



Rethinking the Growth Diagnostics Approach: Questions from the Practitioners

Jesus Felipe and Norio Usui
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Abstract

The growth diagnostics methodology pioneered by Hausmann et al. (2005) is becoming a key piece of the toolkit for donor agencies in formulate their operational strategies. This paper aims at clarifying the primary objectives of the approach, highlighting some limitations for operational use. The key to benefiting from the full potential of this approach lies in a proper understanding of what it does; and being forewarned about the indiscriminate application of the approach to developing countries, for this can lead to misguided conclusions.

“I believe in the importance of a careful reading of the empirical evidence. In particular, our prescriptions need to be based on a solid understanding of recent experience. This may seem like a trivial point to emphasize, but it is remarkable how frequently it is overlooked.”

Dani Rodrik (2007a, 3)

I. Introduction

For decades the emphasis of development policy has been shifting, depending on what economists believe should be the best course of action for developing countries; in particular, where achieving high and sustained growth to help them catch up with developed countries is concerned. Many economists in the newly formed nations following decolonization after World War II implemented planning and import substitution strategies after independence in the 1950s and 1960s. While for a time these strategies seemed to work, they ran out of steam. Likewise, institutions like the World Bank started recommending market- and outward-oriented approaches that emphasized the virtues of the price mechanism. By the late 1980s, the different market-oriented views and policies were consolidated into the so-called Washington Consensus reform package.¹ However, toward the end of the 1990s, it became clear that the reform package advocated by the Washington Consensus could not work without being supplemented by a solid governance and institutional foundation. Thus, the initial reform list advocated by supporters of the Consensus was augmented with a series of so-called second-generation reforms that emphasized the role of institutions and governance. However, the augmented Washington Consensus reform package did not work either, as evidence showed that countries that adopted and implemented comprehensive reform packages reaped small benefits. Rodrik (2006, 2) argues that “the question now is not whether the Washington Consensus is dead or alive; it is what will replace it.” In recent years, economists have observed that countries that implemented well-focused reforms in key areas accelerated growth. The People’s Republic of China (PRC), India, and Viet Nam are good examples.

In the context described above, Hausmann et al. (2006) have recently analyzed how growth rates accelerated in the past. They define “growth acceleration” as an instance

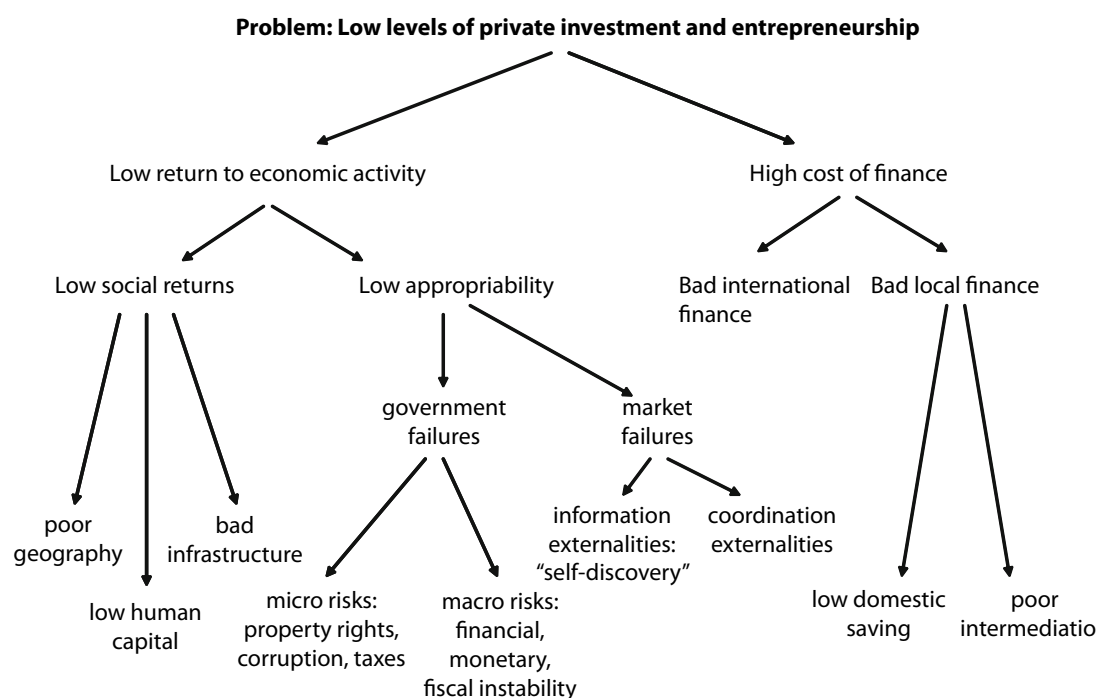
¹ The reform package was structured upon three key concepts, “stabilization”, “liberalization”, and “privatization”, and included fiscal discipline, reorientation of public expenditures, tax reform, financial liberalization, unified and competitive exchange rates, trade liberalization, openness to foreign direct investment, privatization, deregulation, and secure property rights.

when a country starts growing by at least 3.5% per capita for a period of at least 8 years. These authors find that growth accelerations are frequent phenomena, and that they do not require a long “laundry list” of reforms. They conclude that growth accelerations happen when binding constraints on growth are removed. As a result, they have proposed a growth diagnostics approach to formulating growth strategies. This approach is becoming part of the toolkit used by donor agencies for purposes of formulating their operational strategies in developing countries.

This paper aims at clarifying the primary objectives of the growth diagnostics approach and what in our view are some limitations for operational use. We emphasize that the key to benefiting from the full potential that this approach offers lies in a proper understanding of what it does; and being forewarned about the indiscriminate application of the approach to developing countries, for it can lead to misguided conclusions. The rest of the paper is structured as follows. In Section II, we summarize the main features of the growth diagnostics approach. Section III discusses some important limitations of this approach. Section IV provides some final thoughts.

II. What is the Growth Diagnostics Approach?

The growth diagnostics approach provides a framework for formulating hypotheses on what may be constraining a country’s growth. This approach views economic growth as the result of an optimization process under constraints, and seeks to identify the factors that are the most binding, in the sense that their removal would allow a growth spurt. It assumes a simple growth model whose production function depends on several factors such as physical and human capital, governance, institutions, infrastructure, and geography. The objective is to identify the binding constraints by estimating shadow prices whereby a higher shadow price reflects scarcity of the resource, indicating that the resource constraints growth. Hausmann et al. (2005) propose a methodology based on a decision tree where low levels of private investment and entrepreneurship are seen as the key problem. See Figure 1.

Figure 1: Growth Diagnostics Decision Tree

The tree takes researchers through different branches (starting with two options: high cost of finance, or low returns) in order to determine the root causes of the problem, i.e., the binding constraints to economic growth.

There is a connection between Hirschman's (1958) theory of *unbalanced growth* and the growth diagnostics approach that is worth highlighting. Hirschman argued that, in the absence of sufficient resources, especially capital, entrepreneurs, decision makers and, above all, the means and ability to bring them all into play, policy makers have to choose the projects that will make the greatest contribution to development, relative to their cost. Hirschman distinguished between substitution choices, those that involve a decision whether to undertake project A or project B; and postponement choices, those that involve a decision in the sequence of projects. Hirschman was mainly concerned with the latter type of decisions and argued that priority should be based on how advancement in one project would induce progress in another. He argued that preference should be given to that sequence of projects that maximizes "induced decision making". Inducements result from interdependence of activities, which can be measured in terms of backward and forward linkages.²

² Krugman (1995) argued that Hirschman's idea of linkages was vague due to its lack of formalization. He argues that some followers of Hirschman have identified linkages with "having a lot of entries in the input-output table" (Krugman 1995, 43). However, Krugman argued, "Hirschman's own discussion makes it clear that the idea involved

In the growth diagnostics approach of Hausmann et al. (2005), the focus is on identifying the binding constraints for purposes of policy reform. The underlying idea is that removal of a supposedly low number of key constraints (i.e., focused intervention) will have a larger impact on growth than the traditional approach based on a long list of reforms associated, correctly or incorrectly, with the so-called Washington Consensus, which intended to remove all distortions at the same time. Therefore, there is a connection between the theory of unbalanced growth and growth diagnostics, in that both propose focused interventions. According to Hausmann et al. (2005), countries that have conducted well-targeted reforms to remove the most severe binding constraints, such as the PRC in 1978 and India in 1980, display better growth performance than those countries that undertook comprehensive economic reforms. The growth diagnostics approach also takes the view that each country has its own binding constraints. This is also in sharp contrast with the traditional approach of directing the same Washington-consensus-style reforms in all countries.

It is important to note that, by focusing on investment, the growth diagnostics approach is reminiscent of the idea that developing countries' main problem is the shortage of capital equipment and productive capacity (the latter understood as potential production). In terms of the production possibility frontier, the problem of many developing countries is that some of the available resources are not fully utilized (e.g., people are unemployed). Under these circumstances, it is clear that growth requires higher utilization of the country's production capacity. The country, therefore, has to try to get closer to the transformation curve. This does not mean that developing countries do not suffer from inadequacy of effective demand or from allocative efficiency problems. Indeed they do. Effective demand problems are not entirely absent in developing countries and they can even become the binding constraints on production in developing countries at a fairly advanced stage of industrialization (e.g., PRC, Malaysia, Thailand).³ Effective demand problems (i.e., lack of demand) can be the result of, for example, being balance-of-payments constrained (McCombie and Thirlwall 1994). Certainly the problem of markets may limit developing countries' growth rate. For example, the export sector of developing countries could be expanded by bringing in foreign capital. Or, it could also be argued that, in the countryside, the capacity for producing goods is so variable, and can be expected to be so responsive to increases in demand that it can be thought of as being demand-determined.⁴

the interaction between market size and economies of scale. In Hirschman's definition of backward linkages, the role of market-size externalities linked to economies of scale is quite explicit: an industry creates a backward linkage when its demand enables an upstream industry to be established at least minimum economic scale. The strength of an industry's backward linkages is to be measured by the probability that it will in fact push other industries over the threshold. Forward linkages involve an interaction between scale and market size as well; in this case the definition is vaguer, but seems to involve the ability of an industry to reduce the costs of potential downstream users of its products and thus, again, push them over the threshold of profitability."

³ Even in these cases one must be careful not to confuse bottlenecks in some markets with a generalized problem of effective demand. If anything, the PRC still suffers from weak domestic demand, and while there are a few isolated bottlenecks in the economy, in general there are plenty of inputs, mostly labor, available to increase production.

⁴ For productive capacity to be fully utilized there must be sufficient effective demand. Classical (and neoclassical) economists believed this to be the case due to their belief in Say's Law (i.e., supply creates its own demand) and

Allocative efficiency problems are also present in developing countries. The combination of goods and services being produced in developing countries is often not the one that maximizes the value of output at the prevailing prices. Growth will occur then by producing a different combination of goods, even with a constant productive capacity. Think, for example, of problems in the agricultural sector when prices are highly regulated. Removal of this constraint will allow a significant adjustment in farmers' production, as they will respond to price signals. Growth in this case is said to be due to improvements in allocative efficiency. This is a problem that affects mostly developed countries. Their efforts are directed toward eliminating this inefficiency, e.g., reforms in product and factor markets.

Some developed and semi-industrialized economies possess a level of capital equipment that is adequate for the existing labor force. This allows them to generate high labor productivity and, consequently, a high income per capita, provided capital is fully utilized and is used productively. The problem in many developing countries is different. It is true that their capital equipment, however small, may be underutilized. The issue, however, is that even in case equipment were fully utilized, it would not be capable of absorbing the available labor force, leading to low capital–labor ratios, a form of underemployment. In other words, the problem of many developing countries is the *deficiency* of productive capacity rather than the *anomaly* of its underutilization (Kalecki 1966). Hence, most developing countries are often below full employment. Most likely, the poorer the country, the more important the problem of lack of productive capacity will be; while the more advanced the country, the more important the problem of lack of effective demand will be. From this point of view, the objective of development is to increase productive capacity, and the process of economic development may be described as a generalized process of capital accumulation.

Therefore, from the point of view of the national economy as a whole, the major obstacle to the development of many poor countries is the shortage of productive capacity. This is obvious in policy discussions in countries like India, Pakistan, or Philippines, where there are constant references to the “low investment” problem. This constraint (i.e., low investment) lowers growth and prevents the elimination of unemployment and underemployment, even when an increase in demand would make the expansion of output profitable.

This view of the role of capital in development is not, however, universally accepted. Lewis (2004, 247) has argued that “the way capital affects economic performance is not well understood.” He further elaborates: “Differences in labor productivity arise because of

the neglect of demand factors. Hence, they concluded that the level of production would correspond to productive capacity. The belief in Say's Law ultimately derives from the view that markets function efficiently and competitively so that the prices of all factors and goods speedily adjust to their equilibrium level at which demand equals supply. On these assumptions, all factors of production are fully utilized. Moreover, market forces allocate the resources available at any time in such an optimal manner that the total value of all goods and services produced in an economy is the maximum that can be attained.

the different ways firms have chosen to organize their labor and capital... those choices are heavily influenced by the nature of competition, which is determined primarily by government rules and regulations” (Lewis 2004, 247–48). We shall expound upon the implications of Lewis’s views in the next section.

The growth diagnostics methodology can be a useful tool for policymakers to formulate a focused development strategy in the presence of limited resources. It can also be a great help for donor agencies in order to set up priorities in their operations, therefore maximizing the impact of their assistance to the recipient countries. Even if we have comprehensive sector assessments for all major sectors, it is not feasible to determine priorities among the sectors for operational purposes. The lack of systematic assessment of binding constraints has at times resulted in fragmented or not well-focused operational strategies and programs. Therefore, donor agencies have “bought” the new approach and undertaken pilot testing exercises of this new approach in some countries.⁵

III. What are Limitations of the Growth Diagnostics Approach?

The growth diagnostics approach has, in our view, some limitations. This does not mean that the approach is incorrect or wrong. Quite the opposite. The approach indeed provides a well-structured methodology to think about why some countries do not appear to take off, and forces policy makers to seriously think about what prevents a poor country from growing faster.⁶ What we argue, as practitioners, is that the implementation of the growth diagnostics methodology is not a straightforward process; and second, that policy makers have to be aware of what we believe are some important issues in deciding whether this methodology is appropriate, given the problem(s) of the particular country under study. As development practitioners, we believe that the work of Hausmann et al. (2005) is only the start. The methodology has to be improved, as there are a number of loose ends. A total of 10 issues are discussed below.

⁵ Leipziger and Zagher (2006) report that the World Bank conducted 12 pilot studies (Armenia, Baltic countries, Bangladesh, Bolivia, Brazil, Cambodia, Egypt, India, Madagascar, Morocco, Tanzania, and Thailand) in 2005. The Asian Development Bank also conducted such exercise for the Philippines in 2007 (ADB 2007). The World Bank reports are available in the World Bank PREM website: web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/ORGANIZATION/EXTPREMNET/0,,contentMDK:20606439~menuPK:4833683~pagePK:64159605~piPK:64157667~theSitePK:489961,00.html.

⁶ We will not get into the debate of whether or not growth diagnostics is superior as a methodology to regression analysis.

A. Exclusive Focus on Economic Growth

The growth diagnostics approach focuses exclusively on economic growth. Hausman et al. (2005) indicate that 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. This is an important statement since as a result of focusing on economic growth, the approach places other important policy objectives of the government—including poverty, income distribution, environmental protection, and basic human needs—outside the approach’s scope.

B. Difficulties in Identifying Price and Nonprice Signals

Although the underlying idea is itself quite clear, in practice, it is not easy to find signals that guide the diagnostics process. The approach requires searching for both price and nonprice signals. Price signals in this context are the shadow prices of resources. If the shadow price of a certain resource is high, it is inferred that growth is constrained by the resource. However, in practice, it is not easy to measure shadow prices. It is thus inevitable for researchers to rely on theoretical grounds and indirect evidence for judging the scarcity of a resource. Moreover, even if we could measure the equilibrium price of a resource, this may not necessarily reflect a constraint on growth. Aghion and Durlauf (2007) explain this problem by discussing low interest rates under credit rationing.⁷

The authors of the growth diagnostics approach also recommend researchers to check nonprice signals, since, when a constraint binds growth, it generally results in activities and arrangements designed to get around the constraint. Strict government controls, for example, can lead to high informality in economic activities. The lack of adequate legal mechanisms can create informal mechanisms of conflict settlement. Application of this approach, therefore, requires in-depth knowledge of the economy being analyzed as well as the ability to rank interventions. This implies that it is possible for two researchers applying the growth diagnostics methodology to reach different conclusions.

C. Private Investment as the Key to Economic Growth

The growth diagnostics approach assumes, at least judging from the original work of Hausmann et al. (2005), as well from applications of the approach to some economies, that private investment is the key to economic growth. Certainly we do not accuse the authors of being “capital fundamentalists”. Our point is simply that we find it surprising that the problem, in every single case analyzed, is the same, namely lack of private investment. Earlier, Rodrik (1999) had already emphasized the central role of private

⁷ Credit rationing appears when financial institutions decide not to increase interest rates despite a higher demand for loans. This is done in order to avoid a higher default risk. Aghion and Durlauf (2007) argue that, with a high degree of credit rationing, a higher supply of loanable funds can result in a lower equilibrium interest rate. This implies that a low interest rate does not mean that the credit market is not constrained.

investment in order to achieve a higher growth rate, based on the assessment of the successful developing economies. Rodrik argued that “the key is to induce the private sector to invest by enhancing the perceived returns to private investments and to generate a virtuous cycle of profits, investments, and capacity expansion” (Rodrik 1999, 64). From this assessment, it is clear that the growth diagnostics approach is based upon Rodrik’s observation about the long-term growth performance of the successful countries.

The decision tree used in all studies so far conducted regards “low levels of private investments and entrepreneurship” as the key problem. Based on this assumption, these analyses try to identify the root causes of low private investment, and, hence, low growth. There is no single case where a different decision tree has been developed to analyze growth.⁸ This is consistent with the arguments in the Introduction, namely, that the objective of most developing countries is to increase productive capacity. Likewise, focusing on investment brings to mind Lewis’ idea that “the central fact of economic development is rapid capital accumulation” (Lewis 1954), and that the process of development is one of transforming a country from being a 5% saver and investor to a 12% saver and investor (Lewis 1955).⁹ In the same vein, Rosenberg (1960) argued that “One need not subscribe to a monocausal theory of development to argue that an increase in the percentage of annual output devoted to investment is an urgent and indispensable prerequisite to a long-term rise in real per capita incomes.... A central question in a theory of development, then, is: Why are rates of capital formation as low as they apparently are in most underdeveloped countries?” (Rosenberg 1960, 706–07). Rosenberg also argues that there are two main factors explaining capital deficiency, namely, low saving propensities and weakness in the inducement to invest. This is very much reminiscent of Hausmann et al.’s (2005) decision tree.

The relevance of investment is most likely true in the context of *igniting* growth. Indeed, there is no doubt that some critical level of (private) investment is needed to jump-start growth. However, once a country is growing, a high and increasing investment share may not be a necessary requirement in order to continue growing or even to accelerate growth. Indeed, historically, there are many countries that have achieved high growth without a high investment share. It is worth noting that Hausmann et al.’s (2006) work on growth accelerations (as defined in the Introduction) shows that, although these are correlated with increases in investment (i.e., growth accelerations seem to require more investment), the latter are not a predictor of growth transitions.¹⁰

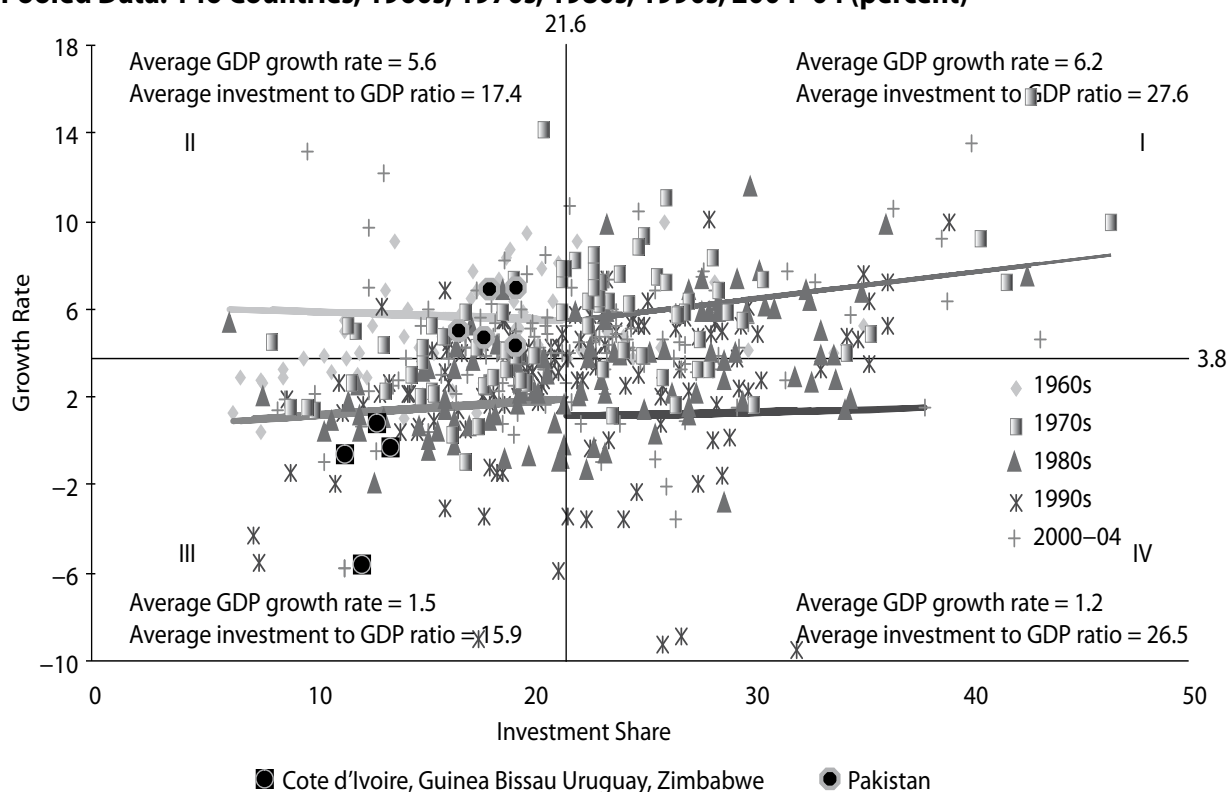
Figure 2 shows the scatter plot of annual (average) GDP growth during five subperiods: 1960–1969, 1970–1979, 1980–1989, 1990–1999, and 2000–2004; and the investment

⁸ See Boyer (2006), who has developed a different decision tree to analyze unemployment, i.e., what are the factors limiting employment?

⁹ Lewis (1955) indicated that the countries that are now relatively developed have at some time in the past gone through a rapid acceleration in the course of which their rate of net investment has moved from 5% [of national income] or less to 12% or more.

¹⁰ Their regressions do not even show this variable. We take this to imply that it was statistically insignificant.

Figure 2: Growth and Investment
Pooled Data: 146 Countries, 1960s, 1970s, 1980s, 1990s, 2004–04 (percent)



	SS	d.f.	MS	Number of obs	=	514
Source				F(7, 506)	=	87.55
Model	2724.922	7	389.2746	Prob > F	=	0
Residual	2249.938	506	4.446518	R-squared	=	0.5477
				Adj R-squared	=	0.5415
Total	4974.86	513	9.697583	Root MSE	=	2.1087

	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
igdp	0.121233	0.031502	3.85	0.000	0.059342	0.183125
DumII	3.409551	1.450798	2.35	0.019	0.559221	6.259882
DumIII	-2.305695	1.119980	-2.06	0.040	-4.506079	-0.105311
DumIV	-2.225211	1.908218	-1.17	0.244	-5.974216	1.523795
DumII_igdp	-0.154938	0.072091	-2.15	0.032	-0.296572	-0.013304
DumIII_igdp	-0.056894	0.052373	-1.09	0.278	-0.159790	0.046002
DumIV_igdp	-0.097447	0.070539	-1.38	0.168	-0.236033	0.041139
_Constant	2.817596	0.885695	3.18	0.002	1.077504	4.557688

Note: igdp is the investment share; DumII, DumIII, DumIV are dummies for quadrants II, III, and IV, respectively; and DumII_igdp, DumIII_igdp, DumIV_igdp are interaction terms

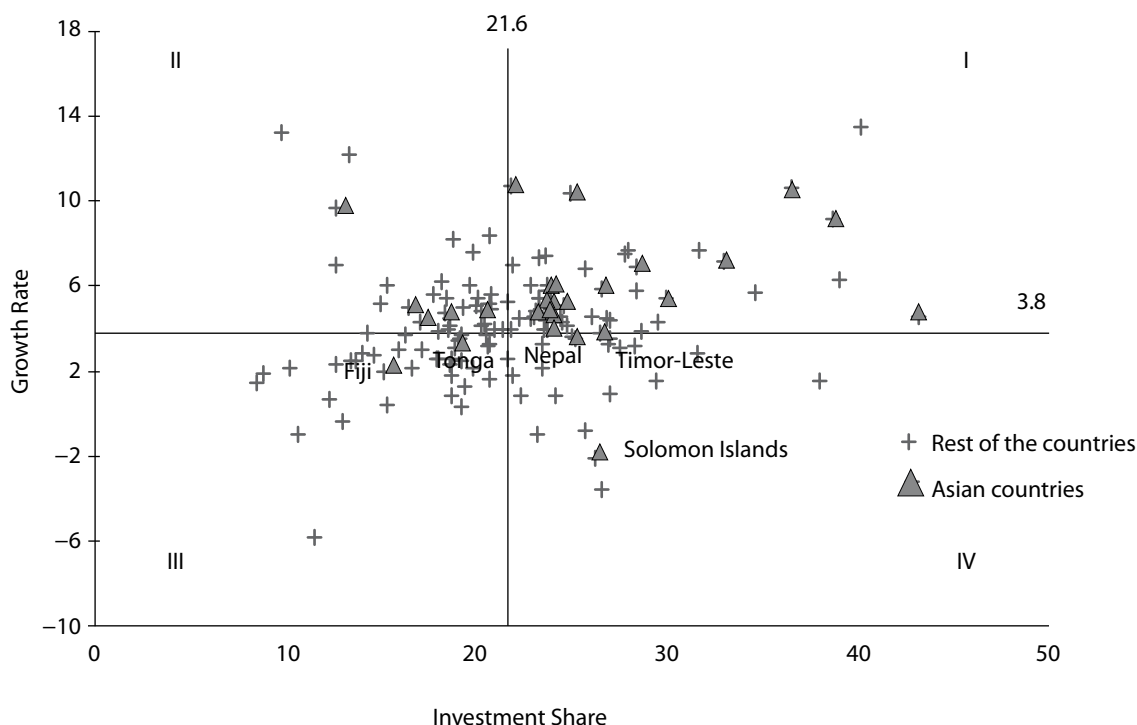
share in GDP (also average for each of the five subperiods) for 146 countries (this excludes the OECD countries), corresponding to a total of 514 data points (there is no data for some countries in some subperiods). The vertical and horizontal lines that divide all cases are the overall mean investment share (21.6%) and the overall mean growth rate (3.8%). These two lines therefore divide the countries into four groups: first quadrant (I), countries with above-average both growth rates and investment shares; second quadrant (II), countries with growth rate above the world average but investment share below the world average; third quadrant (III), countries with both growth rate and investment share below the average; and fourth quadrant (IV), countries with growth rate below the average but investment share above the average. Figure 2 also shows the mean growth and mean investment share for the countries in each quadrant. The average investment share in the first and fourth quadrants are about the same and about 10 percentage points higher than the average investment shares in the second and third quadrants. The average growth rate in the first and second quadrants are about 4–5 times higher than the average growth rate of the countries in the third and fourth quadrants.

The following can be concluded:

- (i) The relationship (correlation) between investment share and growth is positive and statistically significant (bottom of Figure 2).¹¹ We tested for the difference in the slope among the four quadrants. This is positive (with a slope of 0.121) in the case of quadrant I, the default quadrant in the regression; marginally significant for the countries in quadrant III (with a slope of 0.064); and statistically insignificant for the other two quadrants (i.e., the slope is not different from zero). This indicates that the positive relationship between investment share and growth rate often found in various studies is driven by the countries in quadrants I and III.
- (ii) The growth diagnostics methodology, as conceived initially by its proponents, should apply only to the countries in quadrant III, i.e., countries with both investment share and growth rate below the mean. Figure 3 shows the position of countries in 2000–2004, and Appendix Table 1 provides the list of countries by quadrant in 2000–2004. The objective of the methodology is to identify why countries are in this quadrant and consequently, propose policies so that they can shift to quadrant I (high investment share and growth rate). Where do the Asian countries lie? Most of them lie in the first or second quadrants.¹² Therefore, unless one chooses a criterion different from ours to classify countries, one cannot think that developing Asian countries suffer from a problem of low growth due to a low investment share.

¹¹ However, when the average growth of GDP was regressed on the average investment share lagged one period (i.e., one decade), the coefficient of the latter was statistically insignificant, the same finding reported by Easterly (2002, 39).

¹² Fiji and Tonga are in quadrant III; Nepal, Solomon Islands, and Timor-Leste are in quadrant IV.

Figure 3: Distribution of Countries in 2000–04 (percent)

- (iii) Again in reference to Figure 3, one could ask the following question: which of the countries in quadrant III in 2000–2004 had both *low* below-average growth rate and investment share? After all, the growth diagnostics methodology does not provide a benchmark to establish when a given investment share is low. We define *low* growth rate and *low* investment share as the (overall) mean minus one standard deviation, that is, 0.7% average annual growth rate, and 14.7% average investment share. These countries were Ivory Coast (–1% growth, 10.6% investment share); Guinea-Bissau (0.7% growth, 12.3% investment share); Uruguay (–0.4% growth, 13% investment share); and Zimbabwe (–5.8% growth, 11.5% investment share).¹³ These are the *only* countries to which, strictly speaking, the growth diagnostics approach applies.
- (iv) Countries in quadrant IV in Figure 2 cannot be said to be constrained by low investment as their average investment share is about the same as that of the countries in quadrant I.
- (v) Countries in quadrant II have achieved average growth that is not much lower than that achieved by the countries in quadrant I, but this was associated with

¹³ Admitting that in the case of these four countries the binding constraint to higher growth may be low investment, the broader question is: at what rate of growth and investment share does the growth diagnostics methodology become relevant? This is very sensitive and each researcher will have to decide.

a far lower investment share, hence they were more efficient.¹⁴ Some of the countries that belonged in quadrant II in Figure 2 are Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand in the 1960s; Indonesia in the 1970s; and the Philippines in 2000–2004. It is worth noting that Singapore and Thailand achieved their highest growth rate in the 1960s (9.5% and 7.8%, respectively), while they had the lowest investment share (19.8% and 20.5%, respectively). In particular, Singapore’s investment share increased during the last decades by more than twofold, although its growth rate is lower than what it achieved during the 1960s when its investment share was at the lowest. Malaysia achieved the highest growth rate in the 1970s (7.7%) and an investment rate of 22.9%, well below the investment shares of the 1980s and 1990s when its GDP growth was lower. The Indonesian and Korean cases are similar to that of Malaysia.¹⁵

- (vi) There is one and only one country in our sample whose growth rate in each of the five subperiods was above the world mean of 3.8% and whose investment rate was below the world mean of 21.6% (i.e., that has always been in quadrant II): Pakistan. Pakistan’s average investment share for 1960–2004 is 17.6% (4 percentage points below the world average), and the average growth rate for the same period is 5.4% (1.6 percentage points above the world average). It is therefore difficult to argue that investment is a binding constraint on growth in Pakistan. It is true that when Pakistan is compared with the most successful countries in Asia in terms of growth, its performance is not as stellar. But when placed in the world context, its performance is not disastrous. Moreover, when we graphed Pakistan’s annual growth rate since the 1960s a number of important features led to further questioning of the thesis that Pakistan’s problem is how to ignite growth. These are: (a) the economy is characterized by boom-bust cycles; (b) average growth, as noted above, during the last 40 years has been 5.4%; (c) there has not been a single year of negative growth; (d) important decelerations in growth are related to poor performance of the agricultural sector; and (e) the largest contributor to output growth is the service sector. We concluded that Pakistan’s key (macro) problem is not how to ignite growth, but

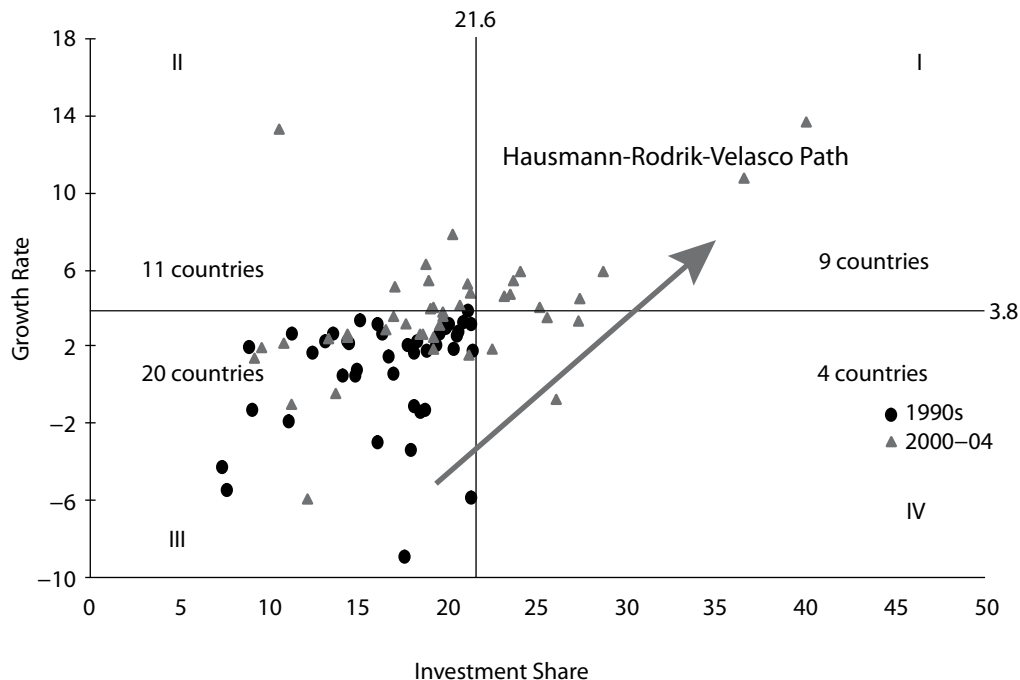
¹⁴ We are not implying that being in this quadrant is necessarily “better” than being in quadrant I. Some of the countries in this group may have achieved consumption-led growth combined with low productivity in agriculture and services, which requires little capital formation.

¹⁵ Obviously, if we had used decadal averages instead of the average growth rate and investment share for the whole period, results would have been slightly different. In the 1960s, the average growth rate was 4.96% and the average investment share was 18.3%. Among the fast growing Asian economies, only Malaysia was in quadrant II while Indonesia was in the third; Hong Kong, China; Korea; Singapore; and Thailand were in quadrant I. In the 1970s, the average growth rate and average investment share were 4.88% and 23.16%, respectively. The countries in quadrant II were Indonesia and Malaysia; Hong Kong, China; Korea; Singapore; Philippines; and Thailand were in quadrant I. In the 1980s, the average growth rates were 2.91% and 23.02%. Hong Kong, China; Indonesia; Korea; Malaysia; Singapore; and Thailand were in quadrant I, while the Philippines was in quadrant III. In the 1990s, average growth rates were 2.68% and 22.61%. Hong Kong, China; Indonesia; Korea; Malaysia; Singapore; and Thailand were in quadrant I, while the Philippines was in quadrant II. Finally, in 2000–2004, average growth rates were 3.99% and 21.8%. Hong Kong, China; Indonesia; Korea; Malaysia; Singapore; and Thailand were in quadrant I, while the Philippines was in quadrant II. This does not invalidate our general point that a high investment share does not lead to or is associated with a high growth rate.

how to avoid boom-bust cycles and how to industrialize. Moreover, any useful analysis of Pakistan's economy has to be framed in the context of the country's social backwardness, or what Easterly (2003) calls "the political economy of growth without development."¹⁶

- (vii) Figure 4 shows the transition path of the 44 countries that were in quadrant III in the 1990s. Appendix Table 2 provides the list of countries that belonged to quadrant III in the 1990s. We inquired where they shifted to in 2000–2004. Twenty countries remained in quadrant III. Nine countries shifted to quadrant I. These are the countries that followed what we call the "Hausmann-Rodrik-Velasco path", since they achieved a higher growth by (among other things) increasing their investment share. The other 15 countries shifted either to the second or to the fourth quadrants. We refer to the 11 countries that shifted to quadrant II as "efficient countries", as they achieved a growth rate about the same as that of

Figure 4: Transition Paths: Where did the Countries in Quadrant III in the 1990s Move to in 2000–2004? (percent)



¹⁶ Easterly (2003) argues that two possible theories in the field of political economy that might help explain Pakistan's situation are: (i) the dominance of an elite that does not support human capital investment in the masses; and (ii) the link between ethnic fractionalization and poor public service and institutional outcomes. Prichett (2003a, Table 5.1) argues that Pakistan (and a series of similar countries) is a country that is neither a technological leader nor an advanced industrial country, and is not in a poverty trap. It registers self-sustaining moderate growth. He asks: "Why do countries not have quite rapid convergence to the leaders in the absence of growth impediments?" (Prichett 2003a, 130).

the countries in quadrant I but with the need of a significantly lower investment share. The key finding here is that the Hausmann-Rodrik-Velasco path, assumed in the growth diagnostics approach, is only one option for countries to improve their growth performance. Growth is possible without a higher investment share. For these countries, the problem, if any, is not investment, but something else.¹⁷ And finally, four countries shifted to quadrant IV. We call these the “inefficient countries”, since they failed to accelerate growth even with a higher investment share.

D. Capital Accumulation as the Key to Growth and Development

As noted in the Introduction, Lewis (2004) has challenged the view that capital accumulation is the key to growth and development, as well as the public debate around the prescription that what poor countries need is more capital. He makes two crucial points: (i) capital *does not* automatically increase labor productivity; and (ii) what capital *does* is to increase the capacity for growth. This means that developing countries could increase their performance dramatically without any significant increase in capital. To become rich, however, they need additional capital. The problem in most developing countries is in the efficiency with which they use existing capital. To see this, one can think of the role of capital accumulation in a growth accounting exercise. The growth rate of the capital stock (\dot{K}) can be written as $\dot{K} = (\dot{K}/K) = (I/K) = (I/Y) \times (Y/K)$, where (I/Y) is the investment share and (Y/K) denotes capital productivity. This means that capital accumulation depends on two factors: one is the amount of investment (as a share of output), and the other one is the productivity with which this capital is used. This implies that two different countries could achieve the same growth rate of the capital stock with different investment shares, depending on the productivity of capital. Lewis’s point is that developing countries’ performance could improve substantially by working on this second factor. Lewis insists that “improving the rules and regulations governing competition would improve not only labor productivity *but also capital productivity*” (Lewis 2004, 251; emphasis added). Naturally, in the long run, and in order to become a rich country, developing countries with spare labor capability (i.e., labor surplus), need to build offices and manufacturing plants where these workers can work. That is, countries need to increase the capacity to produce goods and services. Lewis remarks: “Of course, the total capital required to increase capacity depends on the efficiency with which the capital is employed” (Lewis 2004, 250). It therefore seems that Lewis reverses the role of capital for purposes of igniting and sustaining growth, i.e., in the short run, developing countries do not need more capital; what they need is to use more efficiently the one they have. To achieve this, reforms of rules and regulations governing competition is the key. However, in the long run, and to become rich countries, developing countries will need more capital.¹⁸ This view is in line with that of Easterly (2002), who concluded that in the short run

¹⁷ In 2007, the Philippines achieved a growth rate of 7.3%, the highest rate in three decades, without increasing private investment. In fact, there was an increase in public investment.

¹⁸ Rodrik (1999) emphasized the key role of private investment for achieving a higher long-term growth rate, based on an assessment of the long-term growth performance of a number of successful economies. However, Hausmann

“...there is no evidence that investment is either a necessary or a sufficient condition for high growth [...] empirically, *increases* in investment are neither necessary nor sufficient for *increases* in growth over the short to medium run (Easterly 2002, 40; italics added).¹⁹ This agrees with Hausmann et al.’s (2006) work on the role of investment in growth accelerations discussed above.

E. Static Nature of the Problem

Another problem with the methodology lies in its *static* nature. It focuses on constraints that are binding today, but not necessarily in the future. In this sense, the approach was originally designed to detect binding constraints to “initiating growth” for stagnant economies. However, the problem of many economies, particularly in Asia, is not how to start growth but how to sustain their strong growth performance in the medium and long term.

Rodrik admits that “a policymaker interested in igniting economic growth may be better served by targeting the most binding constraints on economic growth—where the bang for the reform buck is greatest—than by investing scarce political and administrative capital on ambitious institutional reforms. Of course, institutional reform will be needed eventually to sustain economic growth. But it may be easier and more effective to do that when the economy is already growing and its costs can be spread over time” (Rodrik 2006, 12). It is clear that for Rodrik, sustaining growth requires long-term institutional changes so that economies can absorb shocks and promote diversification (Rodrik 2007b).²⁰ But this is different from the requirements to ignite growth. Hausmann (2006) argues that accelerating growth and sustaining high growth require very different approaches. If you have a country that is not growing much, the strategy to get it to grow fast should be to remove the most binding constraint. When the country is already growing fast, the challenge is to remove the future constraints as they become actually or potentially binding. For the originators of the growth diagnostics approach, growing economies are outside the scope of the growth diagnostics.

A related problem is the lack of distinction between the implementation of certain policies at a point in time, and the result of these policies, which may surface as a binding constraint later on. For example, following the Washington Consensus approach, a country may have been advised to cut its fiscal spending. This could result in underinvestment in infrastructure, which the binding constraints approach may later on identify as a binding constraint.

et al. (2005) seem to shift focus: the key to igniting growth is now private investment, while the key to sustaining growth in the long term is improvement in the quality of governance and institutions. In our view, this change in their position can be one of the sources of confusion about the objective of the growth diagnostics methodology.

¹⁹ On the other hand, Prichett (2003b) argues that the role of physical investment in growth is clear.

²⁰ Hausmann et al. (2005, 24) also argue that “Igniting economic 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.”

F. Today's Binding Constraints, or Tomorrow's?

Some recent growth diagnostics exercises, such as that of the World Bank (2006) for Morocco, argue forcefully the importance of targeting “constraints that might become potentially binding in the future but may require action now”. Indeed, Leipziger and Zagha (2006) argue that “even though the framework focuses on short-run considerations, it does not ignore constraints that will emerge in the long run.” However, application of the growth diagnostics in this direction faces the significant risk of losing its genuine value as a tool for prioritizing policy reforms. Empirical evidence about today's binding constraints may be found; but it is much more difficult, perhaps impossible, to find evidence on what tomorrow's binding constraints might be. Once one starts considering future possible binding constraints without having clear assessing criteria (i.e., diagnostics signals), almost all interventions and reforms can be easily justified, resulting in not well-focused strategies. Understanding this problem is of significant importance for making this new approach operational and for a correct formulation of strategies. In this sense, one needs to recognize that the growth diagnostics approach is a tool to prioritize policy reforms needed for igniting growth in stagnant economies.

G. Sequencing Policy Reforms

While the question of how to sequence projects was a key issue in Hirschman's (1958) unbalanced growth theory, the growth diagnostics approach does not deal, at least directly, with the sequencing of policy reforms. Instead, the approach suggests that policy makers should tackle current binding constraints. This can be easily understood by considering a simple case. Assume that the growth diagnostics exercise has identified poor banking intermediation as a key binding constraint. This means that policy makers should focus on banking sector reforms. However, in formulating a plan and strategy for reform, for example, to be undertaken during the next 5 years, policy makers may consider reforms not just in the banking sector, but overall in the financial sector. Policy makers (and donors) would therefore lay out a reform plan for the medium and long term, including second-generation reforms (e.g., capital markets). The initial growth diagnostics approach, however, did not contemplate this longer reform sequence. The problem is that if one starts considering the sequence of reforms in the overall financial sector, the value of the growth diagnostics approach vanishes, since the decisions about what to reform next (i.e., after the banking sector) are not based on a growth diagnostics exercise. Moreover, if after the banking sector reforms have been implemented, another growth diagnostics exercise were to be undertaken, this may or may not indicate that the new binding constraint is in the financial sector.

H. Independence of Decisions and Branches

A critical assumption in the growth diagnostics approach is the independence of the branches in the decision tree. For example, the two upper branches of Hausmann et al.'s (2005) decision tree, namely, high cost of finance and low private economic returns, may not be independent, i.e., probably the same forces that explain one cause also explain the other one. Indeed, the savings rate can be low due to lack of investment opportunities; and investment opportunities can be limited due to low saving. This implies that high cost of finance and low return to investment (the starting point of the tree diagram) cannot be treated as causes of low investment. Dixit (2005) argues that, in reality, each case of development failure may have multiple causes acting simultaneously. He proposes a framework for narrowing down or identifying the causes of failures, but it remains at the conceptual level.²¹ This also implies that once one opts for one branch then all other possible causes associated with the other branches are automatically discarded. For example, if early on the problem seems to be high cost of finance, then coordination externalities or bad infrastructure would never be considered in the analysis.

I. Igniting versus Sustaining Growth

The approach does not explain what is the relationship between igniting growth and the policies associated with it (i.e., investment), and sustaining growth and the corresponding policies (i.e., development of institutions). How does the transition from one stage to the next occur? Are they unconnected problems? Moreover, how do we know when a country shifts from one phase into the next? While the authors, in particular Rodrik (2007a, section B), elaborate upon how to design institutions for sustaining growth during the second stage, the transition path from the first stage remains vague. In our view, the authors implicitly assume that adequate policies and reforms at each stage are totally independent and do not have any interconnection. Thoma (2007, 21), however, argues: "I would like to see the connections between the two stages, particularly how to set conditions in the first stage so as to make the second stage more likely, explored in more depth." As discussed in Hausmann et al. (2006), the first phase of igniting growth seems to be much easier than getting to the sustaining process at the second stage. We thus should know more about the transition path to situate the growth diagnostic approach into a broad development strategy for developing countries.

Take a country like the Philippines, for years labeled the "sick man of Asia". The diagnostic for a long time was that chronic underinvestment, corruption, economic mismanagement, large budget deficit, and political instability prevented it from matching

²¹ This problem may appear in other parts of the tree. For example, and in the context of the Philippines, the high cost of external finance during 2002–2006 was due to the perceived fiscal crisis and the high public debt burden. Also, the boom-bust cycles that characterize the performance of countries like Pakistan or the Philippines could be related to the current account (or investment–savings) deficits during periods of high growth, which put a break on the acceleration of growth. The current account deficit may be due to the inability to promote export growth, itself related to problems of self-discovery and an overvalued currency.

the performance of its regional peers. However, in 2007, the Philippines achieved a growth rate of 7.3%, the highest rate in three decades. Does this mean that policy makers removed successfully the most binding constraints? Can we take this to mean that the country has shifted from the phase of igniting growth to that sustaining it?²²

J. From One Extreme to Another One?

Finally, the growth diagnostics approach represents the opposite of the much-criticized Washington consensus approach to reforms. If the latter suffers from the “laundry-list” problem (i.e., reform everything), it is difficult to believe that one can single out *the* most binding constraint to growth. Growth is a very complex phenomenon that cannot be reduced to one single cause.

IV. Some Final Thoughts

For the reasons discussed in the previous section, there seems to be considerable confusion among researchers about the aim of the growth diagnostics approach. For example, Leipziger and Zaghera (2006) argue that “the growth diagnostics framework applies to stagnant as well as rapidly growing economies” and that “conceptually, the question relates to the increase in the growth rate. Asking whether a zero growth rate can be increased is no different from asking whether a positive growth rate can be increased.” We think this is grossly misleading. How can policies and reforms needed to initiate growth in a stagnant African country be same as those required to further increase the PRC’s already high growth rates (or even to prevent them from falling)?

A possible reason for this unfortunate confusion can be that, in their original paper, Hausmann et al. (2005) did not elaborate upon the difference between “igniting growth” and “sustaining growth”. They chose three countries as case studies, namely Brazil, Dominican Republic, and El Salvador. Figures 5a, 5b, and 5c show the transition paths of these three countries. Their intention to apply the growth diagnostics approach to Brazil and El Salvador was to show that their decision tree (starting from low private investment) could lead to different outcomes at the end of the decision tree. According to their exercises, El Salvador’s growth is constrained by high discovery costs; and Brazil’s by high cost of finance. Why then did the authors need to refer to the Dominican Republic? In our view, it is of critical importance to understand this case in order to recognize the difference between *igniting* and *sustaining* growth. Although Hausmann et al. (2005)

²² The nature of the engine of growth in the Philippines is an important issue. In the Philippines, the recent high growth is very much related to the increase in overseas remittances, which during the last 5 years ballooned (leading to a current account surplus despite a trade deficit). This is inevitably a consumption-led growth model, which may have consequences for long-run growth (due to low investments). See the excellent analysis by Magnoli Bocchi (2008).

Figure 5a: Transition Path of El Salvador

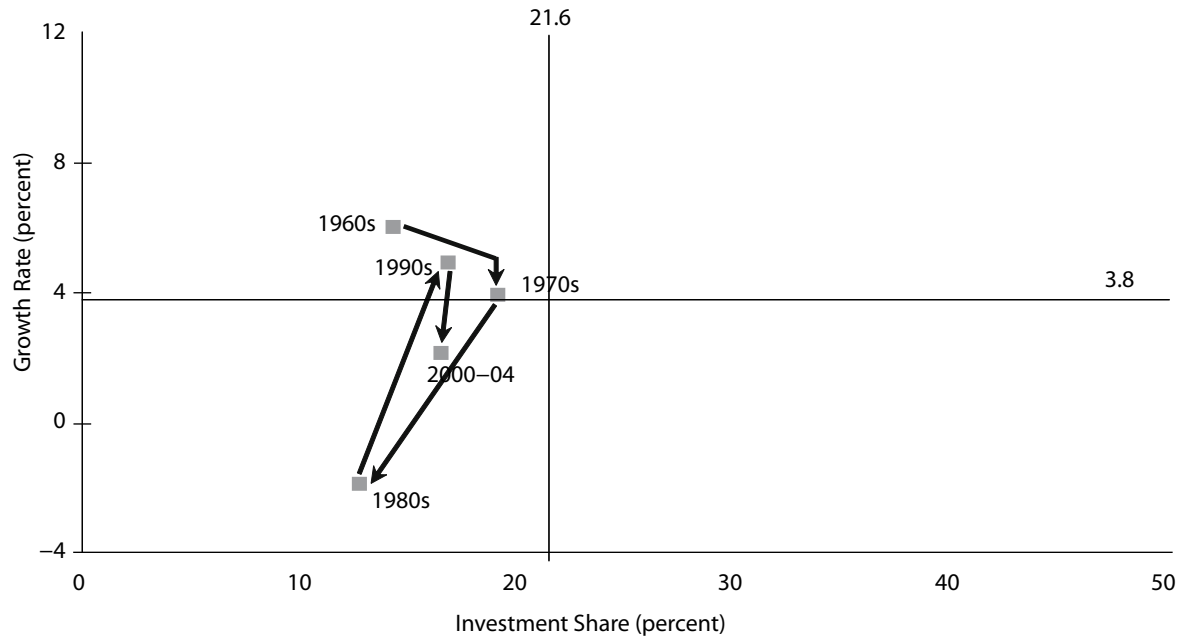


Figure 5b: Transition Path of Brazil

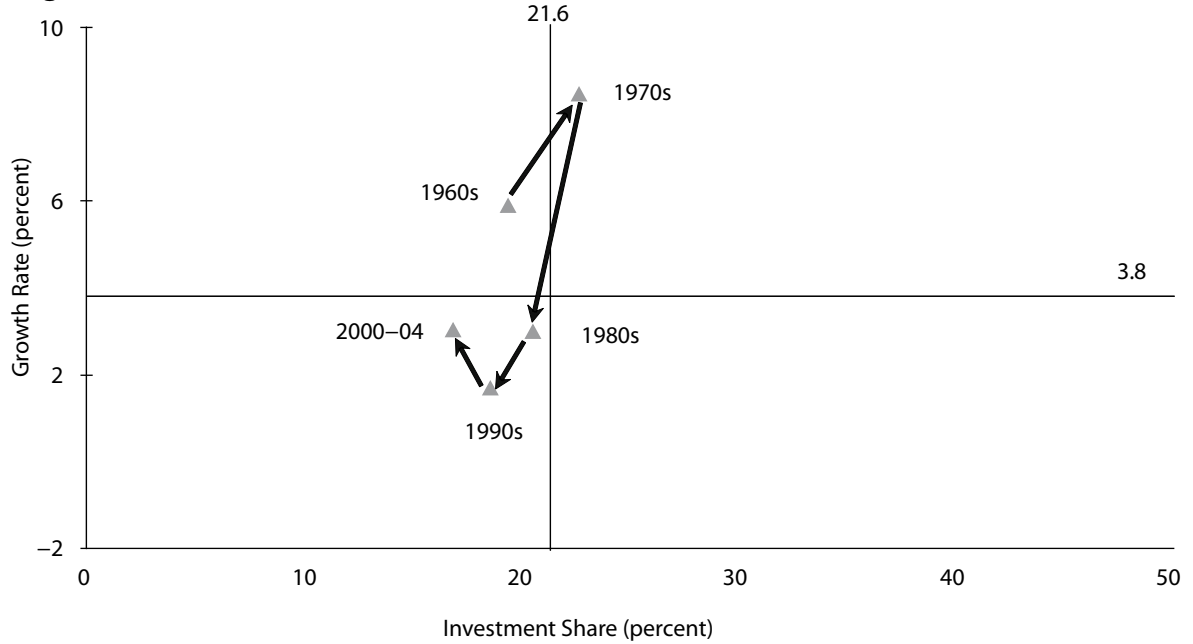
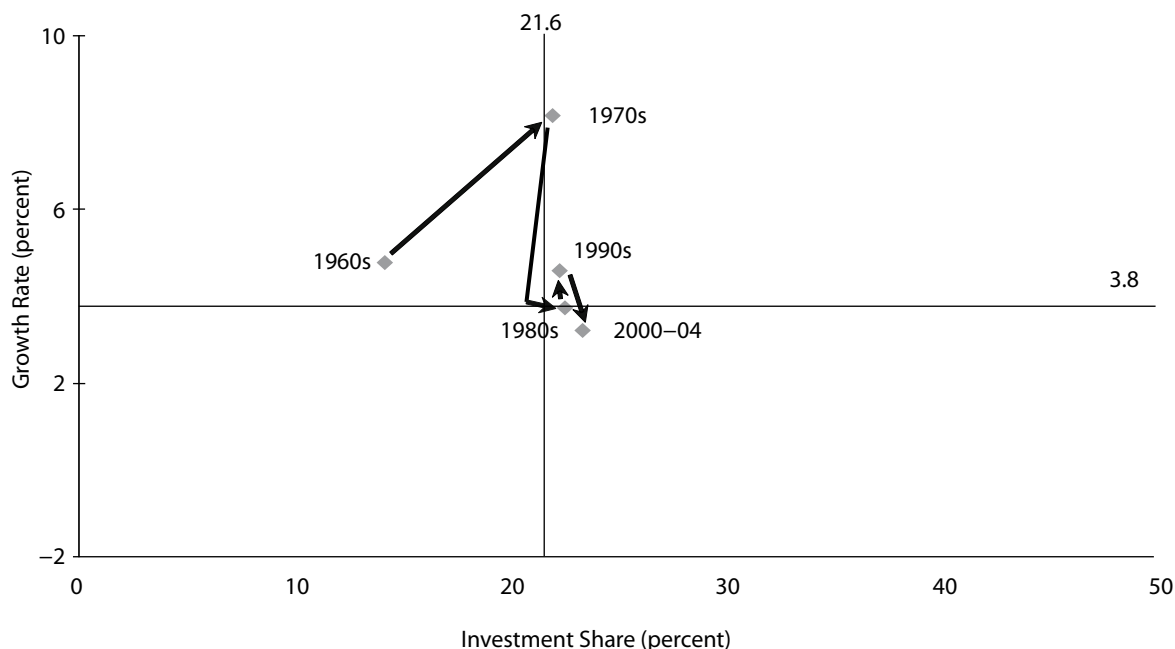


Figure 5c: Transition Path of the Dominican Republic

discussed the Dominican Republic, they did not apply the decision tree. They argued that its recent economic stagnation was an inevitable result of policymakers' failure to invest resources in institutional reforms and good governance when the country enjoyed favorable growth in the 1970s. The authors, intentionally, picked up the experience of the Dominican Republic to show the difference between igniting growth and sustaining growth. However, an unfortunate confusion was created by the authors' failure to provide a thorough explanation of this case.

Moreover, the analyses of El Salvador and Brazil seem to disregard that these economies were, like the Dominican Republic, in quadrants I and II in the previous decades. While El Salvador and Brazil were in quadrant III in 2000–2004, suggesting that the growth diagnostics approach can be applicable to accelerate their growth rates, the long-term growth paths of the two countries indicate that they achieved higher growth in the 1960s and 1970s, when they were in quadrants I and II. This implies that by looking at these two countries at only one point in time, the authors lost the historical perspective and seem to have missed the point that one or two decades earlier they had achieved faster growth, and not necessarily with a higher investment share. Analysis of the reasons for why these countries' performance worsened during the 1980s may have led to a different decision tree or to an altogether different type of study.²³

²³ One cannot ignore, for example, the civil war in El Salvador; and the impact of the debt crisis on Brazil.

The conclusion, in our view, is that the growth diagnostics approach is a methodology devised to uncover the key problem that constrains investment and, therefore, prevents igniting growth by increasing the rate of accumulation. But for countries already growing (like most Asian countries), the basic question is different; in most cases, it is how to sustain it; therefore, analyses should concentrate on reforms. For these countries, researchers must design their own growth diagnostics exercise through a completely different decision tree, as there are many different ways in which one can proceed and conceptualize the problems affecting each country. Therefore, the question asked cannot be *how to ignite growth*, and the decision tree (if any) cannot start on a low investment rate. The route taken will depend on the question of interest. The latter should be either an important feature about a country's growth profile (e.g., what causes boom-bust cycles?); and/or a question with policy relevance (e.g., why has the country failed to industrialize?). Finally, there is no reason why researchers cannot apply a combination of approaches that will yield different but complementary views of the question being addressed.

Appendix

Appendix Table 1: Distribution of Economies by Quadrant, 2004

Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Albania	Angola	Argentina	Czech Republic
Algeria	Bahrain	Bolivia	Dominican Republic
Armenia	Benin	Brazil	Eritrea
Azerbaijan	Bosnia and Herzegovina	Burundi	Gabon
Bangladesh	Bulgaria	Colombia	Grenada
Belarus	Cambodia	Comoros	Guyana
Belize	Cameroon	Congo, Dem. Rep.	Haiti
Botswana	Chile	Costa Rica	Jamaica
Chad	Egypt, Arab Rep.	Cote d'Ivoire	Mauritania
People's Rep. of China	Ethiopia	Djibouti	Mexico
Congo, Rep.	Gambia, The	Dominica	Nepal
Croatia	Jordan	El Salvador	Nicaragua
Ecuador	Kuwait	Fiji	Seychelles
Estonia	Kyrgyz Republic	Guatemala	Slovak Republic
Georgia	Lebanon	Guinea	Slovenia
Ghana	Macao, China	Guinea-Bissau	Solomon Islands
Honduras	Pakistan	Israel	St. Lucia
Hong Kong, China	Philippines	Kenya	St. Vincent and the Grenadines
Hungary	Rwanda	Macedonia, FYR	Timor-Leste
India	Senegal	Madagascar	Venezuela, RB
Indonesia	Serbia	Malawi	West Bank and Gaza
Iran, Islamic Rep.	Serbia and Montenegro	Malta	
Kazakhstan	Sierra Leone	Montenegro	
Korea, Rep.	Sub-Saharan Africa	Niger	
Lao PDR	Sudan	Oman	
Latvia	Tajikistan	Panama	
Lithuania	Tanzania	Paraguay	
Malaysia	Trinidad and Tobago	Peru	
Maldives	Uganda	Poland	
Mali	Ukraine	Saudi Arabia	
Mauritius	Uzbekistan	South Africa	
Moldova		Swaziland	
Mongolia		Syrian Arab Republic	
Morocco		Togo	
Mozambique		Tonga	
Namibia		Uruguay	
Nigeria		Zimbabwe	
Romania			
Singapore			
Sri Lanka			
Suriname			
Thailand			
Tunisia			
Turkey			
United Arab Emirates			
Viet Nam			
Yemen, Rep.			
Zambia			

Appendix Table 2: Countries that were in Quadrant III in the 1990s: Transition in 2000–04

	Country	1990s	2000–04
1	Albania	Q3	Q1
2	Chad	Q3	Q1
3	Croatia	Q3	Q1
4	Croatia	Q3	Q1
5	Ecuador	Q3	Q1
6	Georgia	Q3	Q1
7	Nigeria	Q3	Q1
8	Suriname	Q3	Q1
9	Zambia	Q3	Q1
10	Azerbaijan	Q3	Q2
11	Bulgaria	Q3	Q2
12	Cameroon	Q3	Q2
13	Ethiopia	Q3	Q2
14	Kyrgyz Republic	Q3	Q2
15	Rwanda	Q3	Q2
16	Senegal	Q3	Q2
17	Sierra Leone	Q3	Q2
18	Sub-Saharan Africa	Q3	Q2
19	Tanzania	Q3	Q2
20	Trinidad and Tobago	Q3	Q2
21	Brazil	Q3	Q3
22	Burundi	Q3	Q3
23	Colombia	Q3	Q3
24	Comoros	Q3	Q3
25	Congo, Dem. Rep.	Q3	Q3
26	Cote d'Ivoire	Q3	Q3
27	Djibouti	Q3	Q3
28	Kenya	Q3	Q3
29	Macedonia, FYR	Q3	Q3
30	Madagascar	Q3	Q3
31	Niger	Q3	Q3
32	Nigeria	Q3	Q3
33	Peru	Q3	Q3
34	Saudi Arabia	Q3	Q3
35	South Africa	Q3	Q3
36	Swaziland	Q3	Q3
37	Togo	Q3	Q3
38	Tonga	Q3	Q3
39	Uruguay	Q3	Q3
40	Zimbabwe	Q3	Q3
41	Haiti	Q3	Q4
42	Mauritania	Q3	Q4
43	Slovenia	Q3	Q4
44	Venezuela, RB	Q3	Q4

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About the Paper

Jesus Felipe and Norio Usui discuss the growth diagnostics methodology of Hausmann, Rodrik, and Velasco (2005) and warn against an indiscriminate use.

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