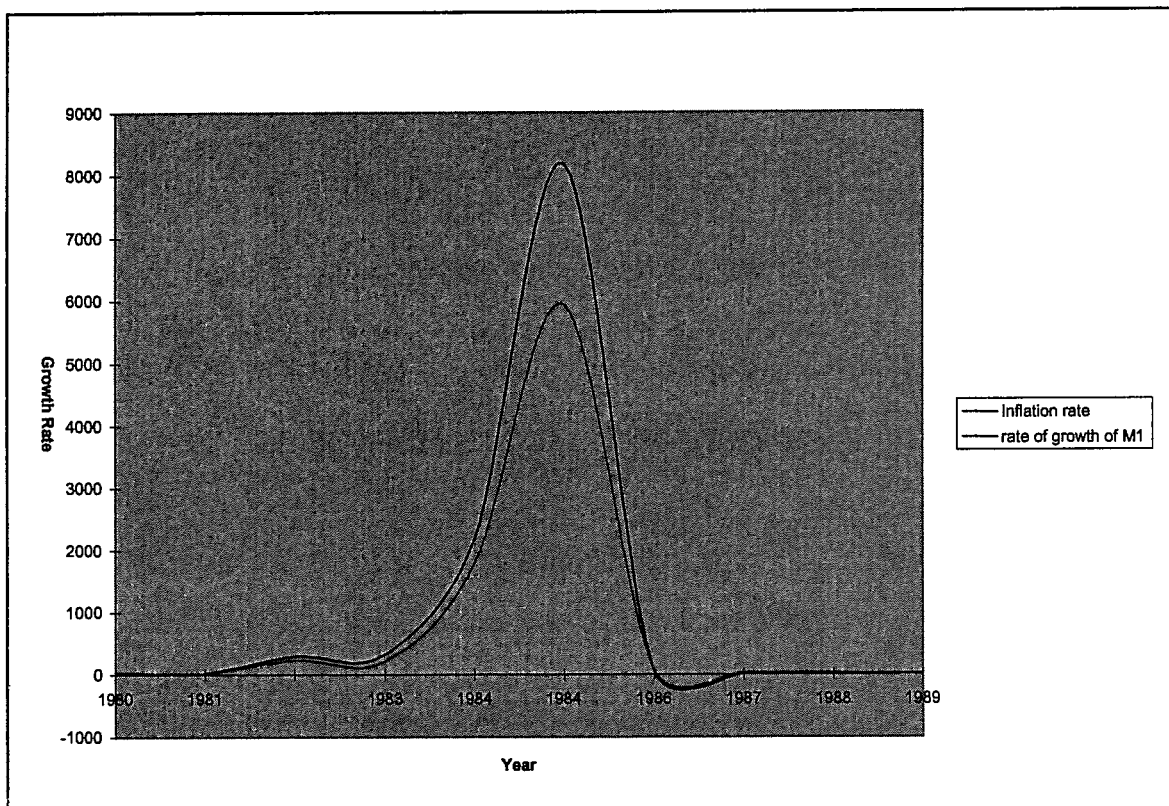
Figure 3  
Price and Volume of Tin



Source: International Financial Statistics Yearbook, IMF (1990)

Figure 4

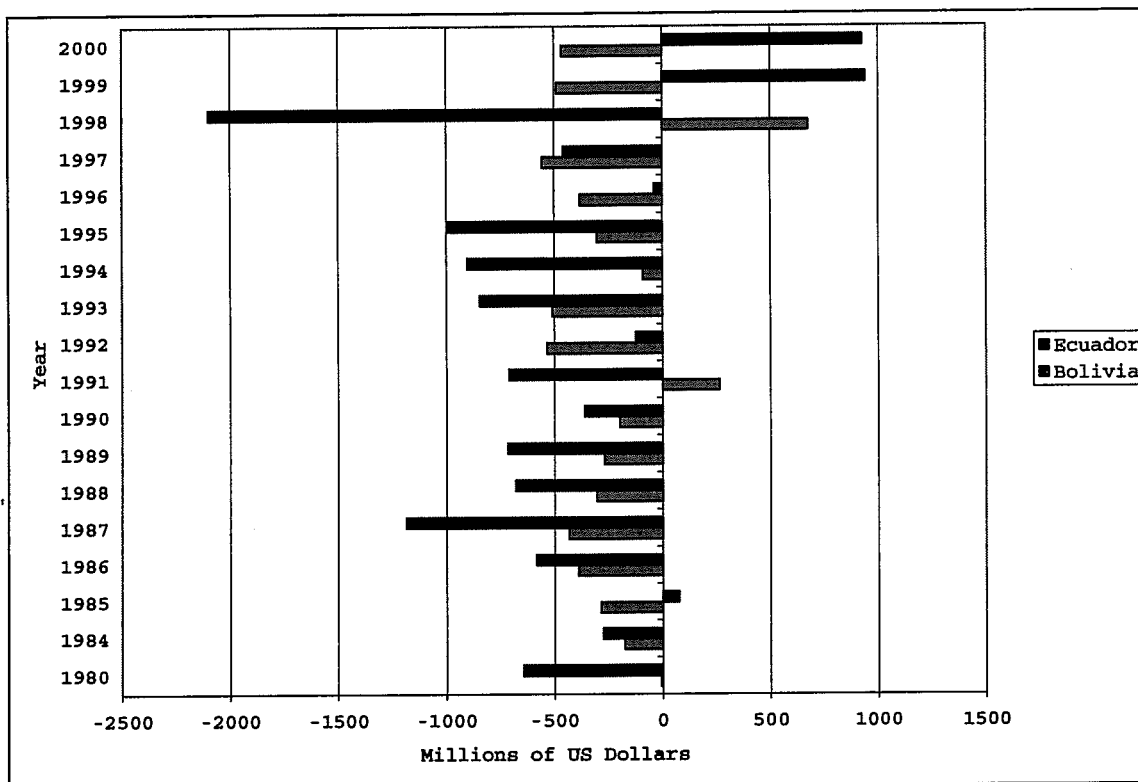
Inflation and Growth of M1  
Bolivia, 1980-1989



Source: compiled by author using Central Bank of Bolivia statistical archives

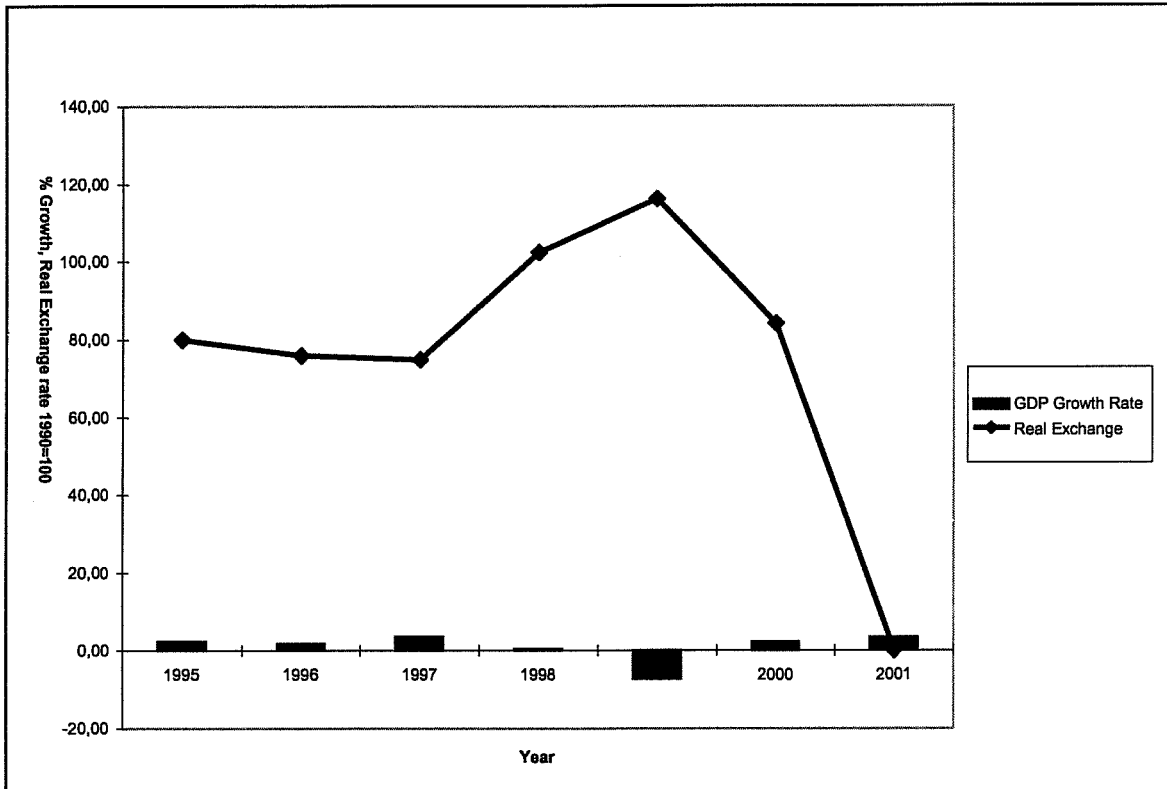
Figure 5

Current Account Developments  
Bolivia and Ecuador 1980-200



Compiled by author, based on world development indicators (2002)

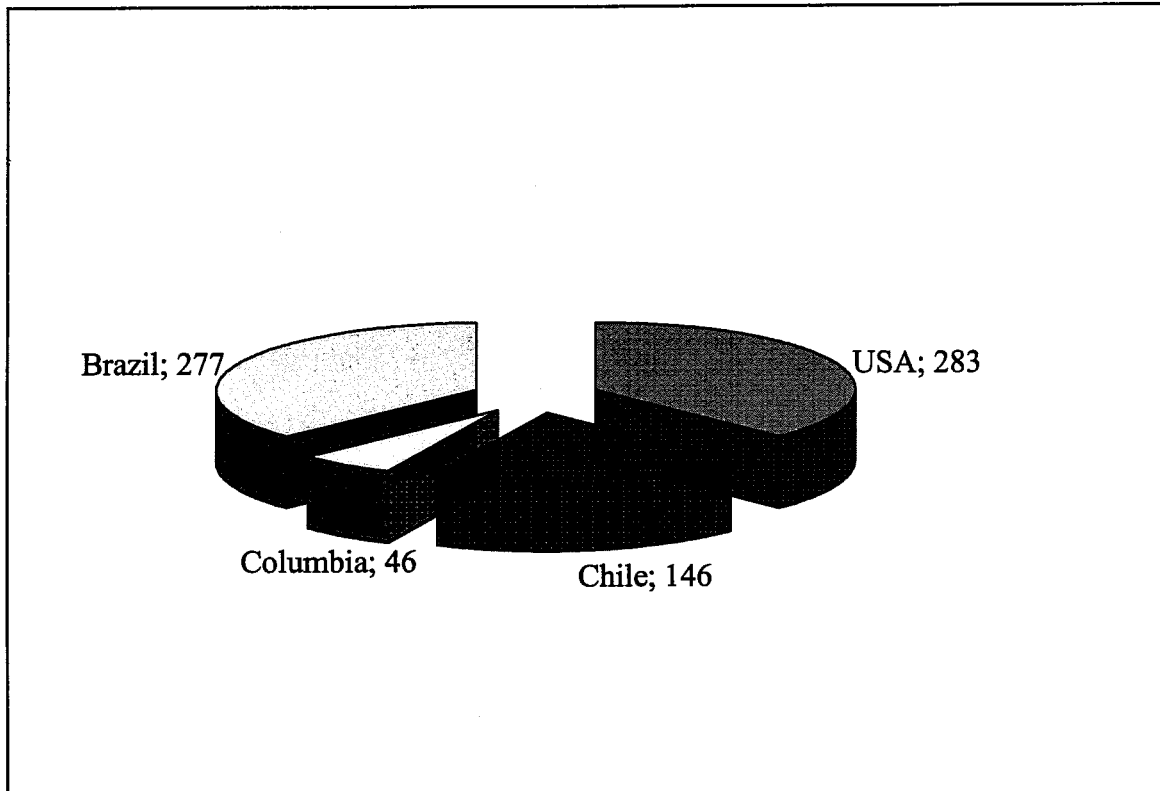
Figure 6

Real exchange rate movements and GDP growth in Ecuador  
1995-2001

Source: compiled by author base on World Development Indicators (World Bank).

Figure 7

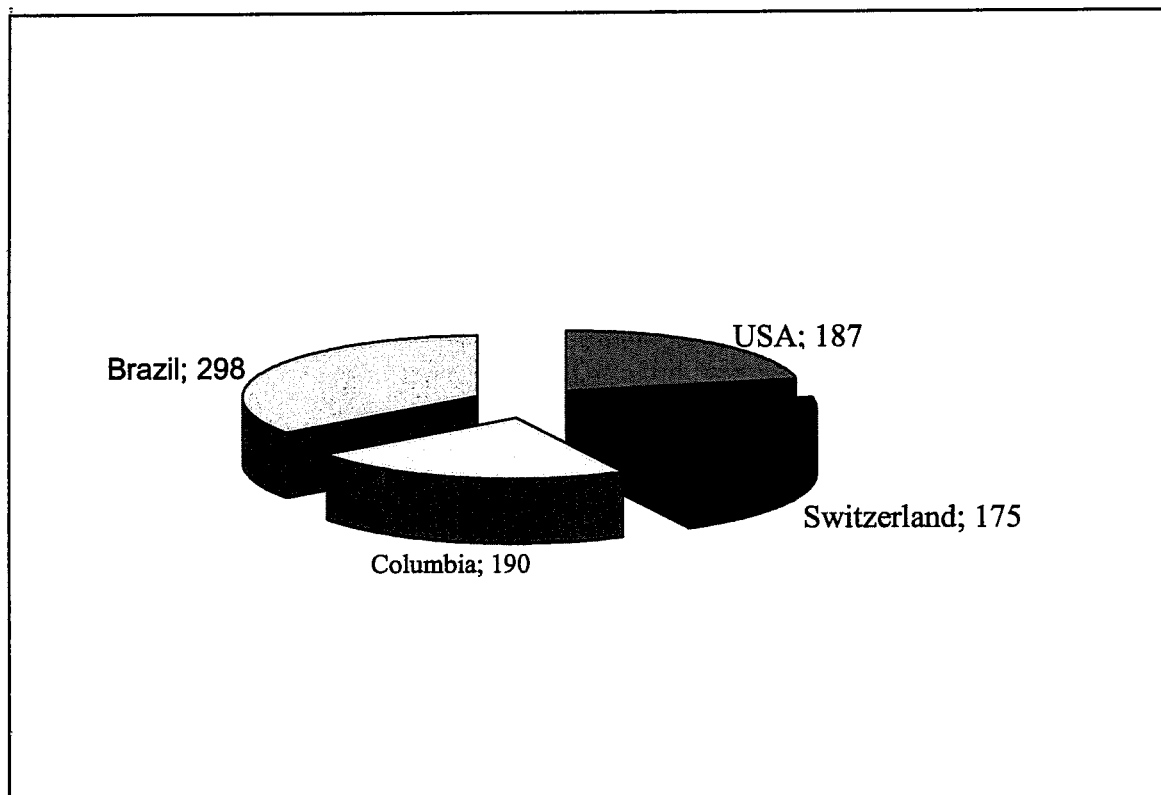
Origin of Bolivia's imports  
Millions of US\$



Source: Compiled by author based on direction of trade statistics (IMF) March, 2003.

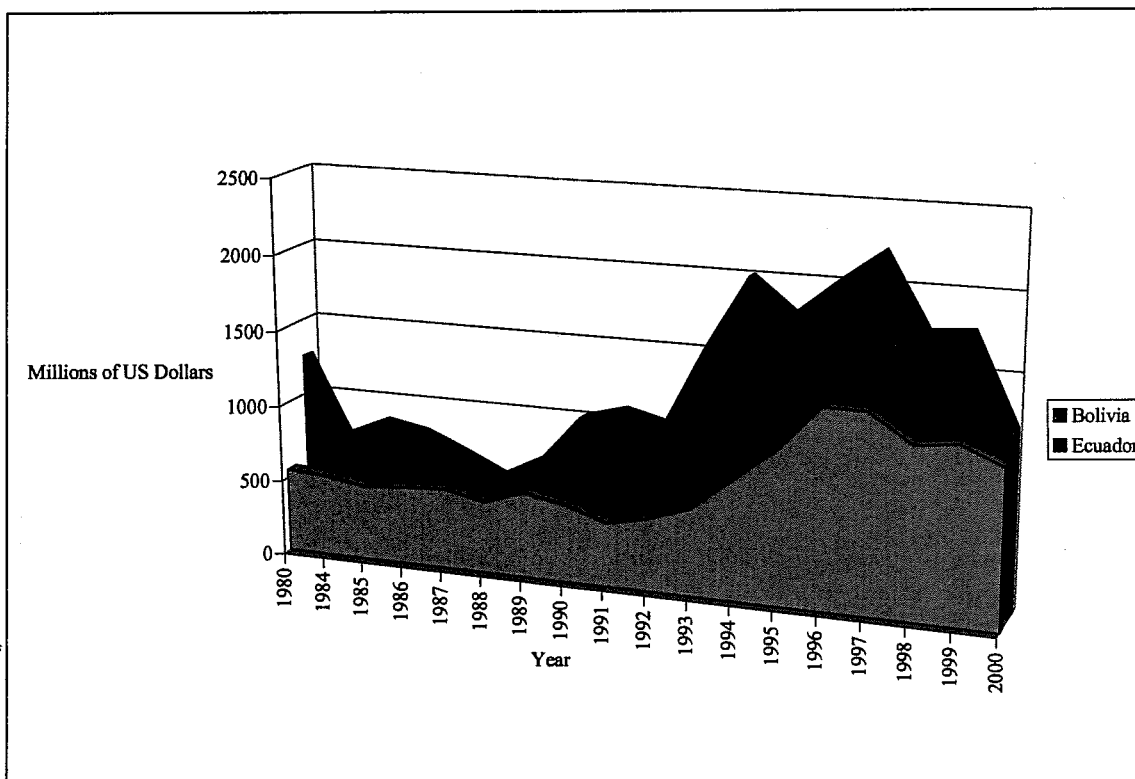
Figure 8

Direction of Bolivia's exports  
Millions of US\$



Compiled by author, based direction of trade statistics (IMF) March (2003)

Figure 9

Gross International Reserves  
Bolivia and Ecuador, 1980-2000

Compiled by author, based on World Development Indicators (2002) World Bank.