

# Growth Diagnostics\*

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## 1 Introduction

Most well-trained economists would agree that the standard policy reforms included in the Washington Consensus have the potential to be growth-promoting. What the experience of the last 15 years has shown, however, is that the impact of these reforms is heavily dependent on circumstances. Policies that work wonders in some places may have weak, unintended, or negative effects in others.<sup>1</sup> We argue in this paper that this calls for an approach to reform that is much more contingent on the economic environment, but one that also avoids an “anything goes” attitude of nihilism. We show it is possible to develop a unified framework for analyzing and formulating growth strategies that is both operational and based on solid economic reasoning. The key step is to develop a better understanding of how the binding constraints on economic activity differ from setting to setting. This understanding can then be used to derive policy priorities, in a way that uses efficiently the scarce political capital of reformers.

Our approach is motivated by three considerations. First, while development is a broad concept entailing the raising of human capabilities in general, we believe increasing economic growth rates is the central challenge that developing nations face. Higher levels of living standards are the most direct route to achieving improvements in social and human indicators. Reform strategies should be principally targeted at raising rates of growth –that is, they should be growth strategies.

Second, trying to come up with an identical growth strategy for all countries, regardless of their circumstances, is unlikely to prove productive. Growth strategies are likely to differ according to domestic opportunities and constraints.

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<sup>1</sup>This is well reflected in the view expressed recently by Al Harberger (2003, p. 15): “when you get right down to business, there aren’t too many policies that we can say with certainty deeply and positively affect growth.”

There are of course some general, abstract principles—such as property rights, the rule of law, market-oriented incentives, sound money, and sustainable public finances—which are desirable everywhere. But turning these general principles into operational policies requires considerable knowledge of local specificities.

Third, it is seldom helpful to provide governments with a long list of reforms, many of which may not be targeted at the most binding constraints on economic growth. Governments face administrative and political limitations, and their policy-making capital is better deployed in alleviating binding constraints than in going after too many targets all at once. So growth strategies require a sense of priorities.

What we propose to do in this paper is to develop a framework for growth diagnostics—that is, a strategy for figuring out the policy priorities. The strategy is aimed at identifying the most binding constraints on economic activity, and hence the set of policies that, once targeted on these constraints at any point in time, is likely to provide the biggest bang for the reform buck.

The methodology that we propose for this can be conceptualized as a decision tree (see Figure 1, discussed below). We start by asking what keeps growth low. Is it inadequate returns to investment, inadequate private appropriability of the returns, or inadequate access to finance? If it is a case of low returns, is that due to insufficient investment in complementary factors of production (such as human capital or infrastructure)? Or is it due to poor access to imported technologies? If it is a case of poor appropriability, is it due to high taxation, poor property rights and contract enforcement, labor-capital conflicts, or learning and coordination externalities? If it is a case of poor finance, are the problems with domestic financial markets or external ones? And so on.

Then we discuss the kind of evidence that would help answer these questions one way or another. We also illustrate the practical implications of this approach by drawing on examples from specific countries.

Aside from providing a useful manual for policymakers, our approach has the advantage that it is broad enough to embed all existing development strategies as special cases. It can therefore unify the literature and help settle prevailing controversies. For example, our framework will clarify doctrinal differences on development policy—between proponents of the Washington Consensus and of state-led strategies, or between pro-globalizers and cautious globalizers—are grounded in divergent evaluations about the nature of the binding constraints on growth. Making these differences explicit, and clarifying the nature of the evidence that can resolve them, can move us forward to a more productive policy agenda.

The outline of the paper is as follows. We first lay out the conceptual framework, linking our terminology of “binding constraints” to standard economic models. In particular, we relate our framework to theories of second-best and partial reform and of endogenous growth. We next cast the framework in the form of a decision tree, and discuss the nature of the evidence that is required to move along the nodes of the tree. In the final section we carry out an analysis of several “archetypal” cases, each representing a different syndrome or combination of binding constraints.

## 2 Thinking about reform and growth: a framework

We begin with a formal treatment of our approach. This should help clarify how our discussion of “binding constraints” and “growth diagnostics” relates to conventional economic theory. We show that our approach is grounded on the standard theories of second-best and partial reform. These conceptual foundations provide structure to our framework, even though we naturally have to take a number of short-cuts when we make it operational. We begin with a general treatment, and then provide a more stylized model that allows us to discuss a number of illustrations.

An economy that is under-performing and in need of reform is by definition one where market imperfections and distortions are rampant. These distortions can be government-imposed (e.g., taxes on production) or inherent to the functioning of certain markets (e.g., human capital externalities, information spillovers, and so on). They prevent the best use of the economy’s resources and, in particular, keep the economy far below its attainable productivity frontier. At this level of generality, we need not take a position on the nature of these distortions, although we will later do so. At this point it suffices to note that, regardless of how they arise, such distortions drive a wedge between private and social valuations of specific economic activities.

Let us denote these wedges by  $\boldsymbol{\tau} = \{\tau_1, \tau_2, \dots, \tau_k\}$  with  $\tau_i$  representing the distortion in activity  $i$ . Let us focus also on the problem of a policymaker bent on maximizing social welfare subject to the standard resource constraints, but also constrained by these pre-existing distortions or wedges in the economy. The distortions can be modeled as constraints on the policy-making problem that take the general form

$$\mu_i^S(\boldsymbol{\tau}, \dots) - \mu_i^P(\boldsymbol{\tau}, \dots) - \tau_i = 0, \quad (1)$$

where  $\mu_i^S(\boldsymbol{\tau}, \dots)$  and  $\mu_i^P(\boldsymbol{\tau}, \dots)$  represent net marginal valuations of activity  $i$  by society and by private agents, respectively. Of course they depend not just of the set  $\boldsymbol{\tau}$  of distortions, but on levels of consumption, labor supply, asset-holdings, etc. Equations of this type are nothing other than restatements of the first-order conditions for the private sector. For example, a tax on investment (or a learning externality) keeps the private return on capital accumulation below the social return, with the result that the economy under-invests. Note that the private and social valuation functions for each activity will depend in general equilibrium on all the wedges in the system. What this means is that the distortion in any one activity also affects the first order condition for other activities. That is the essence of the second-best problems that we will explore below.

How does welfare depend on these distortions? If  $u$  is welfare of the average member of society, then the gain in welfare from reducing one of the distortions marginally is

$$\frac{du}{d\tau_j} = -\lambda_j + \sum_i \lambda_i \frac{\partial[\mu_i^s(\boldsymbol{\tau}, \dots) - \mu_i^p(\boldsymbol{\tau}, \dots)]}{\partial\tau_j} \quad (2)$$

and  $\lambda_i \geq 0$ ,  $i = \{1, 2, \dots, k\}$  are the Lagrange multipliers corresponding to the constraints associated with each of the distortions.

The interpretation of this expression is as follows. Assume, without loss of generality, that the initial value of  $\tau_j$  is strictly positive. The wedge created by the distortion in market  $j$  can be thought of as a tax that reduces the equilibrium level of activity in that market by keeping the net private return below the social return. The first term on the right-hand side of (2) captures the direct effect of a small change in  $\tau_j$ : a small reduction in  $\tau_j$  increases aggregate welfare by an amount given by the multiplier associated with the  $j$ th constraint,  $\lambda_j$ . In other words,  $\lambda_j$  is the marginal welfare benefit from reducing the distortion in market  $j$ , disregarding the effect on other distorted activities. The more costly is the distortion, the higher the magnitude of  $\lambda_j$ . At the other end of the spectrum, when activity  $j$  is undistorted ( $\tau_j = 0$ ), the constraint ceases to bind, since the planner's first-order conditions coincide with those of private agents, and  $\lambda_j = 0$ .

Turn now to the second term on the right-hand side of equation (2). When activity  $j$  is the sole distorted activity, this term vanishes since  $\lambda_i = 0$  for all  $i \neq j$ . In this case, only the direct effect matters. But when there are other distorted activities in the economy, which is the typical case in a reforming economy, we need to track the interaction effects across distorted margins, which is what the term with the summation does. This second term captures the effect of changing  $\tau_j$  on the weighted sum of the gaps between social and private valuations, with the weights corresponding to each distorted activity's own Lagrange multiplier. If on balance the effect is to reduce these gaps, everything else constant, then the reduction in  $\tau_j$  produces an additional welfare benefit. If, on the other hand, these interactions tend to increase the gap between private and social valuations at the margin, the welfare gain is reduced.<sup>2</sup> Conceivably, the reduction in  $\tau_j$  could even produce a welfare loss. This is a typical second-best complication.

Consider an illustration with two activities:  $j =$  intermediate input production; and  $\ell =$  final good production. Suppose both activities are protected by import tariffs, given by  $\tau_j$  and  $\tau_\ell$  respectively. Let us consider the partial effect of reducing  $\tau_j$  while keeping  $\tau_\ell$  constant. A reduction in  $\tau_j$  produces a direct welfare gain that would be captured by its own multiplier. But it also produces an indirect effect downstream in the production of the final good. Since the final good is protected, private valuations of producing the good exceed social valuations. A reduction in the intermediate-good tariff,  $\tau_j$ , aggravates this dis-

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<sup>2</sup>Note that in equilibrium, the gaps between social and private valuations for the non- $i$  activities have to revert back to their original values, since the wedges for these activities have not changed. What restores the equilibrium is the (privately optimal) adjustments in the consumption, production, or accumulation levels—i.e., changes in  $c$ ,  $y$ ,  $v$ —that enter the valuation functions. So, for example, an increase in the private valuation of producing a good would normally result in an increase in the quantity supplied, with a corresponding decline in the marginal valuation.

tortion by increasing private profitability further. The increased gap between private and social valuations reduces the welfare gain from the reduction in  $\tau_j$ . Indeed, if  $\lambda$  is sufficiently high relative to  $\lambda_j$ , implying that the distortion in the final-good activity is particularly severe, the tariff reform could even result in a welfare loss.

As a second, macroeconomic illustration consider the case of a single-good economy with two periods (today and tomorrow). Let  $j$  = goods today; and  $\ell$  = goods tomorrow. Suppose the government maintains a restriction on international borrowing, which means that the social marginal valuation of expenditure today exceeds its private marginal valuation:  $\lambda_j > 0$ . Relaxation of the borrowing restriction would normally enhance domestic welfare. But suppose that for moral hazard reasons households and firms discount tomorrow's expenditure at a heavier rate than is socially optimal ( $\mu_i^S(\cdot) - \mu_i^P(\cdot) > 0$ , with corresponding  $\lambda > 0$ ). In this case, relaxing today's borrowing restriction would aggravate the latter distortion. As before, if  $\lambda$  is sufficiently high relative to  $\lambda_j$ , removing the borrowing restriction could make the economy worse off.

With this broad framework as a background, consider now several archetypal reform strategies.

## 2.1 Wholesale reform

One way to eliminate all ambiguities and uncertainties with regard to the consequences of reform strategies is to simultaneously eliminate all distortions. If all the wedges are tackled and eliminated simultaneously, the multipliers associated with each of them go to zero, and none of the second-best issues we have highlighted above remains relevant. Wholesale reform is guaranteed to improve welfare. The best possible economic growth rate is achieved by eliminating all obstacles that stand in its way.

But notice what this strategy requires. It requires us not only to have complete knowledge of all prevailing distortions, it also necessitates that we have the capacity to remove them all in their entirety. This is the technically correct, but practically impossible strategy.

## 2.2 Do as much reform as you can, as best as you can

The second strategy, which seems to us to characterize the prevailing approach today, is to ignore the basic economics of the framework outlined above and to simply go for whatever reforms seem to be feasible, practical, politically doable, or enforceable through conditionality. This is a laundry-list approach to reform that implicitly relies on the notions that (i) any reform is good; (ii) the more areas reformed, the better; and (iii) the deeper the reform in any area, the better.

Our framework shows why this approach, even if practical, is faulty in its economic logic. First, the principle of the second-best indicates that we cannot be assured that any given reform taken on its own can be guaranteed to be welfare promoting, in the presence of multitudes of economic distortions. Second,

welfare need not be increasing in the number of areas that are reformed—except in the limiting case of wholesale reform, as discussed above. Third, in the presence of second-best interactions, more extensive reform in any given area is as likely to fall prey to adverse interactions as an incremental approach.

### 2.3 Second-best reform

A more sophisticated version of the previous strategy is one that explicitly takes into account the second-best interactions discussed above. Thus, one could envisage a reform strategy that is less ambitious than the wholesale approach, but that recognizes the presence of the second term in equation (2), namely the possibility that interactions across distorted markets have the potential to both augment and counter the direct welfare effects. Under this strategy, one would give priority to reforms that engender positive second-best effects, and downplay or avoid altogether those that cause adverse effects. As the examples given above show, partial trade reform or capital-account liberalization may reduce welfare unless more extensive reforms in trade and in financial markets are done at the same time.

The difficulty with a second best reform strategy is that many, if not, most of these second-best interactions are very difficult to figure out and quantify *ex ante*. The strategy requires having a very good sense of the behavioral consequences of policy changes across different markets and activities. The state of the art (based largely on static computable general equilibrium models) is not very encouraging in this respect. In practice, most of the second-best interactions remain obscure, and tend to be revealed after the fact rather than *ex ante*.

### 2.4 Target the biggest distortions

If second-best interactions cannot be fully figured out and it is impractical to remove all distortions at once, reformers may instead focus on eliminating or reducing the biggest distortions in the economy—i.e., the largest wedges ( $\tau_j$ ) between private and social valuations. This would be an application of what is known as the concertina method in the literature on trade theory: order distortions from largest to smallest in proportional terms, start by reducing the largest of these to the level of the next largest, and proceed similarly in the next round. Under certain (fairly restrictive) conditions,<sup>3</sup> this strategy can be shown to be welfare improving.

However, even leaving aside its limited theoretical applicability, this approach has two severe shortcomings. First, it does require us to have a complete list of distortions, even those that do not take the form of explicit taxes or government interventions. Distortions that arise from market failures or imperfect credibility, for example, are unlikely to show up on our radar screen unless we

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<sup>3</sup>The (sufficient) condition is that the activity whose tax is being reduced be a net substitute (in general equilibrium) to all the other goods. See Hatta (1997).

have reason to look for them. Second, the concertina method does not guarantee that the reforms with the biggest impacts on economic welfare and growth will be the ones undertaken first. It may well turn out that the highest “tax” is on some activity with very limited impact on growth. For example, there may be very high taxes on international borrowing, yet their removal could have minuscule effect on growth if the economy is constrained not by savings but by investment demand. For these reasons, this strategy is of uncertain benefits, especially in the short run.

## 2.5 Focus on the most binding constraints

The approach we advocate in this paper is to design reform priorities according to the magnitude of the direct effects—i.e., the size of the  $\lambda_j$ . This is the strategy that we think is the most practical, as well as the most promising with regard to the likely bang from reform. The idea behind the strategy is simple: if (a) for whatever reason the full list of requisite reforms is unknowable or impractical, and (b) figuring out the second-best interactions across markets is a near-impossible task, the best approach is to focus on the reforms where the direct effects can be reasonably guessed to be large. As equation (2) indicates, as long as reform focuses on the relaxation of the distortions with the largest  $\lambda$ 's associated with them, we have less to worry that second-best interactions will greatly diminish or possibly reverse the welfare effects. The principle to follow is simple: go for the reforms that alleviate the most binding constraints, and hence produce the biggest bang for the reform buck. Rather than utilize a spray-gun approach, in the hope that we will somehow hit the target, focus on the bottlenecks directly.

Whether these binding constraints can be effectively identified is a practical and empirical matter, and we will spend considerable time below arguing that this can be done in a reasonable manner. In practice, the approach we take starts by focusing not on specific distortions (the full list of which is unknowable, as we argued above), but on the proximate determinants of economic growth (saving, investment, education, productivity, infrastructure, and so on). Once we know where to focus, we then look for associated economic distortions whose removal would make the largest contribution to alleviating the constraints on growth.

## 3 Moving from theory to practice

How can one apply the results of this rather abstract analysis of policy reform and its pitfalls? How do we locate the distortion(s) with the largest potential impact on economic growth?

Our strategy is to start with some of the proximate determinants of economic growth. As we discuss below, economic growth depends on the returns to accumulation (broadly construed), their private appropriability, and on the cost of financing accumulation. The first stage of the diagnostic analysis aims to uncover which of these three factors pose the greatest impediment to higher

growth. In some economies, the “constraint” may lie in low returns, in others it may be poor appropriability, and in yet others too high a cost of finance.

The next stage of the diagnostic analysis is to uncover the specific distortions that lie behind the most severe of these constraints. If the problem seems to be poor appropriability, is that due to high taxes, corruption, or macro instability? If the problem is with the high cost of finance, is that due to fiscal deficits or poor intermediation? This approach enables the design of remedies that are as closely targeted as possible

To begin putting together a list of possible candidates, consider the determinants of growth and the role of distortions in a standard model. In the appendix we sketch the simplest possible endogenous growth model with a number of distortions. In that model the representative domestic household can borrow abroad, but subject to a collateral constraint. This is the first distortion, or wedge. The household can accumulate capital, used to produce productive inputs that are sold to the firm. There is an externality in the production of productive inputs from capital. This is the second distortion. There is a public subsidy to the hiring of productive inputs, which may partially offset the effects of the externality.

Government provides services to firms, for which it charges a price. This price need not reflect production costs fully. This is the third potential wedge. To fund public services and other activities, the government imposes a tax on firm income. This is the fourth wedge. Finally, government bureaucrats waste resources in ways that give citizens no utility. This is the fifth and last wedge.

The standard model yields the result that along a (constrained) balanced growth path consumption and capital grow according to

$$\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t} = \sigma [r (1 - \tau) - \rho]. \quad (3)$$

where a dot over a variable denotes the rate of change over time, and where other definitions are as follows:

- $c$  = consumption
- $k$  = capital
- $r$  = the rate of return on capital
- $\tau$  = the tax rate on capital, actual or expected, formal or informal
- $\rho$  = the world rate of interest
- $\sigma$  = elasticity of intertemporal elasticity in consumption

In addition, the private return on capital  $r$  is given by

$$r = r(a, \theta, x) \quad (4)$$

where



- $a$  = indicator of total factor productivity
- $x$  = availability of complementary factors of production, such as infrastructure or human capital.
- $\theta$  = index of externality (a higher  $\theta$  means a larger distortion).

These two equations summarize the possible factors that can affect growth performance. An exercise of **growth diagnostics** simply consists of reviewing and analyzing these factors to ascertain which of these are the most binding constraints on growth. As the analysis above reveals, all factors (including market distortions and policy wedges) are likely to matter for growth and welfare. The challenge is to identify the one that provides the largest positive direct effect, so that even after taking into account second-best interactions and indirect effects, the net impact of a policy change is beneficial (and hopefully sizeable).

It helps to divide the factors affecting growth into two categories.

### 3.1 High cost of financing domestic investment

This is a case in which growth is low because, for any return on investment, accumulation is kept down by a high  $\rho$ . Stretching definitions slightly, we can interpret  $\rho$  as the rate of interest relevant for investment decisions in the economy in question. In turn, this could be connected to two kinds of policy problems

- **Bad international finance:** country risk is still too high, foreign direct investment conditions unattractive, debt maturity and denomination increase macro risk, there remain excessive regulations on the capital account, etc.
- **Bad local finance:** when domestic capital markets work badly, collateral cannot be aggregated properly among domestic borrowers (Caballero and Krishnamurty, 2003) and the risk of banking crises and non-payment rises. Both of these increase the cost of capital, especially foreign capital.

### 3.2 Low private return to domestic investment

The other component of the growth equation is given by the private expected return on domestic investment, given by  $r(1 - \tau)$ . A low such return can be due to:

- **High  $\tau$ :** high tax rates and/or inefficient tax structure and/or high expected expropriation risk.
- **High  $\theta$ :** large externalities, spillovers, coordination failures.
- **Low  $a$ :** low productivity, too little technology adoption or “self-discovery,” weak public incentives.
- **Low  $x$ :** insufficient human capital, inadequate infrastructure, high transport, telecommunications or shipping costs.

### 3.3 Moving down the multilemma

The tree then naturally organizes the policy questions, which can be asked in logical order. Is the problem one of inadequate returns to investment, inadequate private appropriability of the returns, or inadequate access to finance?

If it is a case of low returns to investment, is that due to insufficient supply of complementary factors of production (such as human capital or infrastructure)? Or is it due to poor access to appropriate technologies? If it is a case of poor appropriability, is it due to high taxation, poor property rights and contract enforcement, labor-capital conflicts, or learning externalities?

Or alternatively: if it is a case of poor finance, are the problems with domestic financial markets or external ones?

Moving down the branches of the decision tree is tantamount to discarding candidates for the most binding constraint on growth. The over-arching lesson from our theoretical analysis is that it is this constraint, once identified, that deserves the most attention from policy makers.

## 4 Country experiences: identifying the binding constraints

We now have a framework to think of growth diagnostics. In this section we apply our approach to three countries with three very different growth experiences: Brazil, El Salvador and the Dominican Republic.

The first two countries have had lackluster growth in spite of quite impressive reforms. The last had a sustained period of very rapid growth triggered by rather modest reforms, but more recently has stumbled into a financial crisis from which it has yet to extricate itself fully.

Both Brazil and El Salvador made major efforts at dealing with their perceived problems during the 1990s. Brazil returned to democracy in the 1980s, started opening up its economy in the early 1990s, stopped mega-inflation in the mid-1990s through exchange-rate based stabilization, implemented privatization and financial reform and after 1999 was able to maintain price stability while floating the currency and improving its fiscal surplus. El Salvador stopped its civil war, negotiated successful peace agreements, reformed its judiciary and police, stabilized prices, opened up the economy, privatized utilities and social security and improved social services. Both countries underwent a brief period of decent growth—or should we say recovery—but in the last five years growth has been quite lackluster. As Table 1 indicates, in spite of the improvements in the political and policy framework over the 1993-2003 decade, Brazil grew more slowly than the U.S. and barely 0.3 percentage points faster than the OECD average, in spite of the fact that its rate of demographic growth—and the rate at which its working-age population expands—is over 1 percentage point per year higher. In other words, there was no catch-up or convergence. Moreover, both economies slowed down quite significantly in the 1998-2003 period. And future prospects look modest. In the context of a very favorable external environment

and coming back from three years of stagnant GDP per capita, which should have left underutilized resources, Brazil was barely able to grow at 5.1 percent in 2004, a rate which was clearly above its sustainable level, as it involved a reduction in the rate of unemployment by over by 1.2 percentage points (see Table 2). In 2005, it is expected to slow down to less than 4 percent growth. El Salvador has been growing at a 2 percent rate in 2003-2004 and prospects for 2005 and onwards do not look much different. The obvious question is why. What is keeping these economies from converging towards higher levels of income in spite of its policy improvements? What is the growth diagnostic? What should the authorities focus on in each country?

It will be useful to contrast El Salvador and Brazil with the Dominican Republic, a country with a much less impressive reform effort and with significantly weaker institutions. Its reform history starts with a currency crisis in the late 1980s addressed with an effective stabilization policy and some trade liberalization, but the reforms were nowhere as significant as in the other two countries. Nonetheless, the Dominican Republic achieved more than a decade of very fast growth interrupted only in 2002 by a banking crisis.

We will argue that Brazil and El Salvador look like a case of wholesale reform that eliminate some distortions but not necessarily the binding constraint. The Dominican Republic, by contrast, found a way around that binding constraint with minor reform effort. Its eventual crash indicates that as growth proceeds, the shadow prices of other constraints –such as that of weak institutions– increase and these may become eventually the binding constraint on growth.

## 4.1 Brazil versus El Salvador

Brazil and El Salvador are obviously very different countries in terms of size, history and structure. But they share one feature: lackluster growth in spite of significant reform. The case of El Salvador is particularly puzzling: broad ranging reforms were associated with a short-lived growth spurt and then relative stagnation since 1996.<sup>4</sup> Let us apply our framework to see if Brazil and El Salvador share a similar diagnostic.

For a long time, promoting saving and capital accumulation was the dominant idea in development policy. Under this view, low growth could be explained by an insufficient increase in the supply of factors of production, physical capital

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<sup>4</sup>A recent World Bank study (Loayza, Fajnzylber and Calderón 2002) implicitly finds that the decline in the rate of growth in El Salvador after 1996 is difficult to explain. In their model, improvements in secondary school enrollment, availability of private domestic credit, the increase in openness and in phone lines, the low inflation rate and the absence of banking crises should have compensated for the increase in the initial level of income, the declining output gap, the increased real appreciation of the currency and the adverse terms of trade shifts. This should have left growth unchanged in the second half of the 1990s relative to the first half. Instead, growth declined by 2.8 percent. Hence, they are unable to account for the growth decline. In line with this, Lopez (2003) attributes the growth decline to "temporary," business-cycle related factors—an unsustainable boom in the early 1990s followed by a pricking of the bubble in the second half. This leaves open the question of why the economy has not performed better in the first decade of the new century and why prospects are not more encouraging.

in particular. While “capital fundamentalism” has long been discarded (along with Soviet style planning), it has been replaced more recently with a focus on human capital. Increasing the supply of human capital —through a greater health and education effort— is expected to lead to a faster accumulation of these assets and hence to a higher level of income. Can the poor growth performance in Brazil and El Salvador be explained by low saving and education effort? Can these variables explain the difference with the Dominican Republic?

On the face of it, there are two elements that make this argument compelling for El Salvador and Brazil. Both countries have low savings and investment rates (Table 3). Second, both countries have relatively low educational attainment. The investment rate has averaged around 20.8 percent and 17.4 percent for Brazil and El Salvador respectively, during the decade of the 1990s. The saving rate in the 1990s (including the remittances as part of national income) was even lower as both countries ran current account deficits which averaged 2.2 percent in Brazil and 1.8 percent in El Salvador.

A similar comment can be made about human capital. The supply of education in both countries – measured as the average years of schooling of the labor force – is at the bottom of Latin American countries (Figure 2), although it has been growing in both countries at over 1 year per decade in the 1990s.

When is lack of an adequate saving and educational effort a basic reason for the country’s stagnant growth performance? For this story to be plausible, one should be able to observe high returns to both capital and schooling. The economy must be willing to gobble up additional resources, but prevented from doing so because these are just not adequately provided. Hence, we should observe the tightness of the constraint in the price society is willing to pay for the scarce resource.

Let us deal first with savings. If savings were scarce, one would observe a high foreign debt or a high current account deficit—a signal that the country is using or has already used up its access to foreign savings to the hilt, given the paucity of domestic savings. Alternatively, one would observe a high willingness to remunerate savings through high interest rates to depositors or government bondholders.

Here Brazil and El Salvador provide completely different stories. Time and again, Brazil has had serious difficulties with its balance of payments. As Table 2 shows, the country was running a current account deficit in 1998 of US\$ 33.4 billion or 4.2 percent of a rather overvalued GDP. However, with a debt already at 460 percent of exports, the scarcity of savings was reflected in a spread on external bonds of 1226 basis points and in a real ex-post overnight (SELIC) interest rate of over 30 percent. In January 1999 the country was forced to devalue: the real multilateral exchange rate depreciated by 37.4 percent in 1999. The current account deficit was reduced in dollars to an average of 24 billion per annum for the following three years (1999-2001). The spread on external bonds averaged a still hefty but lower 758 basis points and the domestic real ex post overnight interest rate declined to a still high 10 percent. This amount of foreign borrowing also proved unsustainable, and a new balance of payments crisis ensued in 2002. The spread on external bonds averaged 2160 basis points

during a 3 week period in August of 2002 and averaged 1446 for the year, in spite of massive international official support lead by the International Monetary Fund. The real exchange rate depreciated by an additional 38.3 percent in 2002. Lack of external financing, a domestic recession and real depreciation forced the current account to finally turn around, moving to surplus in 2003.

In short, the country has been trying to cope with the paucity of domestic savings by both attempting to attract foreign savings and by remunerating domestic savings at very high real rates. Over time, the country has borrowed so much from abroad that it has been perceived as being on the brink of bankruptcy, (as indicated by the spread on its foreign debt). In addition, Brazil's growth performance has moved *pari passu* with the tightness of the external constraint. When the external constraint is relaxed – say, because of an increase in the general appetite for emerging market risk or because of higher commodity prices, as in recent months – the economy is able to grow. But when the external constraint tightens real interest rates increase, the currency depreciates and growth declines. This suggests that growth is limited by the availability of savings.

The situation in El Salvador is very different. In the past the country has not used up its access to foreign savings: its total gross external debt stands at less than 30 percent of GDP and it enjoys an investment grade credit rating. Nor is the country currently using foreign savings rapidly: the current account deficit has averaged 2 percent of GDP in the past 5 years. Nor is the country willing to remunerate savings at high rates: it needs to pay among the lowest interest rates in the region to attract demand for deposits or government bonds. Its banks have more liquidity than domestic credit demand can soak up, and are actively lending to enterprises in the neighboring countries in the region. Figure 3 shows the average real lending rate for 16 Latin American countries for October 2001, as reported by FELABAN. Brazil and El Salvador are at the opposite extremes: with El Salvador exhibiting the lowest lending rates while Brazil exhibits the highest. And perhaps the most telling indicator that El Salvador is not saving-constrained is that the external savings that the dramatic boost in remittances has enabled have not been converted into investment. As Figure 4 shows, the decline in domestic savings has substituted almost one-for-one for the increase in remittances, with no discernible effect on the total investment effort. So there are no symptoms that El Salvador's growth is constrained by lack of savings.

In fact, Brazil and El Salvador are also at opposite extremes in terms of the cost of domestic financial intermediation. In a comparative study by Barth, Caprio and Levine (2001) the net interest margin was reported to be 11.5 percent in Brazil and 3.7 percent in El Salvador while the overhead costs were 9.8 in Brazil and 3.2 percent in El Salvador. In spite of this, credit to the private sector was almost the same in both countries (25.8 in Brazil and 27.5 in El Salvador).

All this suggests that El Salvador is a country where investment is constrained by low returns to capital, not by low availability of savings. The country invests little not because it cannot mobilize the resources to invest – although savings are low – but because the country does not find productive investments in which to deploy the resources. There is ample access to foreign

borrowing, deposit rates are low and intermediation costs are among the lowest in Latin America. In terms of our decision tree in Figure 1, it seems clear that El Salvador is a low-return country.

Brazil, by contrast, is a high return country. In spite of very high overnight real interests and very high intermediation costs, investment has outstripped domestic savings and the country has used its capacity to borrow abroad from the rest of the world to the hilt. Clearly, the investment rate in Brazil and credit to the private sector would be dramatically higher if the prevailing cost of capital were that of El Salvador.

A similar contrast between the two countries emerges when looking at education. If education were the constraint on growth one would expect to see high returns to the few who get educated. Figure 5 shows a scattergram of returns to education and years of schooling for a sample of 14 Latin American countries and the US. The picture that emerges is clear: while the years of schooling of the labor force are low both in El Salvador and in Brazil, the returns are quite different. Brazil has just about the highest returns in Latin America while El Salvador is below the regional average. Hence, the evidence suggests that lack of educational effort is not at present a principal source of low growth in El Salvador, while it may well be part of the story in Brazil.

What is at stake here is whether a sudden increase in the supply of more educated citizens is likely to unleash significantly faster growth at the present time. If growth is being constrained by other factors, other things equal, more education is likely to lead mainly to lower returns to human capital, not to higher incomes. In this respect, Brazil and El Salvador look quite different.

Hence, the challenge in El Salvador is to identify what constraints may be behind the low returns to investment while the challenge in Brazil is to explain why the country is constrained in external markets and why domestic savings do not rise to exploit the large returns to investment.

## 4.2 Misdiagnoses in El Salvador

As Figure 1 indicates, the low investment in El Salvador may be the consequence of many potential distortions which keep private returns low, even if social returns may be high. One possibility is that the social returns are not privately appropriable. Appropriability problems can emerge from many fronts. We can group these into four major areas:

- High taxes: Actual or expected explicit taxes make private returns low and hence investment unattractive, although social returns may be high.
- Macroeconomic imbalances: Unsustainable fiscal or external accounts usually presage the need for implicit taxation or expropriation through surprise inflation, depreciation, default or banking crises. In anticipation, country risk and interest rates rise, further depressing investment.
- Poor definition and protection of property rights: Productive investments may be limited by the expectation that investors will not be able to appro-

priate the returns because their claims are ill-defined or poorly protected, through corruption, judicial manipulation or outright crime. Measures to avoid these problems create additional high transaction costs which may render investment unattractive.

- **Uncertainty:** Doubts—deriving from political or other factors—regarding the commitment to the current rules of the game create excessive risks about the environment in which projects will evolve.

The issues involved here are multiple and complex. We will review them quickly and assess their relative importance in El Salvador.

#### 4.2.1 Concerns about excessively high taxation

This is not a problem that can explain low growth in El Salvador. The country has a very moderate income tax with a marginal rate at 25 percent, well below the rate that global corporations pay in their home country. Moreover, the country has eliminated the double taxation of capital. The value added tax, at 13 percent, is moderate by regional standard and a fraction of that applied in Western Europe. Tariffs are low, and the economy is one of the most open in the region.

In fact, it is easier to argue that El Salvador may be suffering from the opposite problem. Tax revenue may be so low that the government lacks the resources to provide an adequate supply of public goods needed to make economic activity productive. The Global Competitiveness Report of 2002-2003, which views smaller government spending as a virtue, ranks El Salvador in 14th place in a sample of 80 countries in terms of low government spending. Unfortunately, the world leader in this indicator is Haiti. Even within Latin American countries, El Salvador's public spending appears low. This may be a reason why the country ranks poorly in measures of the quality of infrastructure (especially in roads, rail and ports) and public education.

We conclude that excessive current or expected explicit taxation is not a sensible explanation of El Salvador's development challenge.

#### 4.2.2 Concerns about macro stability

When the economy is on an unsustainable path—e.g. when the country as a whole or the government are accumulating obligations at a rate that will compromise their ability to abide by them—participants in the economy know that the current rules of the game will need to be abandoned and act to protect themselves from the expected changes rather than engage in productive investments. Problems of macro stability can be generated by imbalances arising from different areas. The fiscal accounts may be in deficit and public debt may be increasing faster than the capacity to service it. Longer term fiscal commitments, in particular the actuarial liabilities of the government vis à vis the pension system, may bankrupt an otherwise solvent government. Monetary policy may be too loose causing a loss of international reserves and an eventual large depreciation. Banks

may be taking excessive risk, which can end up in a disruptive crisis that often weakens both fiscal and monetary stability. The country may be running large external imbalances that translate into reserve loss or a rapidly rising external debt and signal the need for eventual currency depreciation. The real exchange rate may be misaligned, limiting the profitability and growth of export and import-competing sectors.

The question is to what extent the relatively disappointing growth of the last few years can be interpreted mainly as the outcome of limitations on these fronts. It is worth noting that the Global Competitiveness Report 2002-2003 ranked El Salvador as number 33 out of 80 countries in the world in terms of its macro environment, well ahead of all Central American countries and most Latin American countries, except for Chile. Underpinning this ranking was the country's low inflation rate, low bank spreads, good access to credit, moderate fiscal deficit, small government and good credit rating. While macro problems may appear in the future, especially if not enough attention is paid to them, it seems reasonable to argue that El Salvador's low growth in the past five to six years cannot be easily explained in terms of macroeconomic imbalances. More likely, the puzzle is precisely why is it that a relatively good macro environment has not generated faster growth.

#### 4.2.3 Concerns about contract enforcement and property rights

The role of institutions in development has received increasing attention in recent years. Could it be that El Salvador is being held back by an inadequate institutional environment?

Our answer is negative. The Heritage Foundation ranked El Salvador 17th in the world in 2002 in terms of "economic freedom" and third in Latin America (behind only Chile and the Bahamas). According to Lopez (2003, 2), El Salvador ranks "always near the top in terms of the World Bank's Country Policy and Institutional Assessment ratings." On the financial front, El Salvador ranks very favorably in indicators associated with credit availability and cost. This is telling because financial markets are particularly sensitive to problems of contract enforcement. Moreover, in 2003 the World Economic Forum ranked El Salvador third among Latin American countries in terms of low corruption and low tax evasion (after much wealthier Chile and Uruguay) and second in the efficiency with which it uses its public funds (after Chile)—see Figures 6 and 7.

If anything, El Salvador looks like a country with very good institutions for its low level of income. In fact, it ranks better than Brazil in most indicators in spite of the fact that it has a level of per capita income which, at US\$ 3,530 for 2003 is less than half that of Brazil (US\$ 7,720 ). It is hard to argue that it is the bad institutional framework that is keeping returns to capital low.

#### 4.2.4 Infrastructure, labor and real exchange rate misalignment

Other stories in our decision tree involve rigid labor markets and bad infrastructure. Here again, it is hard to make the case that these factors are critical to



the growth story. Electricity and telecommunications have been privatized and have undergone a major expansion. While the country ranks low in the Global Competitiveness report in terms of roads, ports and rail infrastructure, there have also been important recent improvements in these areas with scant impact on the investment rate of other sectors.

The same can be said of labor institutions. The country has relatively low restriction to hiring and firing and low payroll taxes. These limited sources of rigidity cannot account for low investment returns.

However, the country does have a high minimum wage in relation to the average wage. In addition, the country is dollarized which means that the exchange rate cannot move to clear the labor market. The real exchange rate appreciated quite dramatically between 1974 and 1994 but has remained stable in the decade since then (Figure 6). Such a long term stable level in the context of low current account deficits cannot be anything other than an equilibrium phenomenon (as the labor market should clear in less than a decade!). In part the appreciation reflects the rise in remittances which represented 17.6 percent of GDP in 2002. These external flows increase the supply of foreign exchange and in addition are caused by a contraction in the domestic supply of labor. Both effects tend to appreciate the real exchange rate. Hence, even if the exchange rate is misaligned by some measures, it does not seem to be unsustainable or to be generating fears of a currency crisis down the road. In this sense it does not seem like a central explanation for the mediocre growth of recent years.

#### 4.2.5 Innovation and the demand for investment

The third element in our growth framework is productivity and innovation. What we have in mind here is not innovation and R&D in the sense that these terms are used in the advanced economies, but the ability to identify and generate higher productivity activities within the Salvadoran context. These are new, non-traditional products that could be profitably produced in El Salvador, but which do not currently attract investment because of various market shortcomings (see Hausmann and Rodrik 2003 for a general discussion).

El Salvador is facing bad news in its traditional sectors, and the speed at which it comes up with new ideas in other areas has not been able to compensate. The country has lost its cotton industry completely. Coffee is in crisis. Nobody has been able to make a decent living in the international sugar market. These “ideas,” after creating hundreds of thousands of jobs in El Salvador, are in some sense dying. To achieve growth, new productive ideas must take their place. The speed at which these ideas appear and their economic significance are critical. The only important new sector has been the maquila industry and this barely represents 480 million dollars (slightly more than 3 percent of GDP) in net exports. The absence of new ideas explains why the expected return to current investment ideas is low, and why investment and growth are low. It is not because of lack of savings. It is not mainly because of fear of taxation, expropriation or fraud. It is because the actual real returns to investment are low given the absence of profitable investment opportunities.

El Salvador has opened up to the world, stimulated foreign investment and endeavored to protect property rights. Is that not the way to encourage innovation and secure sufficiently rapid technological advances? The Salvadoran experience suggests that the answer may well be negative. This may be due to the fact that the innovation that matters to countries such as El Salvador—identifying and operating profitable new activities—is substantially more problematic than this simple picture assumes.

The problem with innovation is that it is hard to create but easy to copy or imitate. This means that part (or most) of the returns to innovation spill over to other people. This reduces the expected private return to innovation and hence may cause it to be inadequately supplied. In response to this, the world has opted to consider the output of innovators as an item of property that needs protection: hence the development of patents, copyrights and other forms of intellectual property rights protection. These grant monopoly power over an idea to its creator.

The development process in less advanced countries is largely about structural change: it can be characterized as one in which an economy finds out—self-discovers—what it can be good at, out of the many products and processes that already exist. The problem is that the ideas that are valuable at low levels of development are typically not patentable. For example, the idea that an Ethiopian seed—coffee—could be planted in the hills of Central America was of historic importance, leading to a dramatic transformation of the fabric of society, but yet not patentable.

New ideas that lead to new sectors may require specific public capital or changes in rules and regulations that were designed in ignorance of their negative consequences to the sector. Coffee requires not education, research and training in general, but in the specifics of coffee. Road and infrastructure networks need to take account of the areas where the new activities can expand. New forms of contracting, transacting and financing may be required. The whole maquila industry requires a specific form of custom treatment.

The problems of self-discovery in tradable activities are likely to be potentially more important and the payoffs to addressing them much larger. They are more important because, contrary to non-tradable activities, in which the first domestic supplier is by definition a monopolist, in the tradable sector, any new firm in a given country will start operating in a market where foreign suppliers already exist, limiting the rents of discovery. The payoffs can be larger in the tradable sector because the productive ideas can be scaled up to supply the world market, not just the more limited local market to which non-tradable activities are restricted by definition. In conclusion, problems with self-discovery seem to be the binding restriction on growth in El Salvador. That may well be the appropriate focus of policy in a development strategy for this country.<sup>5</sup>

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<sup>5</sup>What policies can be designed to promote self-discovery in El Salvador is beyond the scope of this paper, but is addressed in Fusades (2003) “Oportunidades, seguridad, legitimidad: bases para el desarrollo”. See also Hausmann (2003) “In Search of The Road Ahead: Identifying a Development Strategy for El Salvador Social Goals and Development Strategy”, <http://ksghome.harvard.edu/~rhausma/publication.htm>, and (2003) “Discovering El

### 4.3 Explaining slow growth in Brazil

As opposed to El Salvador, Brazil is not in such dire need of ideas on where to invest. It has more ideas than investible funds. That is why the balance between supply and demand for these funds occurs at such a high interest rate.

#### Misdiagnosis in Brazil

This first analysis clearly eliminates a set of potential diagnosis and policies from the list of priorities. Brazil suffers from an inadequate business environment, high taxes, high prices for public services, low supply of infrastructure, insecure property rights and judicial enforcement and inadequate education relative to some best practice benchmark. But our framework would discard them as priority areas for policy reform. This is because all these factors should depress private investment by keeping private returns low. But in spite of the sub-par atmosphere, private returns are very high and investment is constrained by the inability of the country to mobilize enough domestic and foreign savings to finance the existing investment demand at reasonable interest rates. If the country were to embark on a campaign to improve the business environment it would make investment even more attractive and consequently would increase investment demand. In addition, it may improve the productivity of the projects that get undertaken (although this is not necessarily so). However, in the first instance, this would not relax the constraint on savings, which is where the binding constraint resides. In fact, some reforms that could improve the business environment, such as lowering taxes, reducing public sector prices and improving infrastructure and education may in fact lower public savings and thus reduce total savings. In addition, the increased demand for investment will translate mostly in a higher real interest rate, which will complicate public debt dynamics and generate more adverse selection in private financial markets (and hence, potentially worse investments). The overall health of the economy may show little improvement or could even deteriorate. This is a case in which doing reforms that are apparently good may cause overall negative effects given the way these policies interact with other existing distortions, through the second-best logic described above.<sup>6</sup>

#### 4.3.1 The problem with external savings

As argued above, Brazil has often been rationed in international capital markets, to which it has been paying a hefty premium to access funds. These markets have been concerned by the fact that the country already owes an uncomfortably large amount of money and hence asset prices tend to go up when markets hear about positive innovations to the current account, implying that the country will stop its borrowing binge. Hence, the recent large reduction in country risk that took place between 2002 and 2005 (Table 2) did not coincide with an increase in external savings (i.e. an increase in the current account deficit) as would

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Salvador's Production Potential", <http://ksghome.harvard.edu/~rhausma/publication.htm>.

<sup>6</sup>Interestingly, the World Bank in its 2002 New Growth Agenda for Brazil came to the opposite view stressing the importance of improving the investment climate in Brazil in order to trigger higher growth.

be the case if the dominant change was an increase in the supply of external savings. Instead, the decline in country risk coincided with a rapid decline in foreign savings, indicating that it was the demand curve for external savings that did most of the work. Hence, country risk seems to move in tandem with the demand for external savings as would be the case when there is a highly inelastic supply of external savings.

Models of sovereign risk assume that what makes international lending enforceable is some punishment technology for opportunistic behavior by the borrower. Since Eaton and Gersovitz (1981) a typical assumption is that trade sanctions are the typical penalty than lenders can impose and hence the volume of international trade is related to the credit ceiling lenders would like to avoid breaching.

In this context, Brazil has been a very closed economy with almost twice the population of Mexico but less than half of its exports. This means that its credit ceiling should be limited by this fact. While the export to GDP ratio has risen in recent years this has been due more to the decline in the dollar value of GDP at market prices than to the increase in exports, especially until 2002. If we take GDP at its purchasing power parity, exports are below 10 percent of output. Hence, while the external debt looks high as a share of GDP, it looks astronomical as a share of exports.

One can imagine a policy to make foreign investors even more eager to lend by raising the credit ceiling. However, *ceteris paribus* this is bound to lead to a short-lived acceleration of growth until the economy reaches its new credit ceiling. Hence, we conclude that while the external constraint clearly binds, it is a reflection of the fact that the country has already used its borrowing capacity to the hilt. Some relaxation of that borrowing capacity would lead to faster growth in the transition to the new credit ceiling. But clearly, the underlying problem must be the conflict between the relatively healthy demand for investment in the context of inadequate domestic savings.

#### 4.3.2 Explaining inadequate domestic savings

A more sustained relaxation of the constraint on growth would involve an increase in the domestic savings rate. This opens the question about what is keeping it low at present, in spite of high real interest rates.

To search for an answer it is useful to note some fiscal characteristics of Brazil.

- At 34 percent of GDP, the country has by far the highest public revenue share in Latin America and one of the highest in the developing world.
- In spite of this, public savings have been negative by more than 2 percent of GDP: public investment has averaged less than 2 percent of GDP between 1999 and 2002, while the fiscal deficit averaged 4.4 percent.
- To achieve its high level of taxation the country is forced into using quite distortionary levies at very high rates, such as a cascading sales tax, a

tax on financial transactions and very hefty payroll taxes, which Heckman and Pages (2002) estimate at 37.6 percent of wages.

- In spite of the extraordinary level of taxation, fiscal balance is precarious. According to the IMF, General Government debt as a share of GDP stood at 95.1 percent in 2002, while the overall deficit averaged 4.3 percent of GDP between 1999 and 2004.
- The high taxes and low savings reflect a very high level of current spending and transfers. For example, social security expenditures stand at 8.5 percent of GDP, which is unusually high given the country's relatively young demography. They reflect the country's low retirement age and generous terms for its mostly middle class public and formal sector employees.

The high taxation and negative public savings must have an adverse effect on aggregate savings: it reduces the disposable income of the formal private sector and the resources are not used to increase public savings. This may be an important part of the explanation of the low saving equilibrium. In addition, since the equilibrium happens at a high real interest rate, the positive effect high interest rates may have on stimulating private savings is offset by the negative effect it has on public savings as the cost of servicing the inherited stock of public debt is increased.

High taxation and negative savings reflects the existence of a very high level of entitlements and/or waste, and a high level inherited debt. In the context of the model presented in the previous section, this forces the country to choose among a very high tax rate, high public sector prices, low investment in infrastructure and low subsidies for human capital. All these things are bad for growth because they depress the private return to capital. But returns are already very high and investment is constrained by lack of loanable funds. If high taxation and the paucity of public goods were in themselves the binding constraint, the private return to investment would be low and equilibrium between savings and investment would be established at a lower return to capital. This is an important distinction because it goes to the heart of the policy question about what elements to emphasize in the reform process: should it be the impact of the reform on aggregate savings (such as fiscal consolidation) or should it be on the implications for private returns to capital (such as lower taxation)? In this interpretation, the problem of Brazil is that too heavy a burden of transfers and too high an inherited stock of public debt mean that a very large part of national income gets taxed away, depressing national savings.

Two factors may amplify or multiply this distortion. First, consider the cost of financial intermediation. As the deposit interest rate goes up, intermediation margins tend to increase for several reasons. This is caused in part by the cost of bank reserves, since the cost of holding reserves goes up with the deposit interest rate and must be recouped through a higher lending spread. This is further aggravated by the fact that a country with a high fiscal burden will optimally use a higher level of reserve requirement in its optimal tax strategy. Hence, the reserve requirements would tend to be higher. As the loan rates go up, so

does the probability of default, causing a further rise in lending rates. This is exacerbated by adverse selection. So the fact that Brazil has high intermediation margins, as previously noted, may be related to its fundamental distortion.

Second, fiscal stress may limit external savings as foreign investors may fear expropriation. This limits access to foreign savings for the whole society and thus will aggravate the scarcity of aggregate savings.

What should the focus of policy be in this case? The goal is to improve national savings. One alternative would be to lower government entitlements and waste with the resources used to increase public savings. The direct effect would be a higher level of aggregate savings, a lower interest rate, better public debt dynamics, lower intermediation margins and could potentially have a positive effect on foreign savings if it is related or affected by fears of fiscal insolvency. Lowering the burden of pensions through a social security reform may be an effective way to achieve this.

In the absence of this first-best policy, the question is whether a pro-growth strategy can be based on an apparently anti-growth set of policy measures such as increases in taxation and public prices and cuts in infrastructure and human capital subsidies. The analysis above would suggest a positive response. The microeconomic inefficiencies of taxation and sub-optimal spending structures are not binding because reducing them would increase the returns to capital but would not generate the means to exploit those returns.

If the country can get into a more accelerated growth path and if “waste” does not grow with GDP, the economy may outgrow its burdens and be able to gradually improve its tax and spending system as fiscal resources become more abundant. In this respect, the fiscal strategy followed by the country until now, in spite of the microeconomic inefficiencies it generates, may perhaps be the best way to go.

#### 4.4 The Dominican Republic: growth and then crash

The Caribbean is an unlikely place to find a success story. The region once seemed naturally destined to produce sugar cane, the source of its wealth since the XVII century. With the heavy protection of sugar in Europe and the U.S., the Caribbean lost its obvious export crop. States in the region are too small to embark on import substitution industrialization although some tried with disastrous consequences. The Dominican Republic had been lucky because in addition to sugar it had a gold mine. However, this resource became exhausted in the 1980s. The country had to reinvent itself and it was not obvious how.

The country had quite precarious political and bureaucratic institutions. The difficulties of the 1980s had wrecked havoc with its macro balance. A balance of payments crisis erupted in 1991 and the country dealt with it swiftly and accompanied it with modest structural reforms: a unification of its exchange rate regime and some trade liberalization. This triggered a sustained period of high growth that essentially lasted a decade until it was quickly brought to an end in the 2002 banking crisis. Yet even in a period of extreme financial turmoil

in 2002-2004, the economy did not contract, as happened in most other places in the region, namely, Argentina, Colombia, Ecuador, Uruguay and Venezuela.

What explains its success and its current problems? Why did the achievement of macro balance and some reform lead to such fast growth in the Dominican Republic and not in other places? Ex-post, the answer seems to be in the importance of three main drivers of growth: tourism, maquila and remittances.

Remittances tripled in the last decade to a level of US\$ 2.1 billion in 2002 or 9.9 percent of GDP. Tourism did even better. It increased from US\$ 0.7 billion in 1991 to US\$ 2.5 billion in 2000 (11.8 percent of GDP). Net maquila exports per capita doubled to a level of about US\$ 200 per capita in 2000-2001, the highest in the Americas including NAFTA-member Mexico.

Now, these three engines of growth are dependent on some institutional setup. Tourism requires some level of investor, personal and environmental security. While it would be ideal to assure these three elements for all sectors of the economy, relatively closed all-inclusive resorts can do with a more targeted provision of these public goods, using private security and infrastructure. So the country created an adequate environment for that industry to take off.

By the same token, maquila is an exception to the general laws that apply to other activities. With a sufficiently effective institutional framework for this sector, it can take off even if the rest of the economy is stranded with ineffective institutions and regulations.

In this sense, the Dominican Republic is a good example of an alternative path to institutional development. Such a path would involve listening to the institutional and public good requirements of sectors that see high potential returns and that can be scaled up significantly to become important. In other words, the reforms are geared at solving the specific institutional problems that potentially important new sectors face so as to increase their expected rate of return and allow an investment boom to start there.

As these “enclave” sectors grow and generate employment and income, they contribute directly or indirectly to the tax base and to domestic intermediate demand. This is the time to try fixing up the bottlenecks in the rest of the economy. It resembles a game of curling that as the puck slides on the ice, the players work feverishly to polish the ice so that the puck keeps sliding forward. Trade liberalization will make the rest of the economy more like the maquila sector. Personal security and environmental standards can be upgraded in the rest of the country. This will bring benefits to all, including those tourists who might actually venture beyond the grounds of the resort.

Clearly, the problem with this strategy is that the economy might outgrow its relatively weak institutional setting. It is hard to know which institution will crack. It could be that economic success makes foreign lending available to the government without the budget institutions to keep fiscal discipline, as happened in many Latin American countries in the 1970s when they were showered for the first time with syndicated foreign loans. It could be that the stakes of the political game become so high that the political process gets disrupted.

None of this happened in the Dominican Republic. Fiscal balance was maintained and the political process became, if anything, more institutionalized.

However, the financial system did grow very fast with the economic expansion and became more integrated to the rest of the world. Imposing prudential regulatory standard on rapidly expanding banks proved institutionally and politically difficult. Some banks were politically influential and as a group they were capable of blocking legislation and administrative actions by a technically and politically weak regulator. When September 11, 2001 brought a sudden stop to the flow of international tourism, a Ponzi scheme in the banking system was uncovered. Through some mix of limited institutional competence and inadequate political independence, managing this crisis involved converting over 20 percent of GDP in bank losses into the public debt.

As usual, these bank rescues involve drastic expansions of domestic credit by the central bank, which in the Dominican Republic had no international reserves with which to sterilize money creation. The exchange rate quickly depreciated from 17.8 R\$/US\$ in January 2003 to 34.9 R\$/US\$ in July of 2003 and 48.6 by June 2004. This massive depreciation caused an acceleration of inflation to over 65 percent in the year to over 65 percent in the year to June 2004.

These changes wreaked havoc with the fiscal accounts. The new debt issued by the central bank raised the quasi-fiscal deficit by over 2 percent of GDP. The depreciation increased the domestic resource cost of the foreign currency public debt. The domestic value of the public debt almost tripled from less than 20 percent of GDP to over 50 percent of GDP. In addition, a system of indirect subsidies for liquefied petroleum gas (LPG) and for electricity, which had prices fixed in pesos, became much more expensive to sustain. Unable to impose harsher adjustment measures in an already difficult situation, the government decided to limit price increases for these goods but this meant a level of fiscal subsidy that it was unable to pay. Massive shortages of electricity and gas ensued.

The country is still in the midst of this crisis, although there are some indications it may be pulling itself out. But the moral of the story is clear. Reigniting growth may not require the infinite laundry list of reforms that have become the current consensus on best practices. But once the economy is on the path of growth, the onus is on policymakers to solve the institutional and other constraints that will inevitably become more binding.

## 5 Conclusions

Across-the-board reform packages have often failed to get countries growing again. The method for growth diagnostics we provide in this paper should help target reform on the most binding constraints that impede growth.

An important advantage of our framework is that it encompasses all major strategies of development and clarifies the circumstances under which each is likely to be effective. Strategies that focus on resource mobilization through foreign assistance and increased domestic national saving pay off when domestic returns are both high and privately appropriable. Strategies that focus on market liberalization and opening up work best when social returns are high



and the most serious obstacle to their private appropriation is government imposed taxes and restrictions. Strategies that emphasize industrial policy are appropriate when private returns are depressed not by the government's errors of commission (what it does), but its errors of omission (what it fails to do).

As our discussion of El Salvador, Brazil, and the Dominican Republic illustrates, each of these circumstances throws out different diagnostic signals. An approach to development that determines the action agenda on the basis of these signals is likely to be considerably more effective than a laundry-list approach with a long list of institutional and governance reforms that may or may not be well targeted on the most binding constraints to growth.

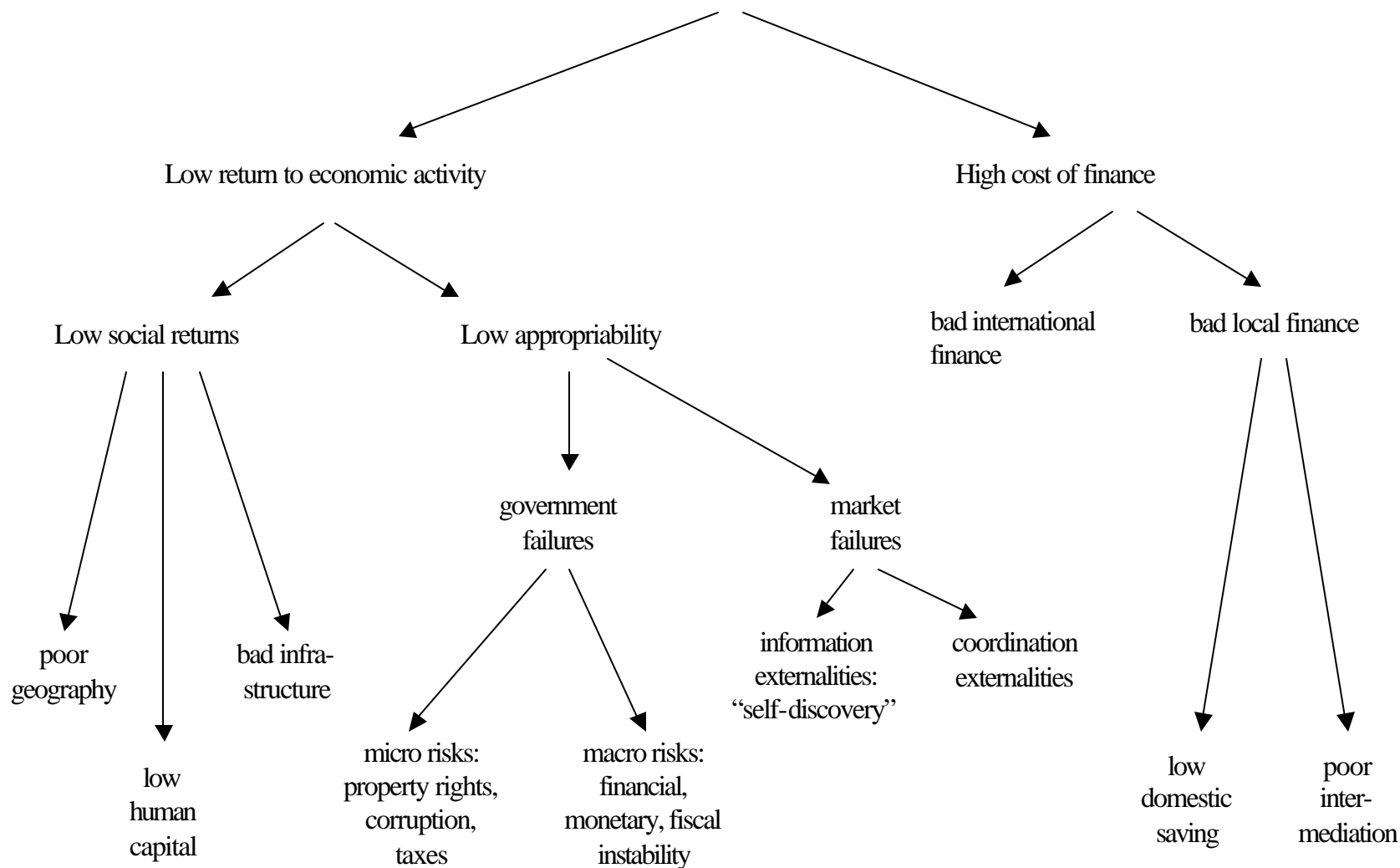
## References

- [1] Barth, G. Caprio and S. Levine, “The Regulation and Supervision of Banks Around the World: A New Database”. World Bank Working Paper Series # 2588, 2001.
- [2] Eaton, Jonathan and Mark Gersovitz, “Debt with Potential Repudiation: Theoretical and Empirical Analysis,” *Review of Economic Studies*, 1981.
- [3] Edwards, Sebastian, “The Order of Liberalization of the External Sector in Developing Countries,” *Princeton Essays in International Finance* No. 56, 1984.
- [4] Harberger, Arnold C., “Interview with Arnold Harberger: Sound Policies Can Free Up Natural Forces of Growth,” *IMF Survey*, International Monetary Fund, Washington, DC, July 14, 2003, 213-216.
- [5] Hatta, T., ”A theory of piecemeal policy recommendations,” *Review of Economic Studies* 44, 1977, 1-21.
- [6] Hausmann, R., and Dani Rodrik, “Economic Development as Self-Discovery,” *Journal of Development Economics*, vol. 72, December 2003.
- [7] Hausmann, R., Lant Pritchett, and Dani Rodrik, ”Growth Accelerations,” Harvard University, May 2004.
- [8] Loayza, N. Fajnzylber and Calderón (2002) “Economic Growth in Latin America and the Caribbean” *Stylized Facts, Explanations, and Forecasts*,” World Bank working paper, 2002.
- [9] López, E., “El Salvador: Growing in the Millennium,” World Bank, May 21, 2003.

Figure 1: Growth diagnostics

Problem: Low levels of private investment and entrepreneurship

$$\frac{\dot{c}_t}{c_t} = \frac{\dot{k}_t}{k_t} = \sigma [r(1 - \tau) - \rho]$$



**Table 1 GDP growth rates**

<b>Country</b>	<b>Average GDP (% real change pa)</b>			
	<b>1998-2003</b>	<b>1993-2003</b>	<b>1990-2000</b>	<b>1980-2000</b>
BRA	1.4	2.7	2.7	2.7
DOM	4.8	5.1	4.8	4.3
SLV	2.6	3.7	4.6	1.5
OECD(AGG.)	2.3	2.4	2.7	2.9
UNITED STATES	3.0	3.2	3.2	3.3

Source: Economist Intelligence Unit

Table 2. Brazil: Basic Macroeconomic Indicators

	1998	1999	2000	2001	2002	2003	2004e	2005f
<a href="#">GDP (real annual %-chg)</a>	0.1	0.8	4.4	1.3	1.9	0.5	5.1	3.2
<a href="#">Inflation (CPI, annual var. in %)</a>	1.7	8.9	6	7.7	12.5	9.3	7.6	6
<a href="#">Exchange Rate (Real/US\$)</a>	1.208	1.789	1.955	2.32	3.533	2.889	2650	2850
<a href="#">Current Account (US\$ m)</a>	33,416	25,335	24,225	23,215	-7,637	4,177	11,700	-400
<a href="#">Trade Balance (US\$ m)</a>	-6,606	-1,252	-751	2,651	13,121	24,793	33700	24500
<a href="#">Capital Account (US\$ m)</a>	29,702	17,319	19,326	27,052	8,004	5,111		
<a href="#">CA/GDP</a>	-4.2	-4.7	-4.0	-4.6	-1.7	0.8		
<a href="#">Unemployment (%)</a>	6.3	6.3	4.8	10.6	10.5	10.9	9.7	9.1
<a href="#">Fiscal Balance (% of GDP)</a>	-7.5	-5.8	-3.6	-3.6	-4.6	-5.1	-2.8	-3.3
<a href="#">Bond Market (EMBI over UST)</a>	1,226	632	746	896	1,446	463	583	
<a href="#">BOVESPA (%. in US\$)</a>	-44.1	61.6	-14.2	-21.8	-33.8	102.9		
<a href="#">BOVESPA (%. nominal Reais)</a>	-33.5	151.9	-10.7	-11.0	-17.0	97.3		
<a href="#">Interest Rate (SELIC rate in %)</a>	33.0	21.0	15.4	18.1	25	16.5	17.75	17
Real ex post interest rate (SELIC)	30.8	11.1	8.9	9.7	11.1	6.6	9.4	10.4
Multilateral real exchange rate 1/	77.6	106.6	106.1	123.4	170.7	146.1	140.8	
<a href="#">Investment rate</a>	21.1	20.2	21.5	21.2	19.8			
<a href="#">Savings rate</a>	16.8	15.4	17.3	16.8	18.5			
<a href="#">GDP in US\$</a>	787.9	536.6	602.2	509.8	459.4	506.8		

1/ Median rate of the Brazilian currency in relation to the currencies of 15 countries, corrected for consumer price inflation in each country and weighted by the participation of these countries in total Brazilian exports to this group of countries. The Brazilian CPI is by FIPE. June 1994 = 100, i.e. just before the adoption of the Real, which happened on July 1<sup>st</sup>, 1994.

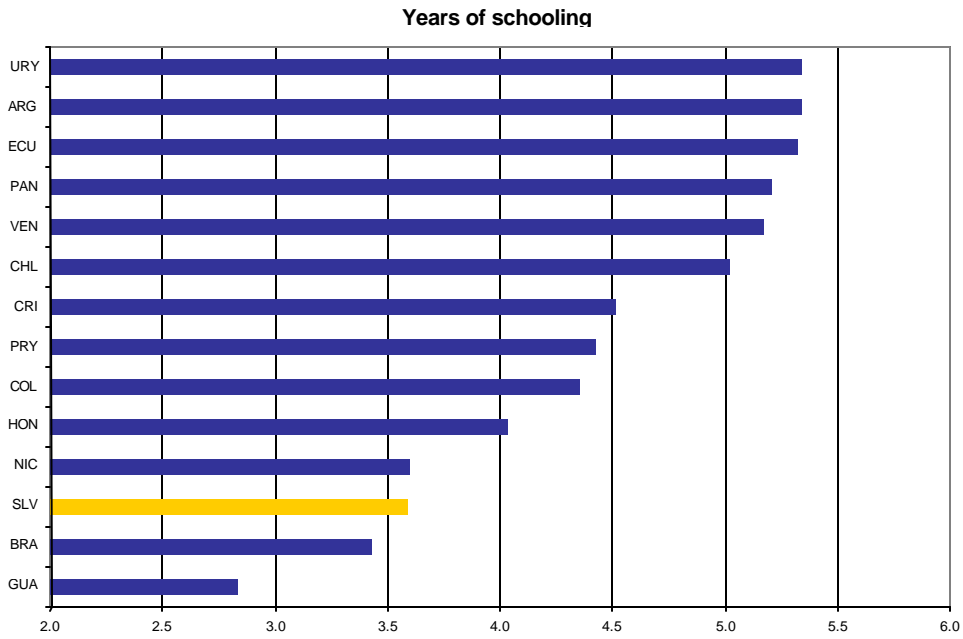
Table 3: Savings, investment and the current account  
(as percent of GDP, average 1990-2000)

<b>Country</b>	<b>Gross national savings</b>	<b>Gross fixed capital formation</b>	<b>Current account balance</b>
BRA	18.7	20.8	-2.2
DOM	18.9	22.2	-3.2
SLV	15.6	17.4	-1.8

Source: World Penn Tables.

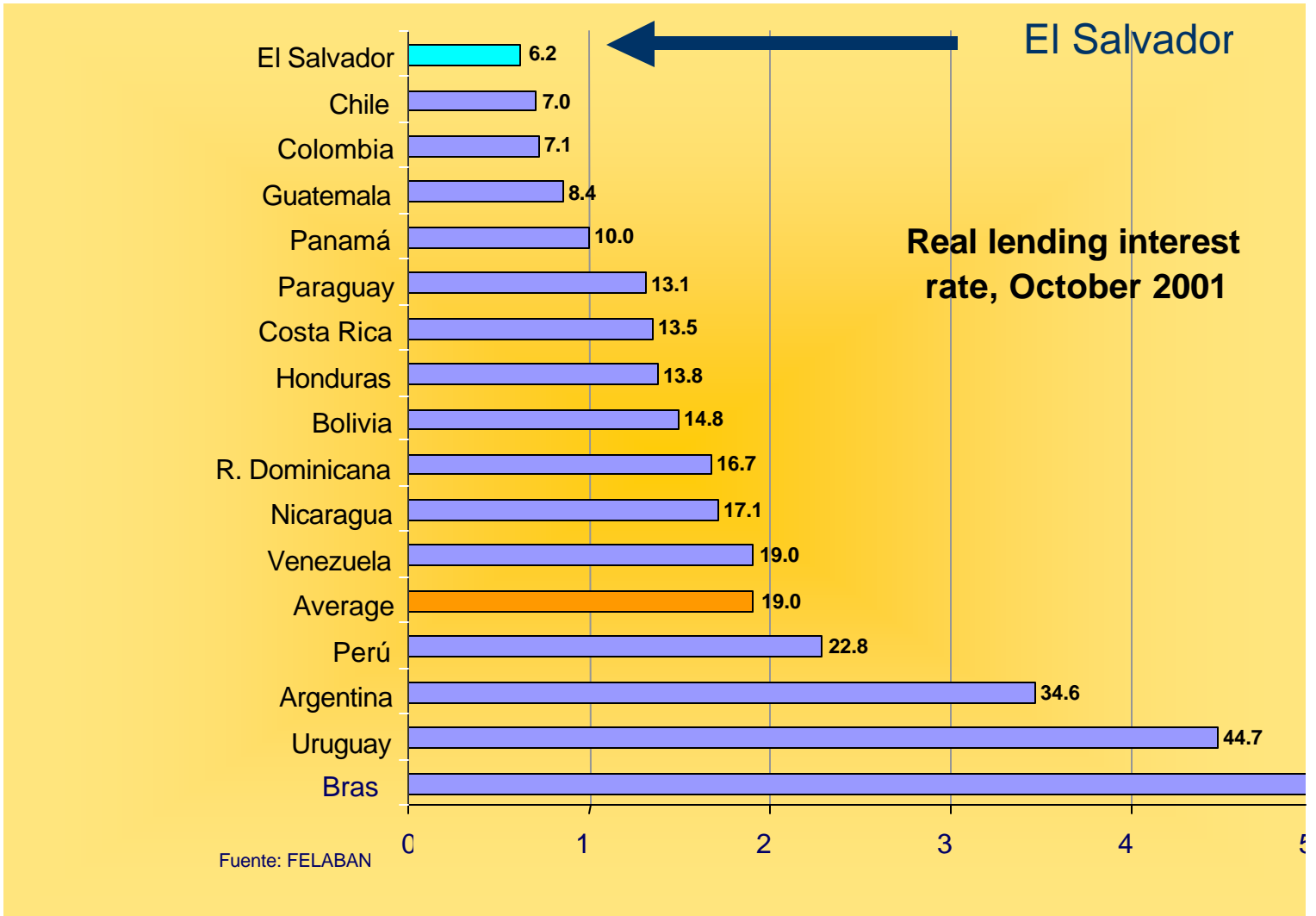
Note: remittances are counted as part of national income

**Figure 2. Average years of schooling of 12-year-old children (circa 1998)**



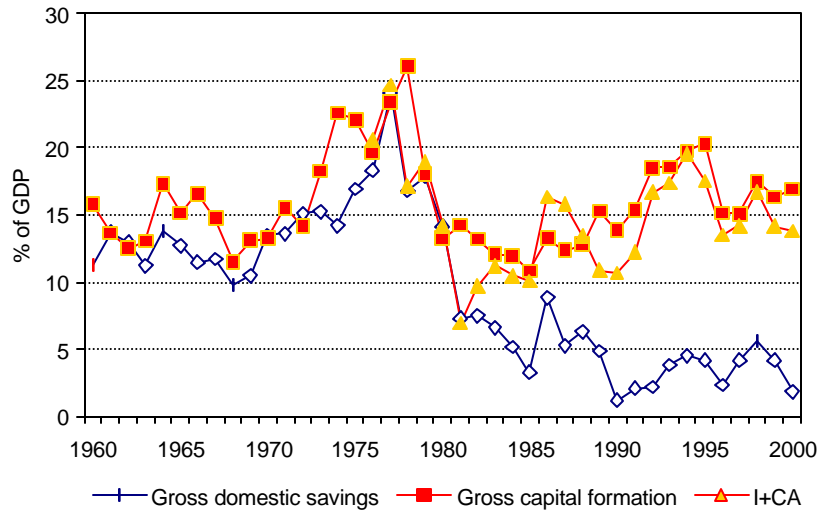
Source: IDB

Figure 3. Lending rates in Latin America (October 2001)





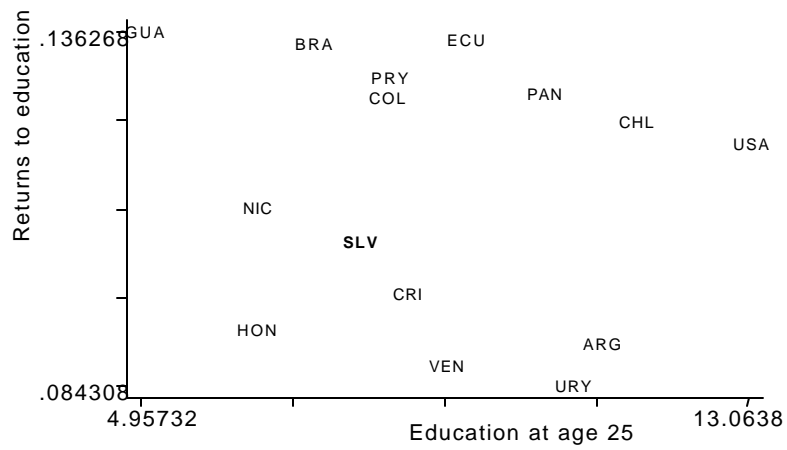
**Figure 4 Domestic savings, national savings (including remittances) and investment (as % of GDP)**



Source: World Penn Tables

Note: national savings equals gross fixed capital formation plus the current account surplus

**Figure 5. Returns to education and years of schooling**



Source: Calculations based on surveys collected by the Inter-American Development Bank

Figure 6. Real exchange Rate, Remittances and the Trade Balance

