# MACROECONOMIC AND GROWTH POLICIES

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# Table of Contents

## Boxes:

# MACROECONOMICS AND GROWTH POLICY NOTE*

## *INTRODUCTION*

Since the 1990s, macroeconomic stabilization policies have become associated with price stability. Indeed, stabilization came to mean price stability in some professional circles. During this period, many developing countries achieved remarkable success in reducing inflation as well as improving fiscal and current account deficits. Yet, most of these countries did not achieve sustainable growth. Stabilization policies did not lead to stability of output; and it is real stability, not price stability, that is ultimately important for attracting investment, development, and for long-term growth.

This note lays out a framework for designing macroeconomic policy geared toward real macroeconomic stability *with* growth. This framework is based on the view that for macroeconomic policy to be effective, there need to be broader goals, additional instruments beyond fiscal and monetary policies, and a balanced role for government and the private sector. In addition, policy needs to be designed to coordinate fiscal, monetary, exchange rate policies, along with capital account management, regulations, and other economic tools. Within the framework presented in this paper, policymakers need to design programs based on flexibility and the needs of each country. All economic policies have trade-offs that benefit some groups more than others, and it should be up to the political processes within the countries to make the difficult choices amongst serious alternative policies.

This note is divided into three sections. The first discusses macroeconomic objectives, and the need for a broader set of policy goals. The second examines the conventional tools of macroeconomic policymaking: fiscal, monetary, and exchange rate policies. Some of the issues in this section, such as public sector revenue mobilization, are relevant to current policy choices in both low income and middle income countries. Some sections, such as aid modalities, aid and the 'Dutch disease', and to some extent, direct mechanisms of monetary policy, are geared toward low income countries. Many issues, such as some of the discussion on prudential regulatory structures and accounting for structural deficits, are more appropriate for middle income countries with greater administrative capacity. But we hope the discussion will give all policymakers ideas of creative measures that can be used to overcome market failures. The third and final section of this note looks at alternative tools for macroeconomic management, with an emphasis on interventions in capital markets.

## *MACROECONOMIC OBJECTIVES*

We begin our discussion by focusing on the objectives of macro-economic policymaking. At the most general level, the goal of economic policy is to maximize long-run societal

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well-being in an equitable and sustainable manner. Much of the recent discussion of economic policy has focused on intermediate variables, such as price stability or the balance of payments. Intermediate variables, however, are not important in their own right. Their importance derives largely from their role as possible indicators of economic performance in terms of truly significant variables, such as growth, development and equity. For example, price stability should be seen as a tool for achieving important long-run objectives, such as greater efficiency and long-term growth. The centre of attention of macroeconomic policymaking should be on 'real macroeconomics' and the use of productive capacity—the employment of capital and labour at their highest potential level—and improvements in that productivity.

**Stabilization and Growth**

What people truly care about is the stability and growth of their real incomes. It should be obvious why growth is important: even small changes in the rate of growth, say, from 2.5 per cent to 3 per cent, add up significantly over time because of the effect of compounding. With a growth rate of 2.5 per cent, incomes double every 28 years; with a growth rate of 3 per cent, they double every 23 years.

Issues of stabilization and growth cannot be separated. In general, the conduct of short-run stabilization policy has long-term effects. If the economy's output is lowered 10 per cent today, the best estimate is that the output path will be 10 per cent lower than it otherwise would have been ten years from now. That means that downturns have long lasting effects. Even Korea and Malaysia, countries that economists regard as having recovered well from the Asian crisis, are moving in a path some 10 points below the trend they set in the pre-crisis decades.

It's the overall stability of output and the real economy, and not just price stability, that concerns firms when they make investment decisions. High instability generates an 'unfriendly' domestic macro-environment that appears to be a crucial factor in explaining low rates of capital formation: firms have less incentive to invest, and growth will be lower. Similarly, economic policies that lead to fuller utilization of resources today may also lead to higher incomes in the future. This implies that there may be less of a trade-off between growth and stability than orthodox economics suggests.

There are several links between stabilization (and how it's pursued) and growth. Relying on alternative measures to stabilize the economy (such as the government expenditures used by Korea and Malaysia during the Asian crisis, or the regulations on capital inflows used by Chile and Malaysia during boom periods in the 1990s) may have less adverse effects on long-term growth than relying exclusively on modifying interest rates. An exclusive or even excessive focus on price stability can have a negative impact on growth.

## Inflation

Although mainstream economics has focused on price stability as one of its primary policy objectives, there is considerable confusion as to its role. High inflation is said to signal that the government (fiscal and monetary authorities) is not doing its job well. Inflation is thus a variable that is of concern not in its own right, but as an *indicator* of economic mal-performance. There are, however, two problems with this analysis. First, many people have started to view the indicator as the policy objective itself. Second, the links between inflation and real variables may be weaker than usually assumed.

All economic policies involve trade-offs, the question here is whether the benefits of further reducing inflation outweigh its costs. Since 1991 most developed and developing countries have experienced low or moderate inflation, with many countries experiencing relatively low inflation. When inflation is low or moderate, efforts to reduce it further may have smaller benefits and increasing costs, especially when traditional contractionary monetary policy is the only instrument used to fight it. As we'll discuss below, this may dampen employment in the short-term and growth in the longer-term.

Much of the importance placed on fighting inflation in developing countries today stems from the history of *hyperinflation* in several Latin American countries in the 1980s. There were also episodes of very high inflation in some transition economies of central and Eastern Europe in the early 1990s. But countries in Asia have rarely experienced hyperinflation, and the African experiences have been quite different from the Latin American experiences.

There is general agreement that hyperinflation has large economic costs, and that defeating it should be a top priority. Hyperinflation, and even high and uncertain inflation, creates huge uncertainty about changes in relative prices, which can be devastating for the information quality of prices and for the efficiency with which resources are used. Behaviour gets distorted as firms and individuals work to spend money quickly, before it diminishes in value. In some countries, huge amounts have been spent on institutional arrangements to protect individuals from the effects of inflation. Under more moderate inflation levels (let's say 15 to 20 per cent), these costs will be much lower.

### *The Impact of Inflation on Growth*

There is little evidence that moderate inflation has a significantly adverse impact on growth. Real growth rates in periods of fairly high inflation have sometimes been impressive—and far better than growth rates in seemingly similar countries that have brought inflation down. Table 1 examines growth in several countries that have experienced episodes of high inflation and hyperinflation, as well as low and moderate inflation. Very high inflation and hyperinflation have been generally associated with low growth or open economic recession, although there are exceptions to the rule, as in Israel in 1979-1985.

**TABLE 1**

| | Years | Low inflation | | Moderate inflation | | High/hyper inflation | |
|---|---|---|---|---|---|---|---|
| | | Inflation | Growth | Inflation | Growth | Inflation | Growth |
| Argentina | 1965-1974 | | | 30.5 | 5.1 | | |
| | 1975-1987 | | | | | 259.4 | 0.9 |
| | 1988-1990 | | | | | 1912.2 | -4.2 |
| | 1991-1993 | | | 69.1 | 10.1 | | |
| | 1994-2001 | 0.7 | 1.4 | | | | |
| | 2002-2004 | | | 12.2 | 1.6 | | |
| Brazil | 1965-1980 | | | 36.2 | 7.9 | | |
| | 1981-1986 | | | | | 150.4 | 2.2 |
| | 1987-1995 | | | | | 1187.8 | 2.0 |
| | 1996-2003 | 8.5 | 1.7 | | | | |
| Chile | 1965-1971 | | | 25.7 | 4.6 | | |
| | 1972-1977 | | | | | 269.9 | -0.6 |
| | 1978-1985 | | | 26.9 | 3.5 | | |
| | 1986-1994 | | | 18.9 | 7.4 | | |
| | 1995-2003 | 4.8 | 4.5 | | | | |
| Israel | 1965-1970 | 4.7 | 8.0 | | | | |
| | 1971-1978 | | | 30.3 | 5.5 | | |
| | 1979-1985 | | | | | 181.5 | 4.0 |
| | 1986-1996 | | | 17.9 | 5.4 | | |
| | 1997-2003 | 3.8 | 2.2 | | | | |
| Poland | 1981-1987 | | | 31.2 | 1.0 | | |
| | 1988-1991 | | | | | 233.8 | -3.7 |
| | 1992-1998 | | | 27.2 | 5.4 | | |
| | 1999-2003 | 5.1 | 3.5 | | | | |
| Turkey | 1968-1970 | 5.4 | 4.7 | | | | |
| | 1971-1977 | | | 17.5 | 6.1 | | |
| | 1978-1980 | | | | | 71.4 | -0.5 |
| | 1981-1987 | | | 37.9 | 5.8 | | |
| | 1988-2001 | | | | | 72.8 | 2.8 |
| | 2002-2003 | | | 35.1 | 6.9 | | |

*Sources: World Bank WDI/EBRD. Dataset from Bruno, Michael and William Easterly (1998); Inflation Crises and Long-run Growth, Journal of Monetary Economics, 41(1), February, pp.3-26.*

*Moderate* rates of inflation have been accompanied by rapid economic growth quite often, as in Argentina in 1965-1974, Brazil in 1965-1980, Chile in 1986-1996, and Poland in 1992-1998. The view that low inflation facilitates economic growth is *not* valid as a general proposition. For several of these countries, the periods of low inflation have been among those with the slowest rates of economic growth, such as Argentina in 1994-2001, Brazil in 1996-2003, and Israel in recent years.[1]

[1] Country studies on inflation crises and stabilization programs can be found in Bruno *et al*. (eds.) (1988 and 1991). For a more general discussion see Bruno (1995).

The hard question, of course, is why the experiences of these countries differ so markedly. Standard statistical techniques are, in theory, able to show whether inflation has been associated with lower growth or more inequality while controlling for all other variables. These cross-country regressions,[2] although imperfect,[3] suggest that inflation is not closely related to growth, so long as inflation is not too high – below a threshold of around 20 per cent.[4]

Unexpected or volatile inflation has been more problematic. The high variability in interest rates associated with volatile inflation can pose a serious problem in economies where firms have borrowed extensively, as was apparent during the Asian crisis. The rise in interest rates led to widespread bankruptcies because firms were carrying large levels of short-term debt that had to be refinanced at extremely high rates. Of course, had there been a history of high volatility of interest rates prior to the crisis, firms probably would not have held so much short term leverage in the first place, and the volatility in inflation would have had far less impact. If firms come to believe that there will be periodic episodes of high interest rates, they will limit their borrowing. But, as explained below, this too can have a significant adverse effect on growth.

Another problem in interpreting data is that shocks to the economic system often lead to inflation, but inflation is not necessarily the cause of the problem – it is merely a symptom of the external shock. Inflation itself is an endogenous variable that should be explained *within* the model. For example, the oil price rise in the 1970s led to inflation in much of the world; growth slowed and poverty increased. The underlying cause of the problem was not the inflation rate, but the higher price of oil. Because greater resources were being spent on oil, fewer resources were available for growth. The effect that the oil price shock had on countries in Latin America is particularly telling. Latin American countries had borrowed heavily to maintain growth during the 1970s, but the long-run costs of this strategy turned out to be enormous. When the United States raised interest rates to extremely high levels many countries defaulted on their loans, ushering in the lost decade of the 1980s.[5]

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[2] Levine and Renelt, 1992; Levine and Zervos, 1993; Bruno and Easterly, 1996 and 1998; Stanley Fischer, 1996.

[3] One of the problems with the simple regression models discussed above is that they seldom account fully for important differences in economic structures across countries, as discussed in this section.

[4] Many of the studies show no statistically significant relationship when inflation is below a certain threshold. This implies that one can't reject the hypothesis that there is no relationship below a certain level of inflation. Barro (1997) shows that there is no (or only a weak) statistically significant relation between economic growth and inflation when inflation is below 20 per cent. Ocampo (2004*b*) finds that threshold to be 40 per cent for Latin America since the mid-1970s. Others show a small but significant relationship, i.e. an increase of inflation from 3 to 5 per cent might have a statistical relationship—statistically different form zero—but so small that so long as inflation does not change much, the impact on growth is barely perceptible.

[5] There is an extensive debate about the cause of the lost decade. See Ocampo, forthcoming; Stiglitz (2003*a*) argues that it was not that the import-competing strategy eventually came to a dead end. Rather, the problem lay with the totally unexpected and unprecedented high levels of international interest rates that followed from the Fed's policies of the early 1980s.

Policymakers should, of course, undertake policies that mitigate the effects and facilitate a broad adjustment to 'shocks'. When governments respond to inflation by tightening macroeconomic policy, while doing little to facilitate the broader adjustment, the country is likely to be worse off, especially when the 'shock' has already led to an economic slowdown.

Overall, it seems clear that the inflation threshold differs from country to country; but in general, we can say that the threshold is significantly higher than the extremely low levels advocated in most inflation targeting regimes of the late 1990s and early 2000s. Moderate inflation does not seem particularly bad for growth, and too low inflation (aiming at price stability) may actually be bad for growth.

**Box 1: The Impact of Inflation on Inequality**

The litany against inflation also asserts that 'inflation is the cruellest tax of all'—that it especially hurts the poor. There are some cases where the distributive effects of inflation are clearly adverse. For example, hyperinflation in Argentina in the late 1980s severely hurt the poor, and price stabilization had a positive effect. However, in broader terms, the evidence is actually ambiguous as to whom—poor or rich—inflation hurts more. The impact of inflation on inequality depends on social and market institutions, as well as on the level of indexation in the economy.

Creditors and holders of nominal financial instruments, such as bonds and loans, are clearly hurt by unexpected increases in the rate of inflation. The wealthy tend to hold financial assets (these assets are less equally distributed than income), so inflation has a negative impact on the rich. In most advanced industrial countries, social security is indexed, so that poor retirees, who depend on social security, are fully protected. In contrast to industrial societies, social security is limited or non-existent in many developing countries. In these countries, inflation can have a greater effect on the elderly poor; though stronger family ties and informal networks in developing countries can somewhat mitigate the impact.

The effect of inflation on workers depends on whether their wages adjust. In places where inflation has been a problem, longer-term contracts often have cost of living adjustment clauses. However, in developing countries, many workers are not organized. For these countries, as well as for those without an inflationary history, indexation is not the norm for a significant proportion of the work force. Here, the extent to which inflation impacts workers depends on whether firms are forced to raise wages due to competition in the labour market, or to maintain worker productivity as 'efficiency wage' theory indicates they should.[6]

[6] If they do not, they will lose workers to firms who have adjusted wages in response to inflation. In addition, many firms pay higher wages than is absolutely necessary to attract and retain workers. Furthermore, wages have to be high to ensure that workers have enough nutrition to be productive. See Shapiro and Stiglitz, 1984.

How inflation affects different groups of society is also determined by which sectors of the economy it hits. If inflation is strongest in basic food or necessities, it may have a larger impact on the urban poor, assuming their incomes do not adjust. On the other hand, higher food prices can help agricultural workers and the rural poor. In addition, if inflation mostly affects imported luxury items, the impact on the poor will be low.

Overall, though, depending on market institutions, it seems that inflation—so long as it does not have serious adverse effects on the economy—is worse for bondholders than for most other parts of society. This conclusion conforms to the observed 'political economy': financial markets seem most concerned about fighting inflation, far more concerned than most other industries, corporations or workers.

### *The Costs of Fighting Inflation*

The benefits of maintaining low inflation have to be offset against the costs. The costs of inflation depend, of course, on how inflation is fought. But whatever the specific tools employed, the fight against inflation usually leads to higher unemployment, at least in the short run,[7] and the risk of lower growth in the medium term.

One of the arguments against excessive inflation is that it impairs the efficiency of the economy, but using tight monetary policy to fight inflation can be equally damaging. In Russia, excessively tight money from 1993 to 1998—defended on the grounds that it was needed to combat inflation—had extremely adverse effects on efficiency to the point that between 60 and 80 per cent of all transactions were conducted by barter. High interest rates used to fight inflation can also cause widespread bankruptcies, especially when an economy is characterized by a significant amount of leverage, as was the case in East Asia.

A heavy reliance on monetary policy to stabilize the economy may also lead to interest rates being highly variable. Both high and excessively variable interest rates make funds more expensive. In developing countries, equity markets work poorly, and most outside financing is in the form of debt. If firms are reluctant to take on debt they will have to rely on self-finance, and will find it difficult to meet their working capital needs. Thus high and variable interest rates impair the efficiency of capital markets, further lowering growth rates.

Sometimes governments address one problem, such as inflation, while exacerbating others. One way to check inflation is to allow the currency to appreciate. This reduces aggregate demand and domestic price pressures at the same time that imported prices in local currencies fall. Even when governments do not deliberately focus on the currency, the exchange rate typically strengthens when the government fights inflation by raising interest rates. While this may reduce inflation, it can have other costs. The strong

[7] Some argue that in the long run, there is no trade-off. (The Phillips curve is asserted to be vertical.) While there is little convincing empirical support for this hypothesis, even if it were true, it does not preclude there being a trade-off in the short run.

currency can hurt exports, the sectors that compete with imports, and employment generation. The resulting trade deficit may lead to an external balance problem for the future even worse than the problems that might otherwise have resulted from inflation.

**External Balance**

Like inflation, external balance is an intermediate variable, less important in its own right, and more important for its impact on variables that are of greater concern, such as stability and growth. It is not always easy to evaluate the links between external balance and the more fundamental objectives (just as it's difficult to evaluate the links between inflation and the fundamental objectives). Countries generally try to maintain rough external balance—but what this means is not always clear. Some countries, like the United States, have maintained large trade deficits for a long time, without a serious problem. Others seem to face a problem after only a short period of a relatively moderate trade deficit.

In the world of fixed exchange rates that prevailed before the early 1970s, a country that was buying more from abroad than it was selling had to pay for the gap, either by borrowing abroad or selling international reserves. Eventually, a country's reserves would run out, and its creditors would no longer be willing to lend, leading to a crisis.

With flexible exchange rates, the sequence is slightly different, but the outcome is not dissimilar. If the country seems to be borrowing excessively, lenders and other investors may suddenly lose confidence in the country and want their money back. The exchange rate plunges as investors try to take money out of the country, making it even more difficult for those in the country to repay dollar-denominated short-term debt.

Borrowing from abroad has both short-term and long-term consequences, but the nature of those consequences depends on what gives rise to the borrowing. If countries borrow to finance productive investments that will generate returns in excess of the interest rate charged, then growth will be enhanced. Investors will recognize the economy's increased strength and should have more confidence in it. But, by borrowing abroad, the country is taking on foreign currency risk, so that a devaluation of the local currency will raise the amount of external debt relative to domestic GDP. Moreover, short-term investors often look at only a part of the country's balance sheet—the size of fiscal and trade deficits. They often do not look at what gives rise to these deficits. So, even when capital inflows are used to finance productive investments, they might still cause instability as short-term investors worry about the increased deficits.

Frequently, however, capital inflows (especially short-term inflows) go to finance increased consumption. Then foreign investors might be justifiably worried about the country's ability to repay its debts. A lack of external balance might then be heralding a crisis that will have enormous costs to society. Argentina, for example, experienced zero inflation and a strong consumption-led recovery in 1996-1997 fuelled by capital inflows. GDP growth averaged over 6.7 per cent per year. But the current account deficit as a per cent of GDP nearly doubled, and unemployment remained high. The recovery was then

followed by a four-year recession (1999-2002), during which GDP fell 18 per cent and unemployment rose.

**Unemployment and Poverty**

One central objective of macroeconomic policy should be to maintain the economy as close to full employment, or full utilization of the labour force, as possible. Economists consider some unemployment necessary since it takes time for workers to move from one job to another, buts significant underutilization of a country's capacity obviously represents a great waste of resources. One problem policymakers face is at what level they should start to be concerned with unemployment. As we discuss later, there is generally a trade-off between unemployment and inflation. The question that economists usually ask is how low the unemployment rate can go without setting off inflationary pressures. (A similar question could probably be asked in relation to underemployment in developing countries, but this has not been subject to systematic research).

Many economists define full employment as the level of unemployment below which inflation would increase. The problem is that this number (sometimes referred to as the NAIRU, the non-accelerating inflation rate of unemployment) is elusive and variable. In 1993, the conventional wisdom in the U.S. was that the NAIRU was around 6.0 to 6.2 per cent. When unemployment fell well below that and inflation did not rise, it became clear that the economy was capable of operating at a much lower level of unemployment than the 'inflation hawks' had said. There are important tradeoffs that policymakers need to consider: lowering unemployment can increase inflation, and, perhaps even more importantly, fighting inflation can lead to higher unemployment and greater poverty.

Unemployment and underemployment are two of the most important sources of poverty and inequality; without a job, individuals in most developing countries are condemned to a life of poverty and exclusion. Unemployment also weakens workers' bargaining position, thereby lowering wages and further increasing inequity. There are, of course, also huge social costs of unemployment. But there are further reasons why unemployment may have a particularly strong impact on poverty and inequality. First, high unemployment typically hurts the least skilled people the most. There is a 'job ladder', with the most skilled taking jobs from the less skilled in times of a job shortage. That is why the unskilled are most likely to experience bouts of unemployment.[8] Second, high unemployment pushes down wages, and this increases inequality even more. Third, in many countries, especially developing countries, unemployment insurance is non-existent or woefully inadequate, and most workers have only a small buffer of savings. Hence, after an extended period of unemployment, savings are consumed, and individuals generally lose any assets that have been collateralized.

It is clear that two key objectives—maintaining low unemployment and underemployment and reducing poverty—typically complement one another. By the same token, some policies that promote growth also help to reduce poverty. But other

[8] Furman and Stiglitz, 1998.

policies might promote growth without reducing poverty or promote stability without stimulating growth. There are important trade-offs, especially when policymakers focus on intermediate variables. In the next section, we look at the main macroeconomic policy tools, the trade-offs associated with them, and their use in achieving long-term and short-term economic objectives.

## *FISCAL, MONETARY, AND EXCHANGE RATE POLICIES*

The three standard macroeconomic policy instruments that governments use to stabilize the macro-economy are fiscal, monetary, and exchange rate policies. Yet there are debates on the efficacy of each of these instruments. For example, some economists argue that fiscal and monetary policies are ineffective in all countries. Others argue that they are important policy tools, though their effectiveness depends on conditions in the economy. In addition how policies are pursued is important: different instruments have different implications for effectiveness, equity, development, and growth.

Discussions of policy instruments are often further confused because governments have limited ability to pursue one policy independently of the others. For example, under a fixed exchange rate system, the exchange rate chosen by the government might not be sustainable, given the chosen fiscal and monetary policies. This is especially true with open capital markets, since monetary or fiscal policy choices can cause capital to leave or enter the country, putting pressure on the fixed exchange rate.

In the discussion below we look at the effectiveness of each of these policies. We also discuss the importance of policy coordination and how this affects basic policy choices, including the institutional framework for policymaking.

### Fiscal Policy

Much of the fiscal policy debate has come to focus on the need for developing countries to maintain tight fiscal policy. One widespread view is that fiscal deficits should be avoided because they 'crowd out' private investment, can lead to a loss of investor confidence, and are inflationary. Standard Keynesian economics, on the other hand, emphasizes that fiscal policy is an effective tool for stimulating an economy facing an economic slowdown.

Yet, even those who believe in the efficacy of fiscal policy in developed countries recognize that developing countries face significant impediments to relying on fiscal policy during economic downturns (which is when they should engage in deficit spending). Many governments find it difficult or expensive to borrow the funds necessary to finance government spending, while countries that are able to borrow risk running up excessive debt burdens that could be difficult to repay in the future – especially when the funds are not well invested.

#### *Sources of Fiscal Revenues and Policy Constraints*

*Borrowing Constraints*

One of the main reasons the IMF was founded in 1944 was to help countries in depressed conditions finance deficits for economic expansion. The founders recognized the interdependence of nations, which means that a downturn in one country can have adverse effects on others. They also recognized that capital markets are imperfect, and some countries, especially those that are heavily indebted and need funds the most, are sometimes unable to borrow at all. The modern theory of capital markets, with asymmetric information and costly enforcement, explains why such credit rationing can occur.[9] When it does, countries are forced to engage in procyclical fiscal policy: they are forced to cut their deficits during economic slowdowns, exacerbating the recession.

Countries that depend on multilateral loans and foreign aid for financing also tend to be constrained to follow procyclical policies – even when multilateral lending itself is countercyclical. The conditionality generally attached to public sector loans often has the same effect of creating procyclical behaviour. Most conditionality includes nominal fiscal targets, meaning that during recessions, when tax revenues fall, countries are forced to cut expenditures to meet their targets. The procyclicality due to conditionality is compounded by the procyclical nature of aid.

*Aid Delivery and Absorption* [10]

Since the Millennium Development Goals (MDGs) were agreed by the UN General Assembly in 2000 and the Monterrey consensus on Financing for Development in 2002, efforts have been underway to muster support to increase development assistance to 0.7 per cent of developed country national income. In addition, the change in aid modalities has moved towards more direct budget support.

The new environment poses challenges for both aid donors and recipients. Most people would naturally expect that an increase in aid would lead to an increase in spending. What few realize is that this is only one half of the equation—aid really only benefits the recipient economy when it is absorbed. In the best of times, coordination is needed between officials in the Ministry of Finance and the Central Bank. With budgetary support, this cooperation is of paramount importance.

Aid financing is like other foreign inflows: it impacts exchange rates, interest rates, and domestic prices, as we discuss later in this note. The injections of liquidity, through the conversion of donor flows into domestic currency, can cause gyrations in interest and exchange rates, especially when flows are volatile. Donor flows may produce exchange-rate appreciation and, if sustained over a length of time, could lead to the kind of overvaluation phenomenon known as 'Dutch disease', which we discuss later, following the section on exchange rate policies.

Predictability of aid flows over time is a precondition for their effective use. But aid flows, like other capital flows, tend to rise and fall with economic cycles in donor

[9] Stiglitz and Weiss, 1981; and Eaton and Gersovitz, 1981.
[10] This section is taken from Schneider (2006).

countries and policy assessments of the recipient countries, as well as shifts in donor policies. This volatility is exacerbated by the gap between commitments and disbursements. Empirical work suggests that the volatility of aid flows exceeds that of other macroeconomic variables, such as GDP or fiscal revenue. Moreover, donors tend to move in and out together, causing herding behaviour. The PRSP, PRGF and CPIA function like a rating signal for donors, and they react in a similar fashion to signals by Bretton Wood institutions – in many ways, similar to the reactions of private creditors. When aid falls; it leads to costly fiscal adjustments in the form of increased taxation and spending cuts that reinforce the cyclical impact of declining aid flows. Similar to other capital flows, the volatility of aid flows also affects the balance sheets of the banking system and credit availability. We'll discuss these issues and policy measures that countries can utilize to deal with volatile capital inflows later in this note.

A policy response is also needed at the international level to stretch-out the period of the inflow in line with an underlying long-term development strategy. Donors should make commitments of assistance early in the budget cycle of the recipient, so that countries know how much they can reasonably expect and plan. Commitments should be for the medium-term or longer, even if the outer years can only be indicative due to budgetary restrictions in donor countries. This will allow the central bank to manage the liquidity of donor flows to avoid sudden shocks due to erratic disbursements, and allow the Ministry of Finance to raise resources to meet short-falls.

Policymakers need to look at the longer term as well, and answer some hard questions as they make decisions. If one expands public sector investment now, using aid, will the government be able to maintain that level of spending in the future, when the aid flows begin to slow? If not, is the initial spending wasted? Countries need to design policies to reduce aid dependency by maintaining and increasing domestic revenues in a sustainable fashion.

*Public Resource Mobilization*

The most effective way to fund government spending and reduce aid dependency is to mobilize domestic resources. The low levels of tax collection in many poor countries limits important government expenditures and forces countries to borrow or depend on aid flows to finance basic development needs. Given the volatility of external financing and the important role that public sector investment can play in long-term development, it is critical for governments to be able to raise domestic revenues. Only with increased tax revenues will countries be able to sustain long-term domestic investments and fiscal policy flexibility.[11]

Poor countries, on average, collect only around about two-thirds of the tax revenues as a percentage of GDP collected by richer countries.[12] Even some of the wealthier emerging market countries, such as India, still have relatively low tax revenue to GDP. In most developing countries direct taxes, such as income taxes, contribute only a small

[11] Low levels of domestic resource collection limit the government's ability to use fiscal policy – the government can't afford to lower tax rates during a recession and is unable to raise them during a boom.
[12] Gordon and Li, 2005.

percentage of total tax revenues. For example, tax collection on income, profits, and capital gains in Latin America and Asia is one-third to one-half of collection levels in OECD countries.[13]

Most developing countries rely on indirect taxes for revenue. Many of the reforms of the 1990s and 2000s, which pushed an agenda of liberalization, shifted taxation to VAT from other indirect taxes, such as tariffs and other trade taxes. VAT is a tax on consumption, rather than investment, and many orthodox economists supported the shift to VAT because they believed it would distort incentives to invest less than other types of taxes. Yet VAT is also a tax on the formal sector. It is therefore not as effective in countries with large informal sectors. In these countries VAT operates like a tax on sales rather than a tax on value added. In fact, VAT can encourage firms to stay in the informal sector to avoid taxation, hindering the development of the formal sector.[14] VAT is also a regressive tax, meaning that the poor pay more as a share of income than the wealthy. Multiple rates (such as higher taxes on luxury goods and lower or zero taxes on food and medicine) can be used to make VAT more progressive, though this requires additional administrative capacity.

Overall, the net result of the shift to VAT has been a reduction in revenues. In a 2005 study by the IMF[15] found that VAT replaced less than 30 per cent of the revenues lost through the elimination of trade taxes. Revenues from VAT have often been lower than expected due to difficulties in administration and collection.

Rather than relying on one indirect tax, such as VAT, countries should try to diversify sources of tax revenues in a simple and transparent manner. Reducing exemptions and deductions that benefit the wealthy, such as exemptions from capital gains taxes or low taxes on financial income, would of course help to increase collection. Many economists have argued against capital gains taxes because they tax sources of investment, but in many developing countries, declaring income in the form of capital gains or dividends is a way to avoid other forms of direct taxation. In a second best world where income tax collection is difficult, taxing these sources of revenue can be an effective means of reducing evasion. Furthermore, there does not appear to be a clear link between direct taxation and growth rates. FitzGerald found that growth in Latin America is largely independent of tax rates; and even in OECD countries the relationship between growth and direct taxation is small and the causality unclear.[16]

Although the WTO has limited the ability to use trade taxes, there is still some scope within the WTO for some use of trade taxes as well. For example, taxes can target luxury items that are imported; or a system of variable tariffs on agricultural and industrial goods can operate in a band within the WTO tariff bindings. (These and other trade-related taxes are discussed in the Trade Policy Note in more detail.) Countries can also impose export duties to capture some of the gains from devaluation. Argentina, for example,

[13] FitzGerald, 2006.
[14] Emran and Stiglitz, 2005.
[15] Baunsgaard and Keen, 2005.
[16] FitzGerald, 2006.

imposed export duties that generated revenues of almost 2.5 per cent of GDP following the devaluation of the peso in 2001.[17]

To reduce evasion, countries can also try to design more 'corruption-resistant tax structures' that rely on non-discretionary and readily observable tax instruments. One such measure is a tax on financial transaction. Countries such as Argentina, Brazil, India, and Korea imposed this type of a tax on bank debits. In Brazil, for example, the financial transaction tax collects around 1.5 per cent of GDP[18]. These taxes have the added benefit of providing information about firm transactions that can help authorities increase collection and find evading firms. Korea has also implemented a similar program to reduce the attractiveness of cash by offering a subsidy for credit cards. The goal is to shift transactions from cash to a medium that is traceable.[19] These types of taxes generally carry the risk that they might encourage firms to operate outside the formal banking sector, but in countries where banking services are relatively well developed, these taxes have proved to be effective. Furthermore, they play a countercyclical role by slowing financial transactions during financial booms and bubbles.

Other examples of non-discretionary 'corruption-resistant taxes' include taxes that target consumption items, such as luxury cars or homes. Within these categories, collection agencies should focus on what's observable. So, for example, taxing property sales might be more effective than taxing property values. Taxes on luxury items would, again, serve to enhance countercyclical policymaking during boom periods.

Improving tax administration is also important for increasing collection. Tanzania's tax reform, for example, raised tax revenues by 47 per cent from 1998 through 2003.[20] The Province of Buenos Aires' administrative reforms succeeded in increasing collection of direct taxes, such as car license fees (from 50 per cent to 90 per cent), real estate taxes (from 40 per cent to 70 per cent), and company income taxes. Other recommendations for improving tax collection and reducing corruption include improving information available to tax officials, sharing information between different departments (such as income, VAT, customs duties, etc.), and improving property cadastres and financial asset registries.

As mentioned above, income taxes have generally not collected significant amounts of tax revenue in most developing countries. Given the reliance on indirect taxation, and the low level of direct taxation, collection of indirect taxes in developing countries is now comparable to collection levels in developed countries. Some economists argue that to significantly increase taxes further countries might now need to improve direct tax collection.[21] This would have the added benefit of increasing the progressiveness of tax collection in developing countries. In many developing countries, income taxes are currently not progressive in practice because the wealthy are able to take advantage of

[17] Centrangolo: IPD Argentina tax case study, forthcoming.
[18] Oliveira: IPD Brazil tax case study, forthcoming.
[19] Jun: IPD Korea tax case study, forthcoming.
[20] Culpeper and Kappagoda, 2006.
[21] FitzGerald, 2006.

loopholes and other forms of tax evasion.[22] An increase in income tax collection could start by focusing on reducing these exemptions.

One argument often used against increasing direct taxation is that countries lack the administrative capacity to do so. Yet, before VAT taxes were instituted across developing countries, much of the policy debate was on whether developing countries would have the administrative capacity to implement VAT as well. To help countries build capacity the international financial institutions mounted a successful campaign that provided technical assistance. Fitzgerald has argued that similar international assistance to improve capacity for direct taxation could be an equally effective.[23] But in the absence of such an effort, the example of the Province of Buenos Aires shows that local policymakers can take steps to improve administration effectively.

**Box 2: Taxation of Multinational Corporations**

Some of the biggest loopholes in developing countries are for large multinational corporations. Tax competition between countries to attract investment has eroded the taxation of foreign companies. Many developing countries have used tax holidays to attract foreign investment. But instead of having positive long-term effects on economic growth, tax holidays have often led to competition among countries, bringing revenue for all countries down in a race to the bottom. Furthermore, tax holidays give foreign investors an unfair advantage relative to domestic investors, and can lead to domestic firms demanding equivalent tax relief, reducing revenue collection further. Tax holidays also exempt all of a company's profits, irrespective of the profitability of the investment. When profits are high, investors would most likely have invested, whether or not there was a tax holiday being offered. On the other hand, companies that need tax holidays to ensure profitability often shift to another location once the holiday is over.

A second difficulty in tax collection on multinational corporations results from international tax havens. International tax havens allow multinationals to shift corporate profits to other jurisdictions. Tax havens have made it difficult to close many of the tax loopholes without a coordinated international action, but it is important for policymakers to be aware of the impact on tax revenues. FitzGerald has estimated that, after taking into account underreporting, the effective tax rate on foreign investment in developing countries is only around 4 per cent (much lower than the 25 per cent officially reported.) Tax havens have made it difficult to close many of the tax loopholes without a coordinated international action, but it's important for policymakers to be aware of the impact on tax revenues. One estimate[24] is that tax losses to developing countries, due to shifting profits and assets held abroad, are as high as $100 billion annually.

Another important component to domestic resource mobilization is the extent of domestic savings and the development of local capital markets. With greater domestic savings, governments wouldn't need to rely on foreign inflows. One of the reasons that the East

[22] Birdsall and Torre, 2001.
[23] FitzGerald, 2006.
[24] Cobham, 2005.

Asian countries were able to grow as quickly as they did in the 1980s and 1990s was because they had a deep pool of domestic savings. Interestingly, in some Asian countries government policy was instrumental in stimulating the growth of domestic savings. In Japan, for example, the government helped develop a postal savings bank network that gave citizens access to financial services and helped build the domestic savings base. The lack of sound financial institutions and financial services can make it difficult to mobilize savings. As the Asian example shows government policy can help reduce this obstacle.

More broadly, countries should aim to build deeper financial markets. One of the main risks to governments of financing their deficits through domestic capital markets is that it's often difficult for them to issue long-term paper in relatively new and thin markets. Governments thus face a trade-off between reducing currency risk (by reducing borrowing in international markets) and increasing the maturity mismatch (by increasing short-term borrowing in domestic markets to finance long-term projects).

Developing long-term capital markets is, of course, a long term goal, but there are things governments can do to encourage their development. Many analysts point to the importance of regular and predictable auctions, standard instruments, a secondary market, a safe banking sector, and macroeconomic stability. The lessons of Latin America and Asia in the 1990s and early 2000s have also shown that one of the most important steps in building domestic capital markets has been the development of local pension funds. Chile was a pioneer in this area, and in several other countries, such as Mexico, the growth of local pension funds has stimulated demand for long term lending, as we'll discuss later in this note under public-sector liability management.

### *The Effectiveness of Fiscal Policy*

We now turn our focus to the effectiveness of fiscal policy. Assuming countries can borrow: is fiscal policy generally effective – or should it be avoided because it adds to inflationary pressures and crowds out private investment? Later in this note we'll discuss low-cost stimuli and other fiscal measures that countries with limited ability to borrow can use to stimulate the economy.

In Keynesian analysis, government expenditures (or tax cuts) lead to an increase in GDP that's a *multiple*[25] of the original expenditure. Most of the money paid by the government is re-spent, and the more that's re-spent, the greater the multiplier. If savings rates are low, as they often are in very poor countries, then the proportion of funds going into consumption will be high, the multiplier will be very large, and public expenditures will be particularly effective. By contrast, in East Asia, where savings rates have been very high, multipliers have been somewhat smaller.

[25] In the most simple macroeconomic model, where savings are the only 'leakage' of aggregate demand (i.e. the additional income of an individual or household that is not spent), the *multiplier* is $1/s$, where $s$ is the savings rate. More generally, all leakages have to be included: not only private savings but also taxes and imports.

When households and firms are credit and cash constrained (as there often are in developing countries), the multiplier can be even stronger: if those households and firms had more money they would spend it. For example, if the government provides better unemployment benefits, it's likely that the unemployed will spend all or almost all of the benefit. When they spend the money, some of it will go to individuals (landlords, storeowners, etc.) who will not spend all of it, but the important point is that in developing countries the multiplier can be quite high.

It's important to differentiate between the effects of deficits when the economy is in recession and when the economy is at full employment; the latter case is when deficits are more likely to have an adverse effect. Crowding-out (and inflationary) arguments are then persuasive because the size of the 'pie' is fixed. When the economy is operating at capacity, increased government expenditures must come at the expense of reduced consumption or reduced investment somewhere else in the economy. But crowding out is *not* inevitable when the economy is *below* full employment. The size of the pie can increase so that government expenditures can rise without private investment decreasing. Or, in the case of tax cuts, consumption can increase, without investment decreasing.

In addition, *the crowding-out argument implicitly assumes that Central Banks cannot take offsetting actions to lower interest rates.* Yet Central Banks can do so by increasing the money supply. One of the concerns about government borrowing is that the debt will be monetized (the borrowing will be financed by, in effect, printing money) and the banking system will be allowed to increase money (and credit) excessively, to the point that inflation will set in.[26] Even when interest rates are close to zero and there are limits on the ability of monetary authorities to lower interest rates further (a Keynesian-type liquidity trap[27]), central banks can at least undo the higher interest rates resulting from government deficits. Moreover, in a small open economy, there's another reason why interest rates might not rise and there won't be crowding out: an inflow of capital can prevent a rise in interest rates, as we will discuss below.

Finally, private sector responses may actually have the opposite effect – and enhance the effects of fiscal policy. There may be 'crowding in'. For instance, higher government expenditures might stimulate the economy and improve the economic situation so much that there's room for more investment. Similarly, an increase in government investments that complements private investment (for example, spending on infrastructure) can increase returns in the private sector and stimulate private investment and the economy as a whole.

[26] There are some models in which inflation can set in even when the economy has not reached full employment. Typically, this is because of structural rigidities; to the extent that these are important, full employment needs to be redefined to include them, and government policy needs to be directed at removing the structural rigidities.

[27] In a liquidity trap, the public holds onto money supplied to the economy rather than investing or spending. A liquidity trap could occur when the economy is in recession and interest rates are low, so that the expected return on investments are also low. If the recession is accompanied by deflation, there is an added incentive for consumers to hold spending on consumption.

The success of China's expenditures during the East Asian crisis provides a case in point. Part of the reason for China's success was that current expenditures drew upon a set of strategic investment plans that focused on improving infrastructure. The improved infrastructure increased the returns to private investments. This, in turn, encouraged productive investments that stimulated China's long-term growth. India's experience with stabilization and adjustment, following its external debt crisis during the early 1990s, was somewhat different. Yet, it also provides clear evidence of complementarities between public investment and private investment, which suggests crowding-in rather than crowding-out.[28]

An additional reason why some economists also argue that governments need to maintain tight fiscal policy is to maintain investor confidence. In this view, government spending leads to lower private investment because investors see the rising deficits, lose confidence in the economy, and decide not to invest. Only resolute government action to counter the deficit can restore confidence, increase investment, and quickly restore the economy to health.

There is however little empirical research supporting this view, while there is overwhelming evidence that cutting government expenditures leads to lower GDP in both developed and developing[29] countries. Expenditure reductions in Argentina and East Asia in the 1990s did not have the positive effects predicted by the 'confidence model', but instead produced the negative effects predicted by the more standard Keynesian models. The direct effect of a cut in government expenditure on GDP appears to be much stronger than the confidence effect.

The impact of tight fiscal policy on investor confidence depends in a large part on the type of investors a government hopes to attract. *Short-term* investors and creditors are often more interested in the size of the fiscal deficit than in other variables. The most important issue for these investors is government's ability to repay its debt in the near term. To the extent that government saves money by cutting the fiscal deficit, it will have more funds to pay back creditors in the short run—even if this hampers long-term growth. But these are precisely the type of investors who heighten market volatility, rather than sustaining long-term growth.

*Long-term investors* look beyond the deficit to a range of variables. Policies that lead to long term sustainable growth will naturally lead to greater confidence in the economy and more investment. If countries borrow to finance productive investments that will generate returns in excess of the interest rate charges, then growth will be enhanced. Investors will recognize the economy's increased strength and should have more confidence in it.

*The Procyclical Bias of Fiscal Policy*

[28] Nayyar, 2000.
[29] Cooper, 1992, and Taylor, 1993.

Tax revenues rise during periods of economic growth when incomes rise, and fall during recessions when incomes fall and spending needs rise. Theoretically, external financing should diversify sources of income, but imperfections in capital markets and cycles of foreign aid have meant that capital flows have tended to be procyclical, exacerbating the procyclical bias of fiscal accounts.

There is widespread evidence that fiscal accounts are highly procyclical in the developing world.[30] In Latin America, for example, out of 45 episodes of cyclical swings in 1990-2001, 12 were neutral, 25 were procyclical, and only 8 countercyclical.[31] So, the broader problem faced by developing countries are the strong incentives for fiscal policies to behave in a procyclical way. This effect is compounded by the procyclical performance of public sector revenues in the context of high GDP volatility.

The costs of procyclical fiscal policies are high. During upswings, abundant financing may lead authorities to start some projects that have low social returns. During downswings, cuts in spending may mean that investment projects are left unfinished or take much longer to execute than planned, thereby raising their effective cost. In turn, extended cuts in public sector investment may have long-term effects on growth.[32] In general, 'stop-go' cycles significantly reduce the efficiency of public sector spending.

There are also procyclical patterns associated with granting government guarantees to the private sector, which have become increasingly important in the developing world. An example is public-sector guarantees for private-sector investments in infrastructure (such as minimum revenue or profit guarantees, or explicit coverage of interest or exchange rate risks). Another example is explicit and implicit guarantees issued to financial agents and depositors in the financial system. Both implicit and explicit guarantees have three elements in common: (a) they are not always transparent; (b) they encourage *private* spending during booms (public-sector spending is in the form of an implicit 'insurance premium' incurred during periods of euphoria, indicating that accrued public-sector spending during such periods is underestimated); and (c) disbursements (cash spending) are incurred during crises, increasing borrowing requirements and crowding out other public-sector spending.

### *Alternative Fiscal Policy Measures*

*Fiscal Policy Accounting: Structural and Primary Deficits*

A primary aim of economic policy in developing countries should be to avoid the procyclical bias in fiscal policy. This can be consistent with the establishment of rules that guarantee long-term sustainability of the fiscal account, such as targets for the public sector deficit and/or maximum debt-to-GDP ratios. (The definition of such rules is not an easy task, however, as demonstrated by the recent debates over the European Stability and Growth Pact.)

[30] Kaminsky *et al*., 2004.
[31] Martner and Tromben, 2003.
[32] Easterly and Servén (eds.), 2003.

In particular, a focus on the *current* fiscal deficit (measured during the recession) is clearly inappropriate. Rather, it's essential to estimate 'the *structural* deficit', which evaluates what the budget would be without cyclical fluctuations[33] in a 'normal' (full employment) situation. For example, when tax revenues fall during a recession, the current fiscal deficit will worsen, but the structural full employment deficit will not be affected, and the government will not be forced to tighten fiscal policy further to meet its deficit target. If necessary, the institutions could play a role in financing any *current* fiscal deficit that arises. To the extent that cyclical swings reduce the efficiency of public sector spending, it may make sense to determine structural targets on the basis of an essentially long-term criterion: the balanced supply of public and private goods.

Managing structural accounts, however, assumes considerable fiscal capacity beyond what most least developed countries have established, so that this tool is more appropriate for middle income countries. Estimating structural fiscal positions in economies subject to external shocks is not an easy task as it may involve long-term GDP trends as well as trends of other crucial economic variables, such as commodity prices. Chile, for example, has adopted such structural accounting in recent years, relying on the evaluation of a panel of economists with mixed persuasions to advise on the trends of the crucial variables involved in the estimation.

It also makes sense for developing countries to focus on the *primary* deficit, the fiscal deficit minus interest payments. Interest rates can be extremely volatile and are often outside the control of developing countries. What is more, public debt that has accumulated over a long period of time means that a large fiscal deficit will persist for quite some time after correctives have been introduced. In highly indebted countries, much of the variability of the overall fiscal position depends on events outside the country (on emerging market interest rates around the globe). Countries need to focus on what they can control. The primary deficit shows more clearly whether an observed change makes the situation better or worse. The IMF agreed to focus on the primary deficit for the first time in its loan to Brazil in 2002.[34] A focus on the primary deficit does not require extensive administrative capacity, so that least developed countries should also be able to use the primary deficit as a measure of the fiscal accounts – assuming the international institutions help to finance the additional interest costs implicit in the full fiscal deficit.

*Management of Public-private Partnerships*

Deficit targets discussed above should be complemented by adequate mechanisms to manage public-sector guarantees. Deficit targets create a strong incentive for governments to promote private (rather than public) sector investment in infrastructure to

[33] For countries that were neutral, the structural fiscal deficit remained unchanged through the improvement or deterioration of fiscal accounts. See ECLAC, 1998*b*; Ocampo, 2002, and 2005*b*, on which the analysis that follows relies.

[34] The IMF did not, however, allow Brazil to use the primary structural deficit as a target, which would have been an even more appropriate measure.

circumvent the targets, even when there is no economic reason to do so. A major problem in relation to these guarantees is that they generate significant distortions in public sector accounting. The contingency costs of such projects for the state are not usually accounted for, and do not show up in current expenditures. Such guarantees imply that the government acts as an insurer of risks that the private investor might incur. The 'insurance premium equivalent' of such guarantees should be regularly estimated and budgeted, with the corresponding resources transferred to special funds created to serve as a backup in the event that the corresponding contingencies become effective. The estimated contingent liabilities should also be added to the public sector debt. A 1996 Colombian law forces the government agency incurring the risk to make a provision in an 'insurance' fund whose resources can be used if guarantees become effective.

The absence of any regular accounting of government guarantees for private sector infrastructure projects generates an incentive to prefer such infrastructure projects, even if they are not less costly to the government in the long run. Such public sector guaranteed private infrastructure investments might become a useful way to circumvent stringent fiscal deficit targets. The nature of fiscal targets should be chosen to avoid these problems.

There is a similar issue in accounting for state-owned enterprises, which we discuss in more detail later in this note. These accounting practices distort the incentives authorities face. Accounting for state-owned companies as part of the consolidated budget constrains expenditures on investments and gives developing countries the incentive to privatize these companies to reduce the fiscal deficit, even when there is no real economic reason to do so.

*Automatic Stabilizers: Fiscal Stabilization Funds*

Due to the inevitable time lags in the decision making process, *automatic* stabilizers may sometimes be preferable to discretionary changes. Progressive taxation, which reduces the impact of taxation on the poor during a recession, is one such stabilizer. (The shift toward V.A.T., has moved countries away from progressive taxation, which may lead to the tax system being a less effective automatic stabilizer.) Well-designed social safety nets that protect vulnerable groups during crises, preferably as part of permanent social protection systems, and fiscal stabilization funds are other important instruments in this regard.

Fiscal stabilization funds, which sterilize temporary public-sector revenues, should be a central tool for countercyclical policy. The experience gained from the management of stabilization funds for commodities that have a significant fiscal impact (the National Coffee Fund of Colombia, the copper and petroleum funds in Chile and the oil funds in several countries)[35] can be extended to develop broader fiscal stabilization funds.[36] A similar example is foreign exchange reserves, which provide 'self-insurance' against sudden interruptions in external financing (as well as reduced currency appreciation).

[35] See an evaluation of some of these experiences in Davis *et al*., 2003.
[36] ECLAC, 1998*b*.

The point of a stabilization fund is to put funds aside when the economy is booming, to be used when the economy is in recession. However, economists disagree on when a country should be building funds and when it should be spending them. For example, in 2005, the province of Mendoza in Argentina was growing at or above the national average and running a fiscal surplus. Many economists recommended that Mendoza save the surplus above current expenditures in an anti-cyclical stabilization fund. However, the governor of Mendoza pointed out that unemployment at the time, while lower than elsewhere in Argentina, was still high, at between seven and eight per cent. In his view, it made more sense to invest the surplus in employment generating activities, since the economy was still significantly below full employment.

There are two criteria that can help determine when the surplus should be spent, rather than saved. The first is based on expectations about the future. If the economy is growing today and a slowdown is expected, it would make sense to save a significant portion of the surplus. Employment would be lower today, but resources would be available to support more employment generation tomorrow when the economy slows down. The second is based on the expected returns of each project. Is government spending going into investment and job creation or consumption? To the extent that funds go into consumption, they are unlikely to lead to future growth, and it would be wiser to put the surplus into a fund. To the extent that funds go into investment, the returns could be high for both current employment and future growth, due to the multiplier and crowding-in effects discussed earlier.

The major policy implication of the previous analysis is, however, that international financial institutions should help countries build stabilization funds that can be used as counter-cyclical tools.

*Counter-cyclical Tax Policies, Low-Cost Stimuli and Other Fiscal Policy Alternatives*

To the extent that stabilization funds sterilize the additional revenues generated by a commodity or capital boom, they make fiscal policy cycle-*neutral* at most, as the additional revenues due to increased demand go into reserves. A complementary instrument, of clear *counter*-cyclical character, would be to design flexible tax rates, particularly to manage sharp private sector spending cycles. The best candidate is obviously a tax on the source of the spending boom. This is the traditional argument for taxing exports subject to temporary price surges, which has served as the basis for the design of commodity stabilization funds.

A similar argument can be used to justify an increase in the tax on capital inflows during booms, as this is the major source of private-sector spending upswings today. It is interesting to note that this argument is in addition to the arguments associated with the greater monetary autonomy that a tax on capital flows provides, which will be discussed. An argument can also be made for temporary hikes of VAT rates during private spending booms and reductions of VAT rates during downswings.[37]

[37] Budnevich and Le Fort, 1997.

Countries unable to borrow to finance a tax reduction during a downturn still have some fiscal policy tools that can be used to stimulate the economy. Two such policy tools are 'expenditure and tax shifting' and 'low cost stimuli'. 'Expenditure and tax shifting' increases taxes on those who are less likely to reduce expenditures, and cuts taxes on those more likely to increase expenditures, thereby stimulating the economy. Increasing the progressivity of taxation (as discussed under automatic stabilizers) does precisely this. As noted, giving a tax cut to low income individuals is likely to stimulate the economy more per dollar of tax cut simply because poorer people are more credit and cash constrained. Spending more money on goods produced at home and less on goods from abroad will similarly help stimulate the economy.

Countries facing limitations on borrowing need to focus on policies that have a bigger impact for a limited amount of expenditure, called *low cost stimuli.* For example, a temporary sales tax cut can have a far larger effect than a temporary income tax cut. The importance of cash flows and credit constraints suggests some other examples of low cost stimuli. As discussed above, increasing unemployment benefits for low-income workers can be particularly effective because virtually all such workers are credit – and cash – constrained. (In many countries an increase in aid to regional governments and localities during recessions is also more likely to have a bigger stimulus effect, since sub-national governments are often subject to balanced budget fiscal frameworks, or have more limited access to financing and have to cut expenditures or increase taxes without such aid.)

Public investment expenditures may have a double effect. First, there is the immediate stimulation to the economy. Second, if the public investments are complementary to private investments, as discussed above, increasing government spending will increase the returns to private investment, fuelling additional investment.

Other low-cost stimuli focus on firms. The prototypical low-cost stimulus is the '*incremental* investment tax credit'. An incremental investment tax credit provides a tax credit on increases in investments (e.g., the tax credit might apply to investments over 80 per cent of the previous year's investment). The incremental investment tax credit lowers the *marginal cost of investment;* just as an ordinary investment tax credit would (the government, in effect, picks up a fraction of the cost of the machine or other investment). At least in standard models, it has the same stimulative effect of a full investment tax credit, but the cost to the government is markedly less because the credit does not apply to the bulk (or the 'base') of an investment. (This, incidentally, is why U.S. businesses have been distinctly uninterested in this kind of tax credit.)

A *temporary* incremental investment tax cut can be even more effective in providing short-run stimulus to the economy. A temporary investment tax credit lowers the price of investing today relative to investing in the future. This is like a temporary 'sale' on investment goods, and will encourage current investment (although partly at the expense of future investment). However, if markets are imperfect and firms' available cash (or net worth) limits their investment, the incremental investment tax credit (whether permanent

or temporary) will not be as effective. When fewer funds are available, investment is stimulated less.[38]

Another low-cost stimulus is carry-forward or carry-back tax treatment. The government can extend the period of loss carry-forward (when tax deductions are not taken in the current year, but are used to reduce tax liabilities in future years) or carry-back (when deductions are used to reduce tax liabilities in earlier years). This has the positive effect of increasing economic efficiency[39] and makes the losses fully creditable, to the extent that firms engage in investment. These policies might boost investment for yet another reason: in effect, they increase the extent of government risk-sharing. Since the ability and willingness of firms to bear risk limits their willingness to invest, better risk sharing between government and firms enhances investment. The government can also provide direct credit to firms for investment (though obviously, it is important that this be well designed, so that the government is able to recover principal and interest.)

In short, developing countries often have difficulties borrowing, which can impair their ability to engage in fiscal policy. But there are alternative fiscal policy tools, including tax structure, stabilization fund (insurance) policies, and new instruments that can minimize the procyclical nature of fiscal policy and give the government some means to engage in countercyclical policy.

## Monetary Policy

Orthodox economists, for the most part, believe that monetary policy is relatively ineffective. In this school of thought, the economy normally operates close to full employment (a condition clearly not applicable to most developing countries), so that any increase in aggregate demand cannot increase output; it can only push up prices. On the other hand, Keynesians believe monetary policy is an important tool in macroeconomic management.

### *The Effectiveness of Monetary Policy*

Recent experiences confirm both the strengths and limitations of monetary policy. In general, economists view monetary policy as more effective in restraining an overheated economy than in expanding an economy in deep recession. Monetary policy, for example, has not been effective in stimulating growth in countries experiencing deflation (such as Japan)[40]. In the United States, lowering interest rates from 2001 to 2003 did little to stimulate investment, but did induce households to refinance their mortgages[41]. The reduced mortgage payments and the improved financial position of households enabled

[38] This suggests that an optimally designed tax system might have different provisions for large and small firms; large firms would be confronted with a net investment tax credit, small firms with a tax credit of the conventional form.
[39] Auerbach, 1991 and Auerbach and Bradford, 2002 argue that limitations on loss carry-forward and carry-back are among the major distortions in the tax system.
[40] Bank of Japan, 2003.
[41] Stiglitz, 2003*b*.

consumers to sustain their spending even as their stock market wealth diminished enormously.

The impact of monetary policy in developing countries is likely to differ from the impact in the United States and other advanced industrial countries. Monetary policy has its most direct impact through the banking system. In countries with more developed banking sectors the effects of monetary policy can be more significant in developing countries than in developed countries since firms have less access to non-bank sources of finance and tend to rely more on bank lending. In many least developed countries, though, the banking sector is extremely undeveloped, and most firms rely on self-finance. In these circumstances, the impact of monetary policy on the economy is limited. The narrower the impact of monetary policy, the greater the costs associated with using it, since a few sectors are forced to bear the brunt of adjustment. Those sectors may face greater volatility, as interest rates rise and fall in an attempt to stabilize the economy.

Under conventional closed economy analysis, lowering interest rates leads to increased investment and higher growth. Recent research points to additional channels through which changes in interest rates either reinforce or counteract the conventional effects. First, there are several channels through which lowering interest rates may stimulate consumption further than the conventional analysis implies. Changes in the interest rate represent a redistribution of income between creditors to debtors. Distribution matters: debtors may have a higher marginal propensity to consume than creditors. If firms and households are credit constrained, lowering interest rates may mean that firms will have more money for investment and households will have more money for consumption. In addition, there may be wealth, or balance sheet effects. The value of assets such as stocks and real estate increases with lower interest rates; and the increased wealth may induce households to consume more.

Similarly, under conventional closed economy analysis, raising interest rates to slow an overheated economy leads to lower growth. Due to wealth effects, the value of assets will fall with higher interest rates, reinforcing the conventional effects. Because different firms own different assets, firms' net worth will be affected differently, often in ways that even informed investors may find difficult to ascertain. The interest rate increases thus also give rise to uncertainty, further dampening economic activity. Large increases in interest rates also weaken government finances when the stock of outstanding public debt is significant as a proportion of GDP. The consequent rise in interest payments on public debt can reduce the government's fiscal flexibility. All of these effects reinforce the response of the economy to monetary tightening to dampen the economy and restrain inflation.

On the other hand, recent research also suggests additional reasons why monetary policy might be *ineffective*. In particular, Greenwald and Stiglitz emphasize that *credit*, and not the money supply, matters for the level of economic activity. The banking system is central in determining the supply of credit. Even if the interest rate on treasury bills falls, banks may be reluctant to lend more when they believe their balance sheets are weak, or

when they perceive the risk of lending to be very high (and therefore, can achieve high, safer returns by lending to the government).[42]

This is further complicated in an open economy by the impact of capital flows. Standard Keynesian analysis does not explicitly deal with capital inflows. To the extent that it does, it assumes that their effects can be fully sterilized through monetary policy. But this analysis overlooks the impact of capital flows on the supply of credit. Capital flows affect the resources available to households and firms, and even affect the lending activity of banks.

One reason why it is difficult to disentangle the effects of monetary policy on an open economy, particularly one with flexible exchange rates, is that the impact on capital flows is hard to predict. The general view is that, *other things being equal*, an increase in a country's real income generated by expansionary macroeconomic policies is likely to induce capital inflows. So too, *other things being equal*, an increase in the interest rate – associated with, say, a contractionary monetary policy – will induce capital inflows and lead to an exchange rate appreciation (and, alternatively, a lower interest rate will result in capital outflows, and a weaker exchange rate). But other things are never equal, particularly due to the complex interaction between interest rates and capital flows.

In an open economy, lower interest rates can lead to capital outflows and a weaker exchange rate. This, combined with the weakened balance sheets that often result from exchange rate devaluations, may limit credit availability, and could attenuate, or even reverse, the normal impact of lower interest rates on aggregate demand. Any attempt by policymakers to counteract the drop in demand by lowering interest rates further will be partially self-defeating, as the lower interest rates will induce even more capital outflows. *In other words, open capital markets limit the effectiveness of monetary policy.*

On the other hand, there are important medium and long term effects of the weaker exchange rate that can reinforce usual the effect of lower interest rates. The weaker exchange rate increases the competitiveness of exporting and import competing industries leading to increased output and encouraging domestic technological development, as we discuss in more detail under exchange rate policies. This effect often occurs with a lag, so that in the short-term the effect may not be obvious. At times, however, the impact is immediate, as was the case in Russia following the 1998 devaluation, as discussed below.

Higher interest rates may attract capital inflows, increasing the credit supply and leading to higher investment, limiting or reversing the usual effect. In addition, there are two medium-term effects of raising rates. First, when the central bank raises rates, it usually raises short term rates, attracting short term speculative capital. These flows often go into consumption or real estate, rather than into long-term productive investment. The implication is that the short-term boom is exacerbated, without a long-term positive impact on growth. Second, the increased inflows also lead to currency appreciation. This can slow the economy in the medium to long term as export and import-substitution

[42] There is a kind of liquidity trap, resulting not from the high elasticity of demand for money, but from a low elasticity of the supply of bank credit.

industries become less competitive. The capital inflows can lead to changes in the structure of production that stymie medium to long term growth, while the higher rates do little to limit the short-term bubble.

Furthermore, the capital inflows repeatedly turn into outflows. In the mid-1990s in Thailand, speculative inflows of capital led to a real estate bubble. When the bubble burst in 1997, so did expectations of high and sure returns. The inflows stopped, and capital started rushing out of the country. In the late 1990s, Latin America was characterized by significant vulnerabilities due to high debt, high current account deficits, and currency overvaluation that had accumulated during the period of booming capital inflows. In 1998, a change in global sentiment towards emerging markets led to capital outflows.

Standard recipes for dealing with a crisis call for central banks to reduce interest rates and for governments to stimulate the economy by increasing expenditures and/or cutting taxes. But countries with open capital markets often find it difficult to do either. Rather than lowering interest rates in a downturn—especially a downturn associated with a crisis—countries with open capital markets often raise interest rates to stop capital outflows. Again, the effectiveness of monetary policy is severely restricted.

Nonetheless, in recent years, many economists in advanced industrial economies have advocated greater reliance on monetary than fiscal policy for stabilization. They argue that the political processes required to change taxes or expenditure levels are too slow, and that monetary authorities can act in a timelier manner. The limitations of monetary policy, noted above, as well as the limitations on the use of fiscal policy discussed earlier, suggest the need to find innovative means to use both in the face of the severe volatility that characterizes developing countries.

***Monetary Policy Instruments***

Historically, most central banks used direct methods, such as regulations and controls, to manage the money supply. In the late 1970s and mid-1980s, most industrialized countries moved toward indirect instruments, such as open market operations, which work mainly through market interventions. Many developing economies followed suit as part of the push toward becoming 'emerging markets' in the 1990s.

The Central Bank of New Zealand, for example, switched from direct to indirect measures in 1985. They concluded that: 'In its earlier years, in particular, [direct controls] provided effective monetary control… [but] the system made the allocation of credit a complex and inefficient process, biasing the flow of credit towards longstanding and existing borrowers.'[43]

Yet, New Zealand's experience with indirect measures has been mixed. The same central bank report notes that 'higher interest rates will often attract foreign buyers of New Zealand dollars, pushing up the exchange rate, and shifting some - sometimes much - of the adjustment burden onto the export sector, regardless of whether any inflation

[43] Reserve Bank of New Zealand, 2000.

pressures were apparent in that sector… With only one instrument to adjust - interest rates - these imbalances are frustratingly inevitable: a single interest rate means one interest rate for all regions and one interest rate for all sectors.'

In this section, we examine standard monetary policy instruments and revisit the question of whether alternative monetary policy tools can be designed to improve monetary policy effectiveness, while learning from the weaknesses of the direct mechanisms used in the past.

*Indirect Monetary Policy Instruments*

Standard indirect interventions include open-market operations, changes in reserve requirements, and central bank lending facilities. Most developed countries use *open market operations* as their main monetary policy tool. Open market operations are most effective when countries have relatively developed and liquid capital markets. Some countries have gotten around this by issuing Treasury Bills in the primary market through auctions. The quantity of new bills issued, net of the amount of maturing bills, has the effect of increasing or decreasing the money supply, similar to open market operations. Nonetheless, when markets are underdeveloped or illiquid, the price signal is generally not efficient, and this method is usually supplemented by additional mechanisms.
A second monetary tool is the *discount rate*. The discount rate is the interest rate the central bank charges commercial banks for loans, which are usually short-term in nature. Some central banks use the discount rate as a signal; for others, especially those with less developed markets in which open market operations are not very effective, it is the main instrument of monetary policy. The central bank can also use the discount window to act as a lender of last resort during liquidity shortages.

A third method for managing the money supply is through *reserve requirements*. Reserve requirement stipulates that banks hold a percentage of their total reserves with the central bank. Reserve requirements are generally not used significantly as monetary policy tools in most industrialized countries. However, reserve requirements can be a useful instrument, especially when targeted to specific sectors, as discussed below under 'direct mechanisms'.

*Direct Mechanisms and Other Microeconomic Measures*

Monetary policy is a blunt tool: raising interest rates affects all sectors of the economy, those experiencing bubbles, as well as those experiencing fragile recoveries or still in recession. Rather than relying on interest rates, authorities can use other measures to target specific sectors of the economy. In this regard, there are three issues that are particularly important for developing countries: how to target bubbles; ways to encourage credit when constraints are specific to certain sectors of the economy; and ways to encourage bank lending when credit constraints are more general.

Direct measures can be extremely useful in developing countries that want to maintain economic growth, but worry about excessive investment in a particular sector. When

bubbles exist, central banks can raise reserve requirements on loans to the sectors affected, such as real estate or equity markets. This mechanism could have been effective at limiting some of the build-up in bubbles prior to the Asian crisis. Similarly, many economists urged Greenspan to increase the margin requirement on leverage for stock exchange transactions during the technology boom in the U.S. Increases in taxes on capital gains can also be used to dampen speculative booms. Unlike higher interest rates and open-market operations, which entail issuing central bank bills that carry the higher interest rate, these types of direct mechanisms have the added benefit that they do not carry large fiscal costs.

When the banking system is inefficient, these measures can be particularly useful. Whereas indirect instruments generally require a well-developed money market, direct measures are relatively easy to implement. Many developing countries are in a position where administrative controls still work fairly well—far more effectively than traditional channels of monetary policy. The administrative measures China employed in 2004 and 2005, for example, seem to have been relatively effective in curtailing the real estate boom. Had the government relied on interest rate increases, it would have squelched investments in factories and other job creation at the same time (or even before) it had tamed the speculative boom.

When credit rationing exists, as it does in most developing countries, what is relevant is not loan demand, but loan supply; authorities need to implement policies to induce banks to increase lending. For example, changing regulatory policies, such as capital adequacy requirements and other banking regulations, can impact credit availability. When inflation is due to supply shortages in sectors of the economy experiencing credit constraints, authorities can look to innovative ways to ensure that credit reaches these sectors, rather than raising interest rates and slowing the economy as a whole. Development banks are one tool that can help direct credit to areas in need. Recent research has focused on isolating market failures and constraints on growth and on using market mechanisms, rather than discretion, to determine those sectors in need.[44]

More generally, in many developing countries, banks often have excess liquidity. Instead of lending, they find it more attractive to buy government bonds—or even to buy the bonds of foreign governments or corporations. This is particularly important during crises: banks view lending to private firms as too risky just when the economy needs additional private credit to avoid a credit crunch. There are a variety of ways that governments and monetary authorities can, in such circumstances, encourage banks to lend. For instance, they can tax excess reserves, or impose taxes on capital gains from currency changes (to discourage banks from, in effect, engaging in foreign exchange speculation). They can take more explicit regulatory actions, such as not allowing banks to hold net foreign exchange assets (either loans or bonds). They can go so far as to actively discourage banks from purchasing government bonds (e.g., by limiting the amount of excess reserves than can be held in the form of government bonds, or by increasing the risk rating of such bonds).

[44] Rodrik, forthcoming.

Restrictions and regulations on capital flows are another important set of tools that can give central banks additional independence in monetary policy, as discussed later in detail. During booms, capital account regulations give monetary authorities the ability to raise interest rates without attracting excessive foreign capital inflows. During downturns, central banks can lower rates without precipitating a massive outflow of capital. Prudential regulations can also be used for this purpose.

***The Macroeconomic Dimensions of Prudential Regulations***

Changes in banking regulations have more macroeconomic implications than is usually accepted (their effects tend to be ignored in most macroeconomic analysis). Banks use microeconomic risk management to reduce the risks associated with the individual characteristics of borrowers, and prudential regulations have been designed to encourage banks to manage these risks. But it is more difficult to reduce risks associated with the common factors that all market agents face, such as the effects of macroeconomic policies and the business cycle. In recent years, increasing attention has been placed on risks that have a clear *macroeconomic* origin, and ways to use prudential regulations as a tool for macroeconomic policy.

Traditional regulatory tools, including both Basle I and Basle II standards, have a procyclical bias.[45] In these systems, banks have to provision capital against loan delinquency or short-term expectations of future loan losses. Since expectations of losses are low during economic expansions, these systems are not effective in hampering excessive risk-taking during booms. Sharp rises in loan delinquencies during economic slowdowns (or crises) increase bank losses, or force them to increase provisions for those losses, reducing their capital and their lending capacity. This may trigger a 'credit squeeze' and exacerbate the downswing in economic activity.[46]

Given the central role that all these processes play in developing countries' business cycles, the crucial policy issue is how to introduce a countercyclical element into prudential regulation and supervision.[47] Banking authorities can, for example, engage in forbearance: they can allow banks to continue to operate undercapitalized. (Banks are allowed to continue to operate in such circumstances; regulators need to monitor the banks to prevent them from undertaking excessively risky loans or looting the bank, i.e. moral hazard problems.[48])

The Spanish system of forward-looking provisions, introduced in December 1999, is a major policy innovation in addressing the pro-cyclical elements of prudential regulation. According to this system, provisions are made when loans are *disbursed* based on *expected* (or 'latent') losses. Such 'latent' risks are estimated on the basis of a full

[45] In relation to Basle II, see Griffith-Jones and Persaud (forthcoming). Since credit ratings are also pro-cyclical, basing risk on such ratings, as proposed by Basle II, is also a pro-cyclical practice.
[46] For this reason, the sudden introduction of strong regulatory standards during crises may worsen a credit squeeze. Although authorities must adopt clearly defined rules to restore confidence, the application of stronger standards should be gradual.
[47] See Ocampo, 2003*a*, on which the analysis that follows relies.
[48] Akerlof and Romer, 1993.

business cycle, and are not based on the current economic environment.[49] This system implies that provisioning follows the criteria that are traditionally used by the insurance industry (where provisions are made when the insurance policy is issued) rather than by the banking industry (where they are made when loan payments come due).

In the Spanish system, provisions[50] are accumulated in a fund[51] that grows during economic expansions and is drawn upon during downturns. As long as the fund has adequate resources, banks shouldn't need to make additional provisions for new loan losses during a recession. Although the accumulation and drawing down of the fund has countercyclical dynamics, it actually just counteracts the cyclical pattern of bank lending. The system is, strictly speaking, 'cycle-neutral' rather than countercyclical, but it is certainly superior to the traditional procyclical provisioning for loan losses.

Strictly countercyclical prudential provisions should complement such a system. These criteria could include holding excess provisions against loan losses when authorities think that there is a disproportionate growth of credit (relative to some benchmark), or limits on lending to sectors characterized by systematic (economy-wide) risks, such as the construction sector. Alternatively, direct restrictions on credit growth, or restrictions on new lending to certain risky activities, could be used. The regulations also could be supplemented by more specific regulations aimed at controlling currency and maturity mismatches (including those associated with derivatives), such as limits on foreign currency-denominated loans to the domestic non-tradable sectors. Insofar as developing countries are likely to face more macroeconomic volatility, there may be an argument for requiring higher capital/asset ratios, but provisioning against loan losses is probably a better solution.[52]

In addition, prudential regulation needs to ensure adequate levels of liquidity for financial intermediaries so that they can handle the mismatch between the average maturities of assets and liabilities. Such mismatch is inherent in the financial system's essential function of transforming maturities, but it generates risks associated with volatility in deposits and/or interest rates. Reserve requirements, which are strictly an instrument of monetary policy, provide liquidity in many countries, but their declining importance makes it necessary to find new tools.

An alternative system could be one in which liquidity or reserve requirements are estimated on the basis of the net maturity of a financial institution's balance sheet based on its asset and liability structure. The valuation of assets used as collateral for loans also presents problems when those assets exhibit price volatility because, in many cases, prices used to value collaterals may be significantly higher than ex-post prices. Limits on

[49] Fernández de Lis *et al*., 2001.
[50] Under this system, provisions are estimated using either the internal risk management model of the financial institution or the standard model proposed by Banco de España. The latter establishes six categories, with annual provisioning ratios that range from 0 per cent to 1.5 per cent.
[51] The fund is combined with traditional provisions for non-performing assets or for borrowers under stress, and with recoveries of non-performing assets.
[52] See Rojas-Suarez, forthcoming.

loan-to-value ratios and/or rules to adjust the values of collateral for cyclical price variations could avoid some of these problems.

We should emphasize that any regulatory approach has clear limits and costs that cannot be overlooked. Prudential supervision is a discretionary activity susceptible to abuse. Experience also indicates that even well regulated systems in industrial countries are subject to periodic episodes of euphoria, when risks are underestimated. The 2001 crisis in Argentina is a case in which a system of prudential regulations, considered to be one of the best in the developing world, working within the framework of a financial sector characterized by the large-scale presence of multinational banks, clearly failed to protect the domestic financial system from the effects of the currency and other major macroeconomic shocks.

**Exchange Rate Policy**

When other instruments for stimulating the economy are limited (as they typically are in developing countries), a weak exchange rate can be an effective instrument for economic growth and job creation. Weak exchange rates increase the attractiveness of exporting by making the country's products cheaper abroad, and help domestic industries that compete with imports (import substitution industries) by making foreign goods more expensive relative to domestic goods. Exchange rate policy, then, is not simply a tactical matter of getting-prices-right, but may turn out to be a strategic matter of a deliberately undervalued exchange rate, maintained over a period of time, to provide an entry into the world market for differentiated manufactured goods.[53] Several Asian countries have used such strategic exchange rate policy to promote manufactured exports. Similarly, the build-up of the Chilean boom of the 1990s was clearly preceded by a weak exchange rate policy in the late 1980s and early 1990s.

A competitive exchange rate is seen today as an essential ingredient of dynamic growth and employment in developing countries.[54] It allows domestic firms to benefit from rapid growth in international trade and attracts international firms searching for the best location for their worldwide sourcing of their goods. This may also have positive spillovers for domestic technological development, and lead to a process of learning how to produce with the best technologies available, and with the best marketing tools for the global economy. Furthermore, a competitive exchange rate means that spillovers of export production on other domestic sectors are enhanced, as exporters find it more attractive to buy the inputs and services they need domestically. In a world of reduced trade barriers, import-competing sectors see a competitive exchange rate as their major (and perhaps only) source of protection.

This is the reverse of what sometimes happens with currency appreciation. A couple of decades ago, this issue was dealt with in the literature on 'Dutch disease', also referred to as the resource curse. This literature analyzed the long-term losses that a boom in the availability of foreign exchange could have, due to a discovery of natural resources or a

[53] Frenkel and Taylor. 2006.
[54] See a recent defense of this view (with a particular emphasis on employment) in Frenkel, 2004.

capital surge. More recently, there has been a growing debate on the impact of 'Dutch disease' on foreign aid, discussed below. The essential insight is that the booming inflows of foreign exchange lead to a real exchange rate appreciation that could permanently hurt other tradable sectors – exports as well as import-competing sectors – and could entail the permanent loss of technological and other spillovers from those sectors. Such 'de-industrialization' (as this effect is sometimes called) implies that booming inflows of foreign exchange may be a mixed blessing.

There are, however, risks associated with devaluation. Devaluations can lead to inflation, since, for example, imports become more expensive. Second, there can be balance sheet effects. When a country (or the firms within the country) has borrowed and lent in foreign currencies, devaluations change the value of the country and firms' overall balance sheets. This effect, for example, was particularly important in Indonesia during the Asian crisis. Many companies were unable to repay their large foreign currency liabilities after the currency devaluation raised the value of their debt in local currency terms, leading to widespread bankruptcies throughout the economy.

## *Impact of devaluation*

*Impact on Aggregate Demand and Growth*

As we have noted, currency devaluations should boost export and import-competing sectors and raise income and output. The effect of devaluations on imports can, in some cases, be immediate. For instance, in the Russian and Argentinean devaluations, there was large and rapid substitution of imports with domestic products, leading to improvements in the trade deficit and large rebounds in output. Yet often, the effects on exports and some import-competing sectors take time to materialize. Furthermore, devaluations can also have short-term contractionary effects on aggregate demand.[55] This may lead to what is usually referred to as a 'J-curve': an initial contractionary effect of a devaluation followed by a longer period in which the expansionary effects prevail.

There are several reasons why the effect of the devaluation on exports and import-competing sectors often occurs with a lag. It takes time for exporters to find new markets, and some of the more permanent effects may require that producers retool their businesses. Furthermore, if firms believe that the real devaluation is only temporary because of inflation, the devaluation will produce only limited new investments in exports or import-competing industries. Before firms are willing to invest, they need to be convinced that the increase in profitability that results from the devaluation will be sustainable.

There are also several reasons why the initial effect of devaluations may be contractionary. The first arises from the adverse effect the devaluation may have on real wages. If increases in wages lag the increase in prices of imported and exported consumer goods, aggregate demand and output will fall as consumers' purchasing power falls. (A similar effect is produced if the money supply is slow to adjust to higher prices.)

[55] Díaz-Alejandro and Velasco, 1988, ch. 1, and Krugman and Taylor, 1978.

When domestic firms face credit constraints and have trouble borrowing, the short term contractionary effects of a devaluation can be especially large. Export-oriented and import-substitution firms might not have the capital to pay for imported intermediate or capital goods, and may find it difficult to invest and increase capacity to meet the new demand.

Finally, devaluations also entail significant redistribution, especially in the short run. Exporters benefit, while importers lose. Debtors in foreign currencies lose while those who own net assets in foreign currencies benefit. Also, as we have seen, wages may lag. The losers often become vocal opponents of devaluation, while the long-run benefits to the economy derived from devaluation (increased exports and greater sales of import substitution goods) may be harder to see in the short run.

Overall, the consensus is that normally, the positive effects on exports and import substitution industries outweigh the negative effects, so that devaluations are expansionary in the medium to long run. Furthermore, governments can act to reduce or offset some of these adverse effects by implementing heterodox policies, such as providing additional trade credit or temporary investment tax credits for domestically produced investment goods.

*Impact on Inflation*

In general, the magnitude and durability of the effects of a weakening currency depends on its impact on inflation and the net effect on the real exchange rate. We begin our analysis by looking at the direct impact of exchange rate changes on prices. If we assume the exchange rate weakens, the devaluation will lead to higher prices of imported and exported goods. Imports become more expensive in local currency terms, as do exported goods, since firms generally receive a higher price in foreign markets in local currency terms.

The magnitude of the inflationary impact is likely to depend on the proportion of imported goods in the economy, especially intermediate and capital goods. When imported goods are large, the devaluation can lead to increased costs of production in many industries. This may be a 'once and for all' effect: the higher prices of tradable goods are reflected in the domestic price indices at once, with no further impact on prices. But it could also lead to an inflationary spiral.

Whether inflationary worries are justified depends in large part on expectations, the structure of the economy (i.e. the extent of indexation, such as cost-of-living clauses in nominal contracts), and on how the government and other economic actors respond to exchange rate movements. For example, workers may react to the initial inflationary effect by demanding higher wages.

It appears that when there is sufficient slack in the economy (when unemployment, for instance, is high enough), devaluations have generally *not* given rise to sustained inflation, at least in recent years. We saw marked exchange rate devaluations without inflationary spirals in East Asia, Argentina, and Brazil after the East Asian and Latin

American crises in the 1990s. The same was true for India, following its external debt-crisis, earlier in the 1990s. Expectations depend, at least in part, on history. Recent history has shown that there is no reason that even large devaluations will be followed by episodes of sustained inflation. This means that, going forward, it is less likely that devaluations will give rise to indexation and inflationary expectations.

Overall, the benefits to growth from the devaluation typically outweigh the costs associated with mild inflation. The impact of devaluation, however, also depends on how monetary authorities respond to any resulting inflation. If the monetary authorities respond by raising interest rates (as they might, following strict inflation targeting rules), the devaluation's positive impact—the economic expansion of export and import-competitive sectors and its possible spillovers to the rest of the economy—will be reduced. Raising rates to respond to the threat of increased inflation posed by a currency devaluation is problematic, even when combating inflation is a goal. (The key question, as discussed above, is whether the devaluation leads to a one-time increase in prices, or whether it will lead to further price rises and an increase in the rate of inflation.)

*Real Balance Sheet Effects*

When a country (or the firms within the country) have borrowed and lent in foreign currencies, devaluations will change the value of the country's and the firms' overall balance sheets. These balance sheet effects can have the effect of making exchange rate policies pro-cyclical: instead of experiencing the expected gains from increased competitiveness, the country can experience an economic slowdown due to increased bankruptcies and a credit contraction.

As we have noted, the value of foreign currency liabilities rises in relation to domestic assets following devaluations. Debtors, for example, might have more difficulty repaying loans to foreign creditors. This effect was particularly important in Indonesia during the Asian crisis. Many companies were unable to repay their large foreign currency liabilities after the currency devaluation raised the value of their debt in local currency terms. The increased bankruptcies that result can have adverse effects on growth and output throughout the economy.

If a country is a net foreign debtor, a devaluation will generally make the country worse off. The value of the country's liabilities will increase, and the weaker balance sheet of indebted firms will depress consumption and investment. (This is one reason the Asian crisis was so severe.) If a country is a net creditor, it will be better off, on average, because foreign denominated assets will be worth more. But even if the country is a net creditor overall, some firms will be net debtors, and the economic consequences of their losses might more than offset the benefits to the better off firms. So the impact of a currency devaluation will depend heavily on assessment of the balance sheets of domestic firms, households, and the government. Moreover, because creditors generally do not know the exact balance sheet of each firm to whom they lend, and firms do not know the balance sheet of each firm with which they interact, large devaluations give rise to extreme uncertainty.

If a country has large sovereign external borrowings, a currency devaluation will raise the government's cost of borrowing and increase its risk of default— sometimes so much so that countries are afraid to let their currencies weaken. The increased cost means that governments may have to cut back real domestic expenditures, so the *net* effect of the devaluation might be negative: the cutbacks in government expenditures might exceed the increase in net exports.

These balance sheet effects point to the importance of governments managing their foreign liability exposure. Furthermore, a good institutional framework can help minimize private balance sheet effects of devaluations. Prudential regulations in place prior to the devaluation can limit the amount of banks' (and indirectly, firms') foreign currency exposure. If the country has a good bankruptcy law—say modelled after chapter 11 of the U.S. bankruptcy code, which allows fairly rapid corporate reorganizations—the costs on the country can be limited.[56]

In order to design effective economic policies, we need to appraise the situation of each particular country. If a country is a *net* debtor in foreign currency the devaluation will generally have negative balance sheet effects. If a country is a net creditor, it will generally have positive balance sheet effects. These balance sheet effects then need to be weighed against the benefits of a weaker exchange rate on growth and development discussed earlier. Initial conditions matter. The structure of balance sheets matters; the institutional framework matters; the choice of currency regime matters.

### *The Debate on Exchange Rate Regimes*

*Fixed and floating rate regimes*

Under a fixed (or pegged) rate regime, policymakers target the exchange rate and monetary authorities intervene in the foreign exchange market by buying or selling international reserves to maintain the peg. In doing so, they severely limit their ability to pursue monetary and fiscal policies (e.g. lowering rates generally leads to capital inflows, putting pressure on the peg). Under a flexible, or pure floating, exchange rate regime, the government does not need to buy or sell reserves. The exchange rate is endogenous (or determined by the market), but authorities influence it through fiscal or monetary policies. The effectiveness of monetary (and fiscal) policies in open economies is still limited by the effects of capital flows (as discussed above), though less so than with a fixed rate.

Most countries do not maintain either a pure fixed or floating regime. Rather, they engage in some type of managed or 'dirty' float. In these intermediate regimes, authorities intervene periodically (sometimes according to specified rules) by buying and selling international reserves, as in the fixed rate system. But they have somewhat more flexibility than if they operated under a pure fixed rate, and the effectiveness of monetary and fiscal policies is somewhere in between the two extreme cases.

[56] Stiglitz has argued for a 'super chapter 11'—an even more expedited restructuring process which would come into play in the event of a macroeconomic disturbance. See Miller and Stiglitz, 1999.

In choosing an exchange rate regime, developing countries are faced with a trade-off between their need for stability and their need for flexibility. The demand for stability comes from its positive impact on investment, as well as the need to avoid procyclical balance sheet effects of exchange rate fluctuations. The demand for flexibility comes from the need to have some degrees of freedom to manage trade and capital account shocks. The relative benefits of flexibility vs. stability are determined by both the external environment and objective factors. For example, increased international instability (e.g., the breakdown of the dollar standard, a period of turmoil in world finance for emerging markets, or a world recession) will increase the relative benefits of flexibility, whereas a period of tranquillity (e.g., the heyday of the Bretton Woods system, or a period of stable world economic growth) will increase the relative advantages of stability.

The relevance of these conflicting demands is not captured by the call to choose polar exchange rate regimes – i.e., either 'hard pegs' (e.g. currency boards or even dollarization or euroization) or totally flexible exchange rates. Rather, the defence of polar regimes is based on the argument that any attempt to manage the conflicting demands on exchange rate policy is futile and should be given up altogether.

Hard pegs introduce built-in institutional arrangements that provide for fiscal and monetary discipline, and avoid the balance sheet effects of exchange rate fluctuations, but at the cost of eliminating monetary policy autonomy. Under this type of regime, adjustment to overvaluation (however that might occur) is painful, and may lead to low growth rates. When the currency becomes overvalued, domestic prices and wages need to fall for the country to regain competitiveness. More price flexibility, which in this case means deflation (and recession) during crises, generates severe adjustment problems; of particular concern is the rapid increase in real debt burdens generated by deflation. It may also generate a short-term bias in bank lending, which is necessary to rapidly reduce nominal portfolios during periods of monetary contraction. One of the alleged advantages of the hard peg was that it was supposed to be speculation proof. But the experiences of currency boards in Argentina in 1994-1995 and 1998-2001, Hong Kong in 1997 (and, for that matter, of the gold standard in developing countries during the late 19th and early 20th centuries) indicate that this has not been the case.

When a currency is overvalued, it is often not a question of whether the fixed rate should be maintained, but when and how it will be devalued. It is preferable to devalue gradually than to have a crisis (in which there is often overshooting). Slow, or creeping, devaluations also avoid major price shocks. In addition, raising interest rates to maintain the currency may have even more adverse effects on the economy than the devaluation itself. The questions that policymakers need to address are: what are the costs and benefits of interventions in foreign exchange markets, and when are these interventions sustainable.

On the other hand, the volatility associated with freely floating exchange rate regimes increases the costs of trade and reduces the benefits of international specialization. As

developing countries are largely net importers of capital goods, exchange rate uncertainty also affects investment decisions.

*Interventions in the Foreign Exchange Market*

Maintaining an undervalued exchange rate is considerably easier than maintaining an overvalued exchange rate, but this too has costs. To maintain an undervalued exchange rate, governments can lower interest rates (to discourage capital inflows) or can intervene in the exchange rate market directly by buying dollars and selling the local currency. Maintaining an undervalued exchange rate through direct intervention produces a build-up of international reserves. This has a long-term benefit: it protects the country against future capital account volatility (it acts as a 'war chest'). But buying up international reserves has costs. The central bank has to sell domestic currency to buy the reserves, and this increases the money supply. To keep the money supply within limits, authorities may choose to 'sterilize' the monetary effect of the foreign exchange intervention by selling domestic assets and buying the additional currency from the market.

The mechanisms generally used (e.g. open market operations) are somewhat costly as they involve issuing central bank bonds, which pay interest, to absorb the excess liquidity. Furthermore, these interventions may lead to higher interest rates, raising the overall cost of government funding. The higher rates might attract more capital, overheating the economy, and forcing even larger reserve accumulations. Raising reserve requirements on banks is a less costly means to sterilize, but may lead to higher credit costs and to financial disintermediation (in which banks use unregulated mechanisms to channel liquid funds).

There can be an additional cost to purchasing foreign currency reserves at an undervalued exchange rate: if the currency does eventually revalue, then the value of the foreign reserves will drop relative to domestic GDP. The question is whether and when the costs of sterilization can become too great to maintain and outweigh the benefits of a weak exchange rate. Sterilization is especially costly for countries with relatively high interest rates and high levels of government debt. In the late 1990s, the Hungarian central bank, for example, felt that sterilization had become too expensive and let its exchange rate strengthen. On the other hand, the costs of letting a currency strengthen are often greater than the costs of maintaining reserves. China has maintained an exchange rate that some have argued has been undervalued for extended periods. Unlike Hungary, China has maintained its capital account restrictions, giving it more leeway to manage its money supply.

While it is possible for a country to maintain an undervalued exchange rate for extended periods of time, it is far more difficult for it to maintain an overvalued exchange rate, even for short periods of time. Direct intervention in the currency market is unsustainable. If the devaluation is expected to occur in the not too distant future, a speculative attack will be mounted now. The standard prescription to stem exchange rate depreciation is to raise interest rates to attract capital into the country. Two questions have been raised concerning this conventional policy prescription: does it work, and are

the benefits worth the costs? The evidence[57] suggests a mixed record at best. In the case of East Asia, the interest rate increases, even combined with huge bail-outs, did not stem the large exchange rate depreciations.

The cost of raising interest rates to defend the currency depends on the structure of the economy, but can be high, as we saw during the Asian crisis. There are real balance sheet effects, similar to the effects of currency devaluation. For firms with outstanding short term debts, high interest rates affect their balance sheets. The high rates reduce the value of long-term assets (including real estate). In many cases, firms are unable to meet their interest obligations on domestic debt in local currency. This has a ripple effect through the economy, as economic problems in one firm get pushed to the firms they trade with. Banks balance sheets are weakened and new lending falls.

In short, raising interest rates has similar adverse effects to devaluing the exchange rate on balance sheets, bankruptcies, and economic activity. But there are differences. First, the effects of raising interest rates are more pervasive, since many firms—especially small and medium sized enterprises at the heart of developing countries—only borrow domestically. Relatively few, mostly large firms, borrow internationally, and many of these are in export sectors, so that in the event of a devaluation, they gain from the improvement in their profitability what they lose on their balance sheet. Second, a policy of attempting to stave off devaluations by raising interest rates contributes to a moral hazard problem—it lessens the incentives to buy insurance against exchange rate fluctuation or to borrow in the local currency, thereby reducing government room for manoeuvre. Third, there are high long run costs to raising interest rates, as discussed earlier. Finally, appropriately designed monetary and regulatory policies can restrict firm exposure to foreign exchange rates; it's more difficult (and costly) to design monetary policies that restrict exposure to interest rate fluctuations. Firms would have to restrict their short term borrowing (and there are even risks to long term borrowing, since it has to be renewed).

In addition to trying to maintain an overvalued or undervalued exchange rate, government intervention in the currency market is often used to *smooth* exchange rate variations. Many developing countries are particularly concerned about the volatility of the *real* exchange rate and try to avoid what they judge as either excessive real depreciations or appreciations. Most countries also intervene to smooth short-term volatility. This form of intervention is especially useful in countries with illiquid markets, where one large foreign currency payment can cause the currency to jump. The reasons to avoid real exchange rate fluctuations are clear. Temporary real exchange rate appreciation can have especially large long-term costs if entry into tradable sectors has fixed costs (fixed capital investments or fixed costs of building a clientele in foreign markets), especially in the presence of capital market imperfections. The absence of a complete set of futures and risk markets provide another reason for government intervention; in these circumstances, the market equilibrium would not be efficient, even when expectations are fully rational.

[57] Furman and Stiglitz, 1998.

*Intermediate regimes*

The frequency of 'dirty floats', or floating rate regimes with limited flexibility,[58] shows how authorities in the developing world often opt for striking a balance between the conflicting demands they face. Intermediate exchange rate regimes can take several forms: (a) quasi-fixed exchange rate regimes with large central bank interventions in foreign exchange markets; (b) managed exchange rates, such as crawling pegs and bands; and (c) dirty floats, in which monetary authorities intervene in the market from time to time. All these regimes can be understood as including an element of 'real exchange rate targeting' in the design of macroeconomic policy, and many or most of them are often combined with some form of capital account regulations, we discussed below. To the extent that smoothing out real exchange rate fluctuations has a countercyclical effect, 'real exchange rate targeting' turns out to be complementary with the objective of smoothing real (output) volatility.

One of the advantages of intermediate regimes is that flexibility *can be graduated*, depending on the relative benefits of stability vs. flexibility that we have analyzed. This implies that any intermediate regime has an embedded 'exit option'. (Of course, even a peg has an exit option, but as the Argentine experience showed, the cost of that exit was high.) Also, if some degree of exchange rate flexibility is available before an external crisis hits, it would provide scope for avoiding the real interest rate overshooting that seems to characterize the transition away from a fixed exchange rate regime in developing countries.

There are still risks associated with intermediate regimes. The scope for monetary autonomy is still limited. First, as with fixed rate regimes, intermediate options are subject to speculative pressures if they do not generate credibility in markets. Defending the exchange rate may be costly, as discussed earlier in this chapter. This is particularly true of any pre-announcement (of the rate of the crawl, of a band, or of a specific exchange rate target). Second, macroeconomic autonomy still depends on the effectiveness of capital account regulations as a macroeconomic policy tool, as discussed below. Third, similar to fixed rate regimes, intermediate regimes will generally require sterilized intervention in foreign exchange markets, which can be costly. Finally, interventions in the foreign exchange market always face the difficult choice of distinguishing between a real (permanent) shock and a temporary aberration in the exchange rate caused by random fluctuations in market sentiment.

In short, no exchange rate system is risk free. Different regimes have different benefits and costs. Like all economic policies, the choice of currency regime involves trade-offs. The optimal choice will depend on the objectives of the authorities, and on the macroeconomic, institutional, and political characteristics of the country in question.

**Microeconomic Measures**

[58] Reinhart and Rogoff, 2004

In addition to direct management of the exchange rate, microeconomic interventions can be used to impact relative prices. For example, microeconomic policies can be used to change the composition of demand towards non-tradables and away from imports. Tax policies that encourage more spending on domestically produced goods and less on goods produced abroad will help to stimulate the economy, and at the same time, strengthen the currency. In many developing countries, most luxury consumption goods are imported. A high sales tax on such goods discourages these imports. Government expenditures can also be weighted towards domestically produced goods.

**Box 3: Managing the Dutch Disease**

As mentioned above, foreign aid used to finance domestic expenditures can contribute to overvaluation of the exchange rate, making domestic exporters and import competing industries less competitive, through the effect known as the 'Dutch disease'. There has been considerable debate on the impact of the 'Dutch disease' on aid flows. This note, will assume that significant foreign exchange inflows will have a macroeconomic effect, and concentrate on potential policy responses.

Most of the literature on aid and the 'Dutch disease' makes a few main points. The general view is that countries should intervene in the exchange market to keep the currency from appreciating, and sterilize the inflows to minimize the inflationary impact of the increase in the domestic money supply. Others[59] have pointed out that if aid flows go into long-term productive investments, the productivity gains from the investment can compensate for the strengthening of the nominal exchange rate. In addition, they have made the point that if the inflows are used to purchase imported goods, the effects of the increased aid on the exchange rate will be limited. However, there are real questions of whether, on average, the increase in aid will be invested in projects that generate improved productivity significant enough to compensate for the loss in competitiveness due to the exchange rate strengthening, especially in the short to medium term. Furthermore, countries often need aid to finance social spending and basic services for the poor that will not be productivity enhancing, at least in the short run.

As discussed earlier, policymakers can attempt to weaken the exchange rate by buying the foreign exchange inflows (and building up reserves) in conjunction with sterilization. With limited amounts of aid, this can be an effective strategy. But intervention has costs and is not always sustainable. The build-up in international reserves has opportunity costs, and sterilization raises domestic interest rates.

Furthermore, sterilization generally involves issuing Treasury bills to absorb the excess liquidity. *In other words, the increase in aid has the perverse effect of leading to a build-up in domestic debt.* It is ironic that just as the international community has moved to replace loans with grants in an attempt to avoid developing country debt crises, the policy framework used to manage these inflows is leading to a new build-up in debt. Yet, aid inflows can be crucial for development and poverty reduction in poor countries; policymakers need to think about alternative frameworks to manage these inflows.

[59] McKinley, 2005.

One possible alternative is for the central banks to choose not to sterilize the inflows; instead, they would allow the inflows to be monetized. All policies have trade-offs: borrowing from the market through open market operations leads to higher interest rates, which can crowd out investment; monetizing can lead to inflation. But, as we have discussed, relatively low inflation does not necessarily have high costs. When a country is in a recession and in need of investment, monetizing could be an option. (Of course, the central bank would need to monitor the inflation rate to make sure it does not become excessive. In addition, monetization can be done in conjunction with accounting frameworks and safeguards to fully monitor the increase in money supply.)

An alternative policy stance would allow the exchange rate to strengthen somewhat and to look to policies to counteract the effect of the strengthening exchange rate on competitiveness. Exchange rates, like interest rates, are blunt instruments, affecting all sectors of the economy. In the earlier discussion on monetary policy, one goal of alternative policy instruments was to target sectors subject to credit constraints. In the case of appreciating exchange rates, authorities can similarly target sectors of the economy hurt by exchange rate strengthening (to try to compensate them for the loss of competitiveness). In theory, tariffs could be used to adjust specific relative prices, though WTO and other trade treaties have reduced the ability to impose tariffs. But tax incentives, reduced interest loans (though these too may be subject to WTO), or reduced reserve requirements can have similar effects. The government needs to look to alternative microeconomic instruments to counteract the impact of the strengthening exchange rate.

Ultimately, the choice of policy response to Dutch Disease effects will depend on country specific circumstances, but the macroeconomic framework of intervention and sterilization is not the only policy alternative. Policymakers can manage the trade-offs of the effects on interest rates, exchange rates, and inflation through intervention in the currency market, sterilization, monetization, and heterodox policies to target those sectors impacted most by a loss of competitiveness.

## Monetary and Exchange Rate Policy Rules and Institutional Design

The choice of exchange rate regime is closely related to the broader question of what monetary policy rules the central bank should follow, and the institutional design of the central bank itself. There are three distinct but related questions: whether the central bank should follow monetary policy rules, such as fixing the currency or inflation targeting, or whether it should follow discretionary policies; whether the mandate of the central bank should focus on inflation or whether it should include other policy variables, such as growth and employment; and whether the central bank should be independent.

### *Rules vs. Discretion and Inflation Targeting vs. Foreign Exchange Targeting*[60]

[60] This section is based on Ocampo (forthcoming), as well as Stiglitz *et al.*, 2007.

In the 1980s, the most favoured rule prescribed expanding the money supply at a constant rate. Then, it became clear that the demand function for money was unstable and hard to predict, especially in developing countries, and the money supply rule lost favour. Many developing countries chose to target the exchange rate since it was viewed as a simple and transparent indicator. But the exchange rate crises in the mid to late 1990s led to a shift to flexible exchange rate regimes, and today, inflation targeting[61] is the preferred monetary rule.

On the other hand, Keynesian economists generally believe that central bankers should be allowed to use more discretion than allowed by strict rules. Because strict inflation targeting rules do not distinguish between inflation fuelled by expectations and inflation fuelled by VAT increases or external shocks (such as oil price rises or exchange rate devaluations) it can lead to procyclical policies. For example, inflation targeting can lead to exchange rate targeting or contractionary monetary policies during periods of devaluations, counteracting the exchange rate effect on competitiveness. Inflation targeting often incorporates two widely used procyclical policies: anchoring the price level to a fixed exchange rate during periods of foreign exchange inflows and counterbalancing the inflationary effects of devaluation with contractionary monetary policies during periods of outflows. Strict inflation targeting can therefore generate more output volatility than monetary policy goals that take into account other objectives such as reducing the output gap.[62]

The key problem faced by the authorities during booms is that capital surges exert expansionary aggregate demand effects that are enhanced by downward pressure on interest rates and/or exchange rate appreciation. Any attempt by policymakers to counteract these aggregate demand effects through contractionary monetary policies will be partly self-defeating, as the higher interest rates will induce additional capital inflows, and thus additional appreciation pressures. During crises, the reduction of capital inflows will have a direct effect on aggregate demand, which will be combined with a mix of devaluation and interest rate hikes. Any attempt to avoid the latter by using expansionary monetary policy will encourage a stronger devaluation. Thus, if authorities consider that the exchange rate fluctuations generated by boom-bust cycles are too strong to start with, they may be encouraged to use pro-cyclical monetary policy to smooth out those fluctuations. In other words, contrary to the traditional argument about the additional degrees of freedom for monetary policy (discussed below) provided by floating exchange rates, such a regime may, in fact, lead to pro-cyclical monetary policies. The only way to guarantee adequate degrees of freedom for countercyclical monetary policies may thus be to give up free floating, free capital mobility, or both.

A second issue to consider in choosing monetary regimes is the efficiency or stability of the inflation-targeting rule. This is more complicated than can be addressed in this note,

[61] With inflation targeting, the central bank targets a publicly announced level of inflation. Central banks that do not use explicit inflation targeting might target the money supply or the exchange rate to fight against inflation.
[62] Svensson, 2000.

but we will discuss it briefly. It concerns, for instance, the extent to which (and the circumstances under which) conventionally measured changes in inflation provide a good indicator of whether employment is above or below the full employment level. There is, in addition, a more fundamental question surrounding inflation targeting: whether a policy structure – in which monetary authorities focus on inflation and fiscal authorities focus, for instance, on external balance – is a good way of achieving the ultimate objective of full employment with external balance.

Under inflation targeting, the government or monetary authority announces a target for the inflation rate, and the monetary authorities commit to achieve this target. Inflation targeting divides responsibilities between government and a monetary authority, so that each policymaker focuses on a single objective. The problem is that dividing responsibilities reduces coordination.

The nature of the response to excess aggregate demand *should* depend on an analysis of the source of the disturbance. A rule that simply looks at the magnitude of the inflation rate is not likely to provide for a quick adjustment of the economy to the new equilibrium. Monetary authorities cannot detach themselves from the broader objectives of macroeconomic policy, such as full employment and external balance. They must coordinate the appropriate response to the specific source of disturbance with the fiscal authorities. Dividing responsibilities between the two authorities in a simple way, as assumed in the 'inflation targeting' rule, is not an effective way to manage macroeconomic policy. Inflation targeting doesn't provide a smooth convergence to an equilibrium with both external and internal balance, since to achieve full employment and external balance, it's crucial to coordinate monetary, fiscal, and exchange rate policies.

***Central Bank Mandate***

Many countries have narrowed the mandate of the central bank to fighting inflation. In the United States, however, the Federal Reserve mandate is not only to ensure price stability, but also to promote growth and full employment. A Bank of England Survey of 94 Central Banks found that only 26 per cent had monetary stability as their only objective; 70 per cent had monetary stability combined with other goals; 3 per cent had no statutory goals; 1 per cent had only non-monetary stability as its goal.[63]

There is some evidence[64] that independent central banks with an inflation target do achieve lower levels of inflation—it would be striking if they didn't. But inflation is only an intermediate variable. The significant question is whether economies with this institutional structure achieve better performance in real terms: growth, unemployment, poverty, equality. There is little evidence that independent central banks focusing exclusively on price stability do better in these crucial respects.[65] As mentioned above, a sole focus on price stability might lead to greater instability in financial variables. Simple theoretical models suggest the following: with shifting demand and supply curves

[63] Mahadeva and Sterne, 2000.
[64] Alesina and Summers, 1993.
[65] Stanley Fischer, 1996. See also Posen, 1998.

(common during crises like those in many developing countries in the 1990s), an attempt to stabilize prices can easily lead to destabilized output; price adjustments are meant to buffer quantity adjustments, and reducing the scope for price adjustments (in the process of fighting inflation) places more of the burden on quantity adjustments.[66]

Central banks make decisions that affect every aspect of society, including rates of economic growth and unemployment. Because there are tradeoffs, these decisions can only be made as part of a political process, as discussed in the next section.

***An Independent Central Bank***

An independent central bank has become accepted as the most appropriate institutional arrangement to separate macroeconomic policymaking from the political process. There are, however, two main criticisms of this approach.

The first criticism is that the arrangement can undermine democratic governance. Citizens consider few issues more important than the quality of macroeconomic management. By delegating authority over the economy to an independent central bank, the government is being held accountable for something over which it does not have authority. Moreover, we have seen that macroeconomic management entails trade-offs, with different decisions affecting the well-being of different groups. Such decisions are necessarily political. Delegating them to technocrats who are 'independent' from the government undermines democratic accountability.

While economists and politicians have long discussed the desirability of independent central banks, they have spent much less time considering the importance of *representativeness* (or lack thereof) of these banks. The two concepts are distinct. The problem in many countries is that the governing body of the central bank is typically not representative of society and its broader interests.

Governments more sensitive to democratic processes argue that they, and not the central bank, should set targets, such as an inflation target, because the decision involves trade-offs, such as the trade-off between unemployment and inflation. But even a government specified inflation target does not depoliticize the conduct of monetary policy. The central bank is responsible for reaching the target, and missing it still can have costs that not everyone in society bears equally.

[66] There is a line of research which suggests that that is not the case, and has attempted to explain this seeming anomaly. Goodfriend and King (2001), for example, argue that maintaining price stability guarantees that the economy always operates at its potential output. This result arises from the simplistic assumption that they incorporate only one type of shock in their model. Gaspar and Smets (2002) argue that central banks should focus on price stability because of the time-inconsistency problem associated with output stabilization, because of the difficulty in assessing potential output, and because it facilitates agents' learning.

## *CAPITAL MARKET INTERVENTIONS AND OTHER POLICY OPTIONS FOR OPEN ECONOMIES*

So far, in this note, we have focused on fiscal, monetary and exchange rate policies. We have also presented several heterodox measures as alternatives or enhancements to these. One of the most important set of economic tools available to policymakers is capital account controls and regulations. In this section, we will consider some additional microeconomic tools for macroeconomic management, focusing on capital market interventions.

### Interventions in Capital Markets

In the face of market failures in financial markets, pro-cyclical capital flows and limited room to manoeuvre for macroeconomic policy, capital market interventions can be used to serve multiple purposes. First, they can stabilize short-term volatile capital flows. Second, they can give policymakers additional instruments that allow them more effective and less costly macroeconomic stabilization measures. Third, effective capital account regulations can promote growth by reducing the volatility of financing and the volatility of real macroeconomic performance. Finally, they can also discourage long-term capital outflows. Of all the objectives of intervention listed, discouraging long-term capital outflows is perhaps the most difficult. Yet interventions can be effective, even if controls are partially circumvented. The most critical issue today is not whether market interventions are desirable in theory, but whether, in practice, policymakers can design interventions whose benefit to an economy outweigh the ancillary costs.

#### *Price and Quantity Based Controls on Inflows and Outflows*

There are different types of capital account regulations. Capital controls include quantity and price-based regulations, both of which can be administered on either inflows or outflows. In addition, some countries use indirect regulations, such as prudential regulations on financial institutions or regulations on investments of pension funds, which have implications for capital flows. Thus, a broader concept of capital account restrictions is useful to understand the complementary use of, and overlap among, different forms of regulation.

Traditional quantity-based capital restrictions (administrative restrictions and controls) continue to be widely used by developing countries, including key countries such as China and India, despite the gradual liberalization of their capital accounts. These regulations are used to target either inflows or outflows on domestic or foreign residents. Regulations that affect domestic residents include restrictions on currency mismatches (only companies with foreign exchange revenues can borrow abroad), end-use limitations (borrowing abroad is allowed only for investment and foreign trade), minimum maturities for borrowing abroad, limitations on the type of agents that can raise funds abroad

through ADRs[67] and similar instruments, prohibition on borrowing in foreign currencies by non-corporate residents and, in some countries, overall quantitative ceilings. Limitations on non-residents include restrictions or a prohibition on their capacity to borrow in the domestic markets, direct regulations of portfolio flows (including explicit approval and limitations on the assets in which they can invest), sectoral restrictions on FDI, and minimum stay periods.

Other countries, such as Chile and Colombia, implemented price-based interventions on inflows (an unremunerated reserve requirement, equivalent to a tax on inflows). Argentina introduced a similar mechanism in the mid-1990s. Such measures aim to discourage inflows or outflows by raising associated costs. Price-based interventions are often mixed with some quantity based interventions. For example, Malaysia introduced a tax on outflows during the Asian crisis, after a short period in which it used quantitative controls, but still maintained quantity restrictions on currency mismatches by not allowing domestic agents without foreign exchange revenues to borrow abroad. Similarly, Chile maintained a one-year minimum maturity on most capital inflows, and Colombia directly regulated the inflows and investments of foreign investment funds throughout the 1990s.

Economists have a strong proclivity for price-based as opposed to quantity-based interventions. Price-based interventions are flexible, non-discretionary and thus less susceptible to bureaucratic manipulation, and in line with market incentives. But the case for price-based interventions is far from clear. Theoretical work in economics has shown that sometimes quantity-based restrictions can reduce risk more effectively than price interventions.[68]

Most economists also prefer regulating inflows to outflows. There are several reasons for this. First, regulating inflows helps prevents crises, which should be the ultimate goal of policymaking. Second, regulating inflows involves less uncertainty and more transparency: creditors know the cost of regulations before they invest. But, again, the arguments against regulating outflows are not clear-cut. For example, restrictions on outflows may be the only way to solve a collective action problem or coordination market failure. When markets exhibit herding behaviour (and creditors and investors pull their funds out of a country during a crisis because they are afraid that others will pull their funds out first), restrictions on outflows may be the only instrument available to avoid a downward recessionary spiral. Markets generally overshoot in these circumstances, so the restrictions are welfare enhancing.

The empirical evidence shows that all types of instruments can have positive effects, depending on the circumstances under which each mechanism is applied. Policymakers in China, India and Malaysia were able to use quantitative capital account regulations to achieve critical macroeconomic objectives, including prevention of maturity mismatches, attraction of favoured forms of foreign investment, reduction in overall financial fragility,

[67] ADRs or American Depositary Receipts are negotiable certificates issued by U.S. banks for shares of foreign stocks. ADRs are issued in USD and are traded on a U.S. stock exchange.
[68] See Weitzman, 1974, for a general discussion. In the context of trade interventions, see Dasgupta and Stiglitz, 1977.

and insulation from speculative pressures and contagion effects of financial crises – leading to greater economic policy autonomy.[69]

There is some evidence that regulations on capital inflows in Chile, Colombia, and Malaysia[70] proved useful in inducing better debt profiles, restraining asset bubbles, and improving the macroeconomic trade-offs faced by authorities. In the latter case, they achieved a variable mix between reducing overall inflows and generating a higher domestic interest rate spread that allowed for a more restrictive monetary policy to work during periods of booming capital inflows. However, the macroeconomic effects, including on asset prices, depended on the strength of the regulations and tended to be temporary in the case of the unremunerated reserve requirements used by Chile and Colombia, which operated more as 'speed bumps' than as permanent speed restrictions. In contrast, the draconian quantity-based controls on inflows adopted by Malaysia in 1994 proved to be much stronger in terms of stopping the massive capital surge that the country had experienced in the early 1990s. Thus, when immediate and drastic action is needed, quantitative controls may be more effective.

The experience of Malaysia illustrates the fallacy of another argument often put forward: that controls on outflows 'deter future inflows of all kinds.'[71] This argument was used to criticize Malaysia's controls when they were established in 1998. But even before the tax was lifted in 2001, Malaysia started attracting additional inflows. Investors are forward looking, and Malaysia's positive fundamentals (its current account surplus, high savings ratio, moderate external liabilities with a low share of short-term debts, large international reserves, and strengthening stock market) drew these additional funds into the country.[72]

The capital account interventions discussed above all work by essentially segmenting domestic markets from international markets. There is another category of restrictions called 'soft controls' that aim to segment the market directly.

***Soft Controls: Encouraging Market Segmentation***

Soft controls can require domestic funds, such as social security or pension funds, to invest their assets in domestic markets and can prohibit or limit investment abroad. These restrictions reduce the funds' potential to generate pro-cyclical disturbances. Soft controls have an additional positive effect of creating a local demand for domestic securities and helping to develop the local capital markets, and build a domestic capital base.

This kind of control might become particularly relevant in the future because of the growth of privately managed pension funds in many developing countries, especially in Latin America. In Chile (the pioneer in this area), such funds are equivalent to 70 per cent of annual GDP. Most countries place limits on the extent to which domestic funds can invest abroad, and have experienced new sustained growth in domestic markets, in large part because of the increased demand for local securities from domestic pension funds.

[69] Epstein, Grabel, and Jomo, forthcoming.
[70] Ocampo and Palma, forthcoming.
[71] Only firms that relied on borrowing directly from foreign banks would be unaffected.
[72] The Economist Magazine, 2003.

Once again, the Chilean experience demonstrates the stimulating role of pension funds on the development of domestic capital markets. But it also demonstrates how pension funds can generate macro-instability when the markets are not segmented and funds are allowed to invest abroad.[73]

Some economists oppose these soft controls because they limit the ability of domestic funds to diversify their assets. This is true, but all economic policies involve trade-offs. Building a local capital market and domestic capital base is essential, and its benefits far outweigh the costs of controls. To the extent that domestic institutional investors add to the pro-cyclical nature of open capital markets, they impose an externality on the entire population. Soft controls can help turn this negative process into a positive one for long-term growth.[74]

### *Indirect Interventions in Capital Account Transactions through Prudential Regulations*

In addition to direct quantity-based and priced-based regulations, governments can use a variety of indirect measures to control (or at least influence) capital account inflows and outflows. The most critical use of regulations is to avoid currency mismatches in the balance sheets of financial and non-financial agents.

Prudential regulations on the banking system are one such tool. Numerous countries forbid, or strictly limit, banks from holding currency mismatches on their balance sheets. To avoid domestic financial dollarization/euroization, many countries also forbid financial institutions to hold deposits from domestic residents in foreign currencies, or limit the nature and use of such deposits. Bank regulators can also prohibit domestic banks from lending in foreign currencies to firms that do not have matching revenues in those currencies. For a more subtle approach, they can impose higher risk-adjusted capital adequacy requirements or additional liquidity and/or loan-loss provisioning (reserve) requirements on foreign currency loans made to domestic agents who lack matching revenues. In countries with deposit insurance, the government can impose higher insurance premiums on banks that have riskier practices. These softer regulations would discourage (but not eliminate) the indirect foreign exchange exposure of banks. To reduce the maturity mismatch of non-financial firms, regulators could similarly set higher capital, liquidity or prudential requirements for short-term lending by domestic financial institutions.

Since banks traditionally mediate much of the capital flow in an economy, regulation of the financial sector has a significant economic impact. However, unless regulations focus adequate attention on the exposure of non-financial firms, the impact of the financial sector can be vitiated. For example, regulations that simply forbid banks from holding dollar-denominated liabilities might encourage firms to borrow directly from abroad. So

[73] Zahler, 2003.

[74] Government regulations allowing for swaps—an exchange of assets, say, between the pension funds of one country and that of another—could help diversify risk, without putting any pressure on the exchange rate, and without subjecting countries to pro-cyclical capital flows.

banks must examine the entire asset and liability structure of the firms to which they lend (which they should do, in any case). Regulations can also be designed to directly target borrowing abroad by non-financial firms directly. These might include rules on the types of firms that can borrow abroad (for example, only firms with revenues in foreign currencies) and establishes prudential ratios for such firms. Regulations might also include restrictions on the terms of corporate debt that can be contracted abroad (minimum maturities and maximum spreads, for example) and public disclosure of the short-term external liabilities of firms.

There can be problems administering these provisions because corporations will have an incentive to circumvent the rules by using derivatives. To address this, governments should require full disclosure of all derivative positions.[75] Foreign-denominated debt can also be subordinated to domestic currency debt in bankruptcy proceedings. An alternative (or complementary) approach is for governments to create adverse tax treatment for foreign-denominated borrowing, especially when it is short term. For example, countries that have a corporate income tax with tax-deductible interest payments might exclude foreign-denominated debt from the tax deduction or make the interest payments only partially tax deductible.[76]

These alternative measures rely on a combination of banking regulations and complementary policies aimed at non-financial firms. The direct capital-account regulations discussed earlier might be simpler to administer than such a system. They may work better because they are aimed at the actual source of the disturbance—pro-cyclical capital flows. For developing countries with strong administrative capabilities and a derivatives market, though, a combination of direct and indirect measures can succeed in restricting flows and helping to limit circumvention.

**Box 4: Accounting Frameworks**

Accounting frameworks not only provide a description of the economy, but also influence policy. Some of these issues were addressed in the discussion or fiscal policy. This section will explore the accounting frameworks currently used throughout the developing world, and discuss alternative approaches that can be more effective tools of economic policy.

Most countries maintain accounts of their budget or fiscal positions (similar to cash flow statements for firms), but do not generally keep balance sheet accounts. The budget numbers are therefore used to serve several purposes. They provide an indicator of inflationary pressure, a measure of government borrowing requirements, and a signal concerning the government's balance sheet position. Ideally, there should be separate accounting frameworks for each of these uses. In reality, most governments use

[75] To do so, the government would need to add all the longs (investments) and shorts (borrowings) to get the net position and ascertain the actual extent of foreign-denominated borrowing.
[76] For an analysis of these issues, see World Bank, 1999; and Bhattacharya and Stiglitz, 2000.

accounting frameworks that are a mélange; they provide only incomplete indicators for any of the questions of interest.

For example, an accounting framework can suggest there is excess aggregate demand (inflation) when there is not. Borrowing for investment has a different impact on economic well-being than borrowing for consumption, and should be recognized as such in the accounts. A *balance sheet* would measure assets and liabilities and net worth (the value of assets minus liabilities), and make this distinction clear. In the first case, assets would increase in tandem with liabilities; in the second case, they would not.

One of the problems with this approach is that differentiating between true investments and consumption expenditures is not always clear cut. For example, we typically treat expenditures on education as current expenditures (consumption), but they are really investments in human capital. Health care expenditures on children should also be considered an investment, while health expenditures on the aged should probably not. But such issues could at least be addressed with an appropriate framework.

Some of the most striking examples of accounting failures include: excluding foreign aid from government budgets; consolidating borrowing by government-owned enterprise with the rest of the budget; accounting for privatization; and responding inappropriately to budget deficits that increase after the privatization of social security. Even the standard measure of economic success, current gross domestic product (GDP), often suggests that the economy is doing better (sometimes much better) than it really is. We discuss a few of these examples in more detail below.

**GDP Measurement Problems**

GDP is the value of all goods and services produced in a country (measured as government spending, consumption, investment, and exports minus imports). The problem is that GDP can rise even as citizens become poorer because the government might be selling national assets to foreigners, borrowing abroad, or using up its scarce natural resources.

A better measure of overall welfare is gross national product (GNP). GNP includes income earned by domestic residents on investments abroad and subtracts income earned by foreigners on investments made within the country. Even better is net national product (NNP), which subtracts depreciation of the country's capital goods. Measures of national output that take into account the depletion of natural resources, the degradation of the environment, and the assumption of risks are even better measures of well-being.

**Accounting for State-Owned Enterprises**

Another example is the way developing countries are sometimes forced to account for expenditures of state-owned companies. As the IMF has now acknowledged, it has long treated borrowing by government-owned corporations in Latin America differently from the way this borrowing is accounted for in Europe. In Latin America, there is a consolidated public sector deficit which categorizes this borrowing as an increase in the

government deficit. In Europe, borrowing by public sector firms is not consolidated with that of the public administration. This means that the budget numbers for Europe and Latin America are not really comparable—a Latin American country in a similar situation to that of a European country will appear to have a larger deficit. Investment by public sector firms also implies that the public sector is accumulating assets, but such assets are not included in the accounts, which, generally refer to flows rather than balance sheets. As we have noted, these accounting practices give countries the incentive to privatize state-owned companies, even when there is no economic reason to do so. Even when there is a reason to do so, it would be preferable to use receipts from such asset-sales to repay public debt. But conventional accounting frameworks do not provide credit for doing so.

**Other Examples of Accounting Distortion:**
**Stabilization Funds, Land Reform, and Bank Recapitalization**

There are still other examples of accounting distortions. Some countries, such as Chile, have created rainy day, or stabilization, funds, designed to save surplus funds so they can be spent during an economic downturn. But if the budget treats these expenditures like any other form of deficit spending, it could look as though a country has exceeded the fiscal spending targets negotiated with the IMF. Not wanting to appear profligate could discourage countries from using the self-financed deficit spending that they need for recovery.

Brazil is a country with enormous inequalities in income, wealth, and the distribution of land. Land reform holds the promise of increasing efficiency, growth, and equality. But inappropriate accounting frameworks are impeding land reform. In one of the better designed land reform programs, the government borrows money to buy land from rich landowners, using its ability to buy privately owned land to turn it into public land to force sales at fair market value. It then lends money to small peasants so they can buy the land. If the government charges an appropriate interest rate on the loans, there is no real fiscal burden on the government. Of course, there is some probability the peasants will default on the loans, but in that case, the government repossesses the land and then resells it.[77] Traditional fiscal accounting, however, treats the government borrowing to buy land as a liability; it does not acknowledge the mortgage that the government receives as an asset, no matter what the interest paid. Because the liabilities, but not the assets, are recognized, land reform shows up as deficit spending. Given the IMF's strict deficit targets, land reform becomes essentially impossible. Land reform must compete with all other expenditures even though it would be entirely, or almost entirely, self-financing with an appropriate accounting framework.

In short, accounting frameworks affect government policy and have enormous political consequences. Avoiding the wrong incentives that accounting practices generate may require an entirely different set of rules than those used in current fiscal programs. In

[77] The only loss is the actuarial value of the loss in rental payments during the interim—between the period when the loan goes into default and the time the land is resold—presumably a small fraction of the value of the underlying transaction itself.

particular, it may be better to target the current fiscal balance of the public administration (through a structural 'golden rule', by which investment should be financed by government savings, or a structural primary surplus), as discussed earlier, together with the consolidated debt of the public sector, including all contingent liabilities.

**Public-Sector Liability Management in Developing Countries**

If domestic debt markets are thin, governments might be tempted to finance expansionary fiscal policies through borrowing abroad. But this exposes them to greater future risk as a result of exchange rate changes, and undermines the role of exchange rate changes as part of the adjustment process. One of the reasons that the countries of East Asia did so well for so long is that their high savings rate enabled governments to invest at a high rate without borrowing from abroad. (Indeed, the extent of the East Asian crisis was largely a result of capital market liberalization, which was something they need not have done, given their high savings rate.) For countries with high external borrowings, one medium term goal is to develop local capital markets so they can borrow in their own currency and encourage domestic savings.

If foreign capital markets were well functioning, developing countries would be able to borrow abroad in their own currency (or in a market basket of currencies highly correlated with their own currency). Well functioning markets would enable the transfer of exchange rate risks to developing country lenders who can bear the risk more easily.[78] There have been a few instances in which this happened, but by and large developing countries have to bear the brunt of the risk of exchange rate and interest rate fluctuations. What matters is not so much the source of the funds, but the risk associated with the debt, and given that foreign borrowing entails the imposition of these high risks, countries should limit their exposure.

Severe currency and maturity mismatches in public sector debt structures are an important problem in many developing countries. Most long term debt is denominated in foreign currencies, while domestic debt is generally short term. Yet, with the exception of a few public-sector firms, the public sector produces services for the domestic economy (non-tradables) and public sector investments are long term.

The maturity structure of public sector *domestic* liabilities is also extremely important, as has been revealed in several financial crises. The basic reason for this is the highly liquid nature of public-sector securities, which facilitates asset substitution and capital flight. When most debt is short term the country will continually have to borrow to roll over their debts. With high gross borrowing requirements in periods of pessimism, the interest rate will have to increase to make debt rollovers attractive. Higher interest rates will then feed into the budget deficit, contributing to the rapid increase of debt service and the accumulation of indebtedness. In addition, rollovers of domestic liabilities may be viable only if the government assumes the risks of devaluation or future interest rate changes, and this, in turn generates additional sources of instability. This was the case prior to the Mexican crisis of

[78] See ECLAC, 1998*a*, ch. VIII.

1994 and the Brazilian crisis of 1999, when fixed-interest bonds were swiftly replaced by variable-rate and dollar-denominated securities. Colombia, which has slightly longer-term debt (it has a tradition of issuing public sector securities with a minimum one year maturity), did not experience a substitution of similar magnitude during its 1998-1999 crisis.[79]

Although the fact that government revenues are largely related to domestic prices suggests that governments should borrow in their domestic currency, there are two reasons why this rule should not be strictly followed. The first has to do with macroeconomic management. The government should manage its external public sector debt to compensate for the highly procyclical pattern of external private capital flows. For example, during phases of reduced private capital flows, the public sector can be one of the best net suppliers of foreign exchange, thanks to its preferential access to external credit, including credit from multilateral financial institutions.

The second reason relates to the depth of domestic bond markets, which determines the ability to issue longer-term domestic debt securities. Well functioning markets require the existence of secondary markets and market makers that provide liquidity for these securities. In the absence of these pre-conditions, the government faces a trade-off between maturity and currency mismatches. It may make sense to have a debt mix that includes an important component of external liabilities, despite the associated currency mismatch. In the long run, the objective of the authorities should be to deepen the domestic capital markets. Due to the lower risk levels and the greater homogeneity of the securities it issues, the central government has a vital function to perform in the development of longer-term primary and secondary markets for domestic securities, including the creation of benchmarks for private-sector debt instruments. The existence of a government bond enables the market to separate out sovereign risk from firm risk more easily, and some assert that this facilitates corporate borrowing.

To be sure, there is nothing that is risk free. The domestic currency debt market may affect short-term capital inflows. The domestic government debt market can give foreigners easy access to short term investment instruments, increasing capital surges during booms and adding to capital outflows during crises. A liquid Treasury bill market provides investors the ability to sell the currency short, making it easier for speculators to bet against the exchange rate. But these concerns are probably not of sufficient import that they should induce governments not to borrow domestically (when they otherwise would have). More to the point, there are different types of capital account regulations that can be used to address these risks. For example, authorities can ban foreigners from being allowed to buy short-term instruments; it can mandate that foreigners hold long-term securities for over a year, or it can provide incentives for foreigners not to speculate.

Another problem is posed by the decentralized nature of most governments: many (or even most) sub-national administrations and public sector firms expect to be bailed out in case of a crisis. This gives rise to an important moral hazard problem. Specific legal limits and regulations are required, including clear rules on public sector indebtedness, direct

[79] Ocampo, 2003*a*.

mechanisms of control of foreign borrowing, and rules establishing minimum maturities and maximum spreads at which public sector entities can borrow. These rules should apply not only to the central administration, but also to autonomous public-sector agencies and sub-national governments.[80]

## *Conclusion: Microeconomic Interventions and Other Heterodox Measures*

As discussed throughout this note, there are many heterodox interventions that developing countries can use to stimulate their economy such as tax, banking, and other regulatory policies. This list of micro-interventions is not meant to be exhaustive. The point is a simple one: there is no reason to limit attempts to stabilize the economy to the standard macro-economic interventions.

The claim is sometimes made that such micro-economic interventions should be avoided because they lead to distortions; however, there are several responses to this objection. First, in developing countries especially, there are limits to the effectiveness of the standard instruments; the losses from 'Harberger triangles' (losses in efficiency, from, say, tax interventions) pale in comparison with those arising from the underutilization of a country's resources. Moreover, developing countries are rife with market inefficiencies; even in developed countries, capital markets are characterized by imperfections, many associated with inherent limitations caused by imperfect information. Those who argue against these micro-economic interventions assume the economy is well described by a perfectly competitive model with perfect information and no distortions— an assumption inappropriate for even developed countries, but particularly irrelevant for the developing world. Well-designed micro-economic interventions can increase the efficiency of the economy at the same time that they contribute to economic stability.

[80] One way foreign lenders can reduce the risk of lending in local currency is through diversification. Domestic creditors generally have a concentrated risk in their own currency, but foreign creditors can take advantage of the low correlations between emerging market local markets and reduce the risk of any one local currency investment. See Dodd and Spiegel, 2005.

# References


Akerlof, George, and P. Romer (1993), 'Looting the Economic Underworld of Bankruptcy for Profit', *Brookings Papers on Economic Activity*, 2: 1–73.

Alesina, Alberto, and L. Summers (1993), 'Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence', *Journal of Money, Credit and Banking*, 25/2: 151–62.Levine, Ross, and D. Renelt (1992), 'A Sensitivity Analysis of Cross-Country Growth Regressions', *American Economic Review*, 942–63.

—— and S. Zervos (1993), 'What Have we Learned about Policy and Growth from Cross-Country Regressions?' *American Economic Review*, 426–30.

Auerbach, Alan J. (1991), 'Retrospective Capital Gain Taxation', *The American Economic Review*, 81/1: 167–78.

—— D. Bradford (2002), 'Generalized Cash-Flow Taxation', NBER Working Paper, 8122.

Baker, Dean, and M. Weisbrot (2002), 'The Role of Social Security Privatization in Argentina's Economic Crisis' (Washington, DC: Center for Economic and Policy Research).

Bank of Japan (2003), 'Japan's Deflation and Policy Response --Based on a speech given by Kazuo Ueda, Member of the Policy Board, at the Meeting on Economic and Financial Matters in Nara City, Nara Prefecture', April 24, 2003

Barro, Robert J. (1997), *Determinants of Economic Growth: A Cross-Country Empirical Study* (Cambridge, Mass.: MIT Press).

Baunsgaard, Thomas, and M. Keen (2005), 'Tax revenue and (or?) trade liberalization'. Working Paper 05/112, IMF, Washington D.C. http://www.imf.org/external/pubs/ft/wp/2005/wp05112.pdf

Ben-David, Dan, and D. Papell (1998), 'Slowdowns and Meltdowns: Postwar Growth Evidence from 74 Countries', *Review of Economics and Statistics*, 80: 561–71.

Bhattacharya, Amar, and J. Stiglitz (2000), 'The Underpinnings of a Stable and Equitable Global Financial System: From Old Debates to a New Paradigm', Annual World Bank Conference on Development Economics 1999 (Washington, DC: The World Bank).

Birdsall, Nancy and Augusto de la Torre, with Rachel Menezes (2001) *Washington Contentious: Economic policies for social equity in Latin America*. Washington, D.C.: Carnegie Endowment for International Peace. http://www.carnegieendowment.org/pdf/files/er.Contentious.pdf

Boskin Commission report (1999), 'Toward a More Accurate Measure of the Cost of Living', *Final Report to the Senate Finance Committee from the Advisory Commission to Study Consumer Price Index*
http://www.ssa.gov/history/reports/ boskinrpt.html.

Budnevich, Carlos and G. Le Fort (1997), 'Fiscal Policy and the Economic Cycle in Chile', *CEPAL Review*, 61.

Bruno, Michael (1995), *Inflation Growth and Monetary Control: Non-Linear Lessons from Crisis and Recover*, Paolo Baffi Lectures on Money and Finance (Rome: Bank of Italy, Edizioni dell'elefante).

—— W. Easterly (1996), 'Inflation and Growth: In Search of a Stable Relationship', *FRBSL*, 78/3: 139–46.
—— W. Easterly (1998), 'Inflation Crises and Long-Run Growth', *Journal of Monetary Economics*, 41/1: 3–26.
—— S. Fischer, E. Helpman, N. Liviatan, and L. Meridor (eds.) (1988), *Lessons of Economic Stabilization and Its Aftermath* (Cambridge, Mass.: MIT Press).
—— Guido Di Tella, R. Dornbusch, and S. Fischer (eds.) (1991), *Inflation Stabilization: The Experience of Israel, Argentina, Brazil, Bolivia, and Mexico* (Cambridge, Mass.: MIT Press)
Buiter, Willem H. (2003), 'James Tobin: An Appreciation of his Contribution to Economics', NBER Working Paper, 9753.
Centrangolo, Oscar, 'Argentina' (forthcoming), IPD Argentina Tax Case Study (2005), in *IPD Task Force Volume*
http://www0.gsb.columbia.edu/ipd/pub/Centra_Argentina_Summary.pdf
Chirinko, Bob (1993), 'Business Fixed Investment Spending: Modeling Strategies, Empirical Results, and Policy Implications', *Journal of Economic Literature*, 1/4: 1875–911.
Cobham, Alex (2005), 'Tax evasion, tax avoidance and development finance'. Working Paper 129, Queen Elizabeth House, Oxford, September.
http://www.qeh.ox.ac.uk/pdf/qehwp/qehwps129.pdf
Cooper, Richard N. (1992), *Economic Stabilization and Debt in Developing Countries* (Cambridge, Mass.: The MIT Press).
Culpeper, Roy and Nihal Kappagoda (2006), *Domestic Resource Mobilization, Debt Sustainability and the Millennium Development Goals*
Dasgupta, Partha, and J. Stiglitz (1977), 'Tariffs versus Quotas as Revenue Raising Devices under Uncertainty', *American Economic Review*, 67/5: 975–81.
Davis, Jeffrey, R. Ossowski, J. Daniel, and S. Barnett (2003), 'Stabilization and Savings Funds for Nonrenewable Resources: Experience and Fiscal Policy Implications', in Jeffrey Davis, Rolando Ossowski, and Annalisa Fedelino (eds.), *Fiscal Policy Formulation and Implementation in Oil-Producing Countries* (Washington, DC: International Monetary Fund).
Díaz-Alejandro, Carlos F. and A. Velasco (1988), *Trade, Development and the World Economy. Selected Essays of Carlos F. Diaz-Alejandro* (Oxford: Basil Blackwell).
Dodd, Randall and Shari Spiegel (2005), 'Up From Sin: A Portfolio Approach to Salvation', in Ariel Buira (ed.), *The IMF and World Bank at 60* (London: Anthrem Publishers).
Easterly, William, and Luis Servén (eds.) (2003), *The Limits of Stabilization: Infrastructure, Public Deficits, and Growth in Latin America* (Palo Alto, Calif.: Stanford University Press and World Bank).
Eaton, Jonathan, and M. Gersovitz (1981), 'Debt with Potential Repudiation: Theoretical and Empirical Analysis', *The Review of Economic Studies*, 48/2: 289–309.
ECLAC (Economic Commission for Latin America and the Caribbean) (1998*a*), *Cincuenta años de pensamiento en la CEPAL: Textos seleccionados* (Santiago: Fondo de Cultura Económica y CEPAL).

—— (1998*b*), *The Fiscal Covenant: Strengths, Weaknesses, Challenges* (Santiago: ECLAC).
The Economist Magazine (2003), 'A Place for Capital Controls', 3 May: 16.
Emran, M. Shahe and Joseph Stiglitz (2005), 'On selective indirect tax reform in developing countries'. *Journal of Public Economics,* 89: 599-623.
Epstein, Gerald, I. Grabel, and Jomo K. S. (forthcoming), 'Capital Management Techniques in Developing Countries: Managing Capital Flows in Malaysia, India, and China' in José Antonio Ocampo, Shari Spiegel, and Joseph E. Stiglitz, *IPD Capital Markets Liberalization Companion Volume* (Oxford University Press).
Fernández de Lis, Santiago, J. Martínez, and J. Saurina (2001), 'Credit Growth, Problem Loans and Credit Risk Provisioning in Spain', in *Marrying the Macro- and Micro-Prudential Dimensions of Financial Stability*, BIS Papers, 1 Mar.
Ffrench-Davis, Ricardo and G. Larraín (2003), 'How Optimal are the Extremes? Latin American Exchange Rate Policies during the Asian Crisis', in R. Ffrench-Davis and S. Griffith-Jones (eds.), *From Capital Surges to Drought: Seeking Stability for Emerging Markets* (London: Palgrave/Macmillan).
Fischer, Andreas M. (1996), 'Central Bank Independence and Sacrifice Ratios', *Open Economies Review*, 7: 5–18.
Fischer, Stanley (1996), 'Why are Central Banks Pursuing Long-Run Price Stability?' in *Achieving Price Stability* (Wyoming: Federal Reserve Bank of Kansas City), 7–34.
FitzGerald, Valpy (2006), *Tax Reform in a Globalized World,* presented to the UN-DESA/FONDAD 'Policy Space for Developing Countries in a Globalized World' conference, New York, 7-8 December 2006
Frenkel, Roberto (2004), 'Real Exchange Rate and Employment in Argentina, Brazil, Chile and Mexico', Paper prepared for the Group of 24, Washington, DC.
—— Lance Taylor (2006), 'Real Exchange Rate, Monetary Policy, and Employment', in José Antonio Ocampo, Jomo K. S., and Sarbuland Khan (eds.), *Policy Matters: Economic and Social Policies to Sustain Equitable Development* (New York, NY: United Nations).
Furman, Jason, and J. Stiglitz (1998), 'Economic Crises: Evidence and Insights from East Asia', *Brookings Papers on Economic Activity*, 2: 1–114.
Gaspar, Vitor, and F. Smets (2002), 'Monetary Policy, Price Stability and Output Gap Stabilization', *International Finance*, 5/2: 193–211.
Goodfriend, Marvin, and Robert G. King (2001), 'The Case for Price Stability', NBER Working Paper, w8423.
Gordon, Roger, and W. Li (2005), *Tax Structures in Developing Countries: Many Puzzles and a Possible Explanation*, UCSD and University of Virginia, 2005.
Griffith-Jones, Stephany, and Avinash Persaud (forthcoming), 'The Pro-Cyclical Impact of Basle II on Emerging Markets and Its Political Economy' in José Antonio Ocampo, Shari Spiegel, and Joseph E. Stiglitz, *IPD Capital Markets Liberalization Companion Volume* (Oxford University Press).
Hubbard, Glenn R. (1998), 'Capital-Market Imperfections and Investment', *Journal of Economic Literature*, 36/1: 193–225.

Jorgenson, Dale, and E. Yip (2001), 'Whatever Happened to Productivity Growth?', *New Developments in Productivity Analysis, Studies in Income and Wealth*, 63: 509–40.
Jun, Joosung (forthcoming), 'The Tax-Expenditure Linkage in Korea', IPD Korea Tax Case Study (2005), in IPD Tax Force Volume (Forthcoming) http://www0.gsb.columbia.edu/ipd/pub/Jun_Presentation.pdf
Kaminsky, Graciela L., C. Reinhart, and C. Végh (2004), 'When it Rains, it Tours: Procyclical Capital Flows and Macroeconomic Policies', NBER Working Paper, 10780.
Keynes, John Maynard (1936), *General Theory of Employment, Interest and Money* (London: Macmillan).
Krugman, Paul, and Lance Taylor (1978), 'Contractionary Effects of Devaluations', *Journal of International Economics*, 8/3: 445–56.
Levine, Ross, and David Renelt (1992), 'A Sensitivity Analysis of Cross-Country Growth Regressions', *American Economic Review*, 82/4: 942-63.
—— Sara Zervos (1993), 'What Have We Learned about Policy and Growth from Cross-Country Regressions', *American Economic Review*, 426-30.
Lutz, Matthias G. (1999), 'Unit Roots versus Segmented Trends in Developing Countries Output Series', *Applied Economic Letters*, 6: 181–4.
Mahadeva, Lavan and Gabriel Sterne, editors (2000). *Monetary Policy Frameworks in a Global Context*. Routledge, New York.
Marfán, Manuel (2005), 'Fiscal Policy, Efficacy and Private Deficits: A Macroeconomic Approach', in José Antonio Ocampo (ed.), *Beyond Reforms: Structural Dynamics and Macroeconomic Vulnerability* (Stanford: Stanford University Press and ECLAC).
Martner, Ricardo, and V. Tromben (2003), 'Tax Reforms and Fiscal Stabilization in Latin America', in Tax Policy, Banca d'Italia Research Department, Public Finance Workshop.
McKinley, Terry (2005), 'Why is the Dutch disease always a disease? The macroeconomic consequences of scaling up ODA'. UNDP International Poverty 42 Centre Working Paper No. 10, Brasilia. http://www.undp-povertycentre.org/newsletters/WorkingPaper10.pdf
Miller, Marcus, and J. Stiglitz (1999), 'Bankruptcy Protection against Macroeconomics Shocks: The Case for a "Super Chapter 11"', World Bank Conference on Capital Flows, Financial Crises and Policies.
Nayyar, Deepak (1997), 'Themes in Trade and Industrialization', in Deepak Nayyar (ed.), *Trade and Industrialization* (Delhi: Oxford University Press).
—— (2000), 'Macroeconomic Reforms in India: Short-Term Effects and Long-Run Implications', in W. Mahmud (ed.), *Adjustment and Beyond: The Reform Experience in South Asia* (London: Palgrave)
Neary, J. Peter and J. Stiglitz (1983), 'Toward a Reconstruction of Keynesian Economics: Expectations and Constrained Equilibria', *Quarterly Journal of Economics*, 98: 199–228.
Ocampo, José Antonio (2002), 'Developing Countries' Anti-Cyclical Policies in a Globalized World', in Amitava Dutt and Jaime Ros (eds.), *Development*

*Economics and Structuralist Macroeconomics: Essays in Honour of Lance Taylor* (Aldershot: Edward Elgar, 2002).
—— (2003*a*), 'Capital Account and Counter-Cyclical Prudential Regulation in Developing Countries', in R. Ffrench-Davis and S. Griffith-Jones (eds.), *From Capital Surges to Drought: Seeking Stability for Emerging Markets* (London: Palgrave/Macmillan).
—— (2003*b*), 'International Asymmetries and the Design of the International Financial System', in A. Berry (ed.), *Critical Issues in Financial Reform: A View from the South* (New Brunswick, NJ: Transaction Publishers).
—— (2004*b*), 'Lights and Shadows in Latin American Structural Reforms', in Gustavo Indart (ed.), *Economic Reforms, Growth and Inequality in Latin America: Essays in Honor of Albert Berry* (Aldershot: Ashgate).
—— (2005*b*), 'A Broad View of Macroeconomic Stability', IPD Conference Background Papers.
—— (forthcoming), 'Latin America and the World Economy in the Long Twentieth Century', in K S Jomo (ed.) *The Great Divergence: Hegemony, Uneven Development and Global Inequality during the Long Twentieth Century* (New Delhi: Oxford University Press).
—— and Palma, IPD Capital Market Liberalization Companion Volume, forthcoming (2007)
Oliveira, Jose (forthcoming), 'The Brazilian Tax Structure', IPD Brazil Tax Case Study (2005), in *IPD Tax Force Volume*
http://www0.gsb.columbia.edu/ipd/pub/Oliveira_Brazil_Summary.pdf
Posen, Adam (1998), 'Central Bank Independence and Disinflationary Credibility: A Missing Link?' *Oxford Economic Papers*, 50: 335–59.
Reinhart, Carmen M., and Kenneth S. Rogoff (2004), 'The Modern History of Exchange Rate Arrangements: A Reinterpretation', *Quarterly Journal of Economics*, 119/1: 1-48.
Reserve Bank of New Zealand (2000), *Alternative Monetary Policy Instruments,*
http://www.rbnz.govt.nz/monpol/review/0096420.pdf
Rodrik, Dani (forthcoming), 'A Practical Approach to Formulating Growth Strategies', in Narcís Serra and Joseph E. Stiglitz (eds.), *From the Washington Consensus Towards a New Global Governance* (Oxford University Press).
—— A. Velasco, R. Hausmann (forthcoming), 'Growth Diagnostics', in Narcís Serra and Joseph E. Stiglitz (eds.), *From the Washington Consensus Towards a New Global Governance* (Oxford University Press).
Rojas-Suarez, Liliana (forthcoming), 'Domestic Financial Regulations in Developing Countries: Can They Effectively Limit the Impact of Capital Account Volatility?', in José Antonio Ocampo, Shari Spiegel, and Joseph E. Stiglitz, *IPD Capital Markets Liberalization Companion Volume* (Oxford University Press).
Romer, Paul (1987), 'Crazy Explanations for the Productivity Slowdown', in Stanley Fischer (ed.), *NBER Macroeconomics Annual* (Cambridge, Mass.: NBER).
Schneider, Benu (2006), 'Aid Delivery, Management and Absorption', UN DESA, Mimeo.
Shapiro, Carl, and J. Stiglitz (1984), 'Equilibrium Unemployment as a Worker Discipline Device', *American Economic Review*, 74/3: 433–44.

Shigehara, Kumiharu (1992), 'Causes of Declining Growth in Industrialized Countries', *Policies for Long-Term Economic Growth* (Wyoming: Federal Reserve Bank of Kansas City).
Stiglitz, Joseph E. (1998), 'Knowledge for Development: Economic Science, Economic Policy, and Economic Advice', in B. Pleskovic and J. Stiglitz (eds.), *Annual World Bank Conference on Development Economics* (Washington: World Bank), 9–58.
—— (2003*a*), 'Whither Reform? Towards a New Agenda for Latin America', in *Revista de la CEPAL*, 80: 7–40.
—— (2003*b*), *'The Roaring Nineties'*. W. W. Norton & Company.
—— A. Weiss (1981), 'Credit Rationing in Markets with Imperfect Information', *American Economic Review*, 71/3: 393–410.
—— J. A. Ocampo, S. Spiegel, R. Ffrench Davis, and D. Nayyar (2006), 'Stability with Growth'. Oxford University Press.
Svensson, Lars E.O. (2000), *Does the P* Model Provide Any Rationale for Monetary Targeting? German Economic Review* 1 (February 2000) 69-81. (IIES Seminar Paper No. 671, June 1999, CEPR Discussion Paper No. 2198, NBER Working Paper No. 7178).
Tanzi, Vito, and H. Zee (2001), 'Tax Policy for Developing Countries', International Monetary Fund.
Taylor, Lance (1988), *Varieties of Stabilization Experience: Towards Sensible Macroeconomics in the Third World* (Oxford: Clarendon Press).
—— (1993), '*The Rocky Road to Reform: Adjustment, Income Distribution and Growth in the Developing World* (Cambridge, Mass.: MIT Press).
Tobin, James, and B. William (1977), 'Asset Markets and the Cost of Capital', in Richard Nelson and Bela Balassa (eds.), *Economic Progress, Private Values and Public Policy: Essays in Honor of William Fellner* (Amsterdam: North-Holland). 235–62
Weitzman, Martin L. (1974), 'Prices vs. Quantities', *Review of Economic Studies*, 41/4: 477–491.
World Bank (1999), *Global Economic Prospects and the Developing Countries, 1998–99—Beyond Financial Crisis* (Washington, DC: World Bank)
Zahler, Roberto (2003), 'Macroeconomic Stability under Pension Reform in Emerging Economies: The Case of Chile', *Proceedings of the Seminar on Management of Volatility, Financial Globalization and Growth in Emerging Economies* (Santiago: ECLAC).