INTERNATIONAL MONETARY FUND

Can PRGF Policy Levers Improve Institutions and Lead to Sustained Growth?

Prepared by the Research Department

In consultation with Other Departments

Approved by Raghuram Rajan

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I. INTRODUCTION

1. There is now widespread agreement that broad economic institutions—which define the rules of the game in society for economic transactions—are of first order importance for long-run income growth (see International Monetary Fund, 2003; Rodrik and others, 2004; and Acemoglu and Johnson, 2005). Strong institutions imply effective property rights and mechanisms for enforcing contracts, thereby promoting investment and efficiency.

2. To the degree that institutions are key to successful economic development, there is a dilemma for those—including the Fund—with a strong interest in seeing countries achieve the conditions for self-sustained growth. The dilemma arises because the vast majority of low-income countries do not at present have sufficiently strong broad economic institutions, while changing these institutions is a slow and difficult process, and not generally something that outsiders can easily influence. If these broad institutions are the lynchpin for a sustained acceleration in growth, it is hard for the Fund and others to know how to define their role.

3. One possible implication is that the Fund needs to take a hard look at successful episodes of development that were sparked in situations where broad institutions were weak—in order to draw lessons about which policy levers, if any, have been effective in fostering sustained growth despite adverse initial conditions. This is clearly the critical issue since, for the most part, weak broad institutions are a fact of life in most LICs where the need to foster the conditions for sustained growth is most acute.

4. Of course, if there were no exceptions to what might be called a 'rigid' institutional view of development, there would be little opportunity to draw relevant lessons—since there would be few episodes of sustained growth with initially weak institutions. Fortunately, however, this is not the case. In particular, by examining growth experiences over the last four decades, we can find a number of instances in which countries were able to sustain rapid growth even though their initial institutions were weak. Beyond this, it turns out that countries able to ignite and sustain growth with weak initial institutions were also successful in upgrading the quality of their broad institutions during their growth episode. For this group, there is a kind of virtuous circle of policy levers being used to ignite growth in the face of weak institutions, growth being sustained, and institutions being improved, possibly laying the foundation for an improvement in long-term growth prospects. What this paper attempts to do is to draw some lessons about what policy levers appear to have been particularly effective—i.e., present in the majority of successes but not in the countries that did not sustain growth—and to draw some tentative implications for PRGF program design.[1]

[1] The findings here should be regarded as closer to case studies than to causal results. They are suggestive but not conclusive with regard to causation.

5. Our sample consists of 47 developing countries that experienced rapid growth at some point during the post-War period. This sample allows us to concentrate on cases where growth was, by definition, possible. Of these, we focus particularly on the 43 cases that started a significant growth episode with initially weak institutions. Of these, about 12 experienced sustained growth—15-year or longer episodes—and the preponderance of these also saw the quality of their broad economic institutions improve during this growth episode. As for the policy levers—many of which are included in PRGFs—what stands out in the data is the importance of rapid export growth (particularly of manufactures) during the growth episode, helped by liberalized trade, the avoidance of exchange rate overvaluation, and the avoidance of macroeconomic instability; in the sustained growers, there is also evidence of a relatively high average level of educational attainment at the start, and less inequality compared to other developing countries. Countries that could not sustain growth with initially weak institutions encountered significant exchange rate misalignment or macroeconomic instability; these problems curtailed their expansions.

6. These findings support the view that economic institutions remain central for sustaining long-run growth. At the same time, however, they suggest that the Fund can be involved in a potential virtuous circle, through which growth and the policy levers used to achieve this lead to positive institutional change. While one cannot be definitive about the underlying mechanisms, a possible explanation is that growth in manufactured exports benefits a broad cross-section of the population (in a way that natural resource-based growth does not), which then creates a constituency for improving institutions more broadly.

7. The remainder of this paper is organized as follows. Section II argues in favor of the emerging consensus that broad institutions are central to sustained growth, and asks to what extent the policy levers in the Fund's mandate can foster economic growth and institutional change when broad institutions are initially weak. Section III attempts to answer the foregoing question by looking at episodes of sustained growth beginning from a weak institutional starting point. Section IV draws out some possible implications for PRGF program design. The main conclusions are summarized in Section V.

II. INSTITUTIONS AND GROWTH

8. Economic thinking about growth has changed a great deal over the last 15 years. Post-war growth theory stressed the need to accumulate factors of production—capital, and unskilled and skilled labor—and to increase the productivity with which these factors are used. But it left unanswered what has proved to be the more basic and essential question: under what conditions do countries accumulate factors and improve productivity? To answer this, attention has turned increasingly to broad economic institutions.

9. Broad economic institutions are the set of laws, rules, and other practices that govern property rights. They also encompass the provision of law and order, and efficient bureaucracies. Good economic institutions create effective property rights, including both protection against expropriation by the state (or powerful elites), and enforceable contracts between private parties. Although this definition is far from requiring full equality of opportunity in society, it implies that societies where only a small fraction of the population have well-enforced property rights do not have good economic institutions.[2]

10. Weak economic institutions mean insecure property rights for most people. Insecure property rights can arise from expropriation by the state or powerful elites (often manifest in the form of corruption) or from severe political instability (e.g., failed states and conflict/post-conflict situations). Serious crime and the collapse of the state's capacity to maintain public order can very quickly undermine property rights. Thus, good economic institutions are essential to create markets and sustain efficient market transactions.

11. In the case of institutions, perceptions are key—if a government can persuade entrepreneurs that they will be protected, that country can do well with relatively little in the way of formal rights. However, perceptions eventually need to be underpinned by actual protections, i.e., if property is stolen or expropriated, there should be recourse or appeal of some meaningful kind. Property rights are never perfect, and conflicts often emerge between alternative claimants on property. The issue is the extent to which property rights are protected, preferably by a fair and transparent process of dispute resolution.

12. The centrality of institutions in the growth process rests on the notion that if a country builds good institutions, entrepreneurs will invest in capital goods and ordinary people will invest in human capital. Empirical results from a range of authors over the past decade suggest that the magnitude of the impact is likely to be substantial. For example, as discussed in the September 2003 WEO, an improvement in sub-Saharan Africa's level of institutional development from its current average to the mean of developing Asia could be associated with as much as an 80 percent increase in its per capita income (from $800 to over $1400).[3]

13. A great deal of the Fund's work, lending, and technical assistance involves conditionality relating to policies or narrow institutions—including with respect to central banks, fiscal authorities, regulatory bodies, etc. The question that arises is to what extent policies and/or narrow institutions can really be changed when broad institutions are weak.

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[2] In a number of resource-rich economies, property rights are reasonably protected for at least some people in the resource sector itself, but similar protection may not exist economy-wide.

For example, some evidence suggests that establishing an independent central bank may be of limited value for controlling inflation when property rights are weak. This raises questions whether targeting narrow institutions when broad institutions are weak can be an effective means to a development or macroeconomic objective.

14. Since the Fund cannot change broad economic institutions directly, but has a role in supporting policies that will be conducive to medium- and long-run growth, the extent to which policy levers are useful in accelerating growth is of great practical importance. One way of shedding light on the issue is to examine episodes of sustained growth to see what role the Fund's usual policy levers played where broad institutions were initially weak.[4] If these policy levers can be successful in promoting growth and also in the gradual strengthening of institutions, then a virtuous circle can be created that lays the basis for sustained growth in the long run. This issue is taken up in the next section.

III. SUSTAINED GROWTH EPISODES

15. Following Hausmann and others (2004), we focus on two groups of countries, comparing them with each other and with the sample of all developing countries. Both experienced growth accelerations of at least 2 percentage points per capita; sustained growth of at least 3½ percent per capita for seven years; and achieved a higher post-acceleration income level than the pre-acceleration peak.

16. The focus here is on how countries manage to sustain growth despite weak initial institutions, so countries that had strong institutions already in 1960 are excluded.[5] We define a first group—sustained growth countries (SGs)—whose growth per capita remains above 3 percent after the seven years, and a second group of unsustained growth cases (USGs) where growth falls below 3 percent after seven years. We are interested in understanding what distinguishes SGs from the USGs, with the commonality between them being the generally weak institutions at the start of the growth spurt.

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[3] See also Acemoglu and others, 2001, and Rodrik and others, 2004, for the empirical analysis that gives rise to these estimates.

[4] The Global Monitoring Report (2005) also examines the determinants of growth accelerations but does not focus specifically on countries with weak initial institutions.

[5] Four countries—Botswana, India, Mauritius, and Sri Lanka—that began their growth spurt with strong institutions, are excluded for reasons discussed above.

17. Figure 1a plots growth of the countries in the sample against the initial level of political institutions, measured by the Polity IV rating of constraint on the executive. While this measure (which ranges from 1 to 7—strongest) captures the quality of broad political rather than economic institutions, the available evidence suggests that both broad political and economic institutions were weak for most of the sample of countries at the beginning of their growth spurts.[6] As can be seen in the Figure, most sustained growth cases, denoted by their 3-letter country codes, had weak initial political institutions (average of 2.1) and in this regard were even lower than the USG cases (average 2.8) denoted by dots in the figure.[7]

18. Figure 1b shows the level of income at the start of the growth episode. The SGs appear to have started from quite different income levels: some, like China and Thailand, had incomes per capita (in PPP terms) close to US$1,500 when their episode began, while others, like Singapore and Chile, started growing rapidly at incomes around US$5,000 per capita.

19. Figure 1c depicts the length of time elapsed since high growth began, and average growth over the period. Growth episodes for the SGs have been long lasting, e.g., 40 plus years for Korea, Taiwan Province of China, and Thailand, and over 35 years for Malaysia and Singapore. China, Vietnam and Chile have had impressive growth over a shorter period so far. Sustained growth with weak initial institutions has obviously been achieved in this group of countries.

20. Figure 2a illustrates that the SG countries generally attained great success in manufacturing exports. The average increase in the ratio of manufacturing exports to GDP for this group over their growth episode was about 36 percentage points. Figure 2b shows that some countries, especially Singapore and to a lesser extent Korea and Malaysia, achieved a rapid increase in manufacturing exports at a very early stage (specifically, in the first five years of their spurt). Clearly, there was two-way causality between exports ratios and growth, but even to the extent that early rapid export growth was a proximate cause, it raises the question as to the underlying policy choices that facilitated this growth.

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[6] While comparable direct measures of the quality of broad economic institutions at the beginning of the SGs' growth spurt are unavailable, the evidence does suggest that in the cases of Korea and Singapore (1960s) and China (1980s), for example, the investment climate improved dramatically during the growth period (World Bank, 1993). Available data are not good enough to support more precise conclusions, but it appears that in the preponderance of SG cases, the improvement in economic institutions was early on, perhaps within five years of the growth acceleration.

[7] Triangles represent the four countries that experienced growth acceleration with strong broad institutions already in place.

21. One obvious candidate is trade liberalization. Figure 3a plots growth against the percentage of time from the growth spurt that a country was characterized as being open according to the Sachs-Warner (1995) measure as updated by Wacziarg and Welch (2003). Here, the result seems to be that liberalization is, generally speaking, much more a feature of the SGs' experience than of the USGs'. While it is true that some SGs did not liberalize, the weight of the evidence points in a different direction, as the examples of Indonesia, Korea, Malaysia, Singapore, and Taiwan Province of China show. In terms of the aggregate data, the average percent of years that a country has been open (since the growth acceleration began) is 58 percent for the SGs and less than half that for the USG cases.

22. Figure 3b looks at another factor that may have supported export growth, namely the maintenance of competitive exchange rates.[8] Here the difference between SGs and USGs is striking. While both SGs and USGs had modest (less than 10 percent) *average* misalignment over the entire sample, these averages mask periods of very large overvaluation for the USGs, but generally not for the SGs. This can be seen in Figure 3b, which plots the maximum overvaluation episode for each country in the sample. It can be clearly seen that the incidence of severe overvaluation was much higher in the USGs, shown by dots, than in the SGs (shown by country codes), a factor that could well have been critical for the sustainability of growth episodes centered on an expansion of manufactured exports.

23. To some extent, avoidance of overvaluation, which could have played a role in the growth of manufactured exports, may have been related to countries' success in avoiding macroeconomic instability. Indeed, SGs tended to have a smaller size of government (measured as the government consumption/GDP ratio (Figure 4a)) and managed to follow prudent fiscal policies (measured as the general government balance/GDP ratio (Figure 4b)). Possibly as a result, they experienced less inflation. Figure 4c plots growth against a measure of nominal instability, the log of the average annual percent change in the parallel market

[8] Exchange rate misalignment is estimated for 1960, 1970, 1980, 1990, and 2000. At each point, a country's actual real exchange rate (measured as the log of the price of its GDP relative to U.S. GDP) is regressed on the log of its per capita (PPP) GDP—data are from the Penn World Tables. The difference between the predicted value (that is, the real exchange rate that should obtain based on the country's income level) and actual real exchange rate is a standard measure of misalignment (see the Appendix for further details). Misalignment is measured every ten years here because the underlying price data are compiled only every 5 or 10 years, so higher frequency data are unlikely to have significantly more information.

exchange rate.[9] The SGs experienced less nominal instability on average than the USGs.[10] Another question is whether economic opportunities—proxied, for example, by measures of educational attainment—were also a differentiating factor in the success of the SG countries. Figures 5a, 5b, and 5c, depict three measures of opportunity, two of which relate to educational attainment and one to economic inequality. The educational attainment measures are gross primary and secondary enrollment ratios at the time of the growth spurt (from the World Bank's World Development Indicators), and the inequality measure is the Gini coefficient. In all cases, the SG countries had higher levels of educational attainment and lower levels of inequality, suggesting that initially weak political institutions—a feature of all countries in the sample—may have coexisted with broader economic opportunity.

24. Finally, it is worth noting that although SGs began their growth episodes with weak political institutions, over time they seem to have benefited from a virtuous circle in which economic and political institutions improved alongside policy actions in the dimensions discussed above. As Figures 6a and 6b show, the SGs improved their economic institutions (as measured by investment risk) over time.[11] Figure 6a shows the level of economic institutions around the mid-1980s—the earliest period for which data are available—and Figure 6b, the change from the mid-1980s to the early 2000s. Over time, broad economic institutions have clearly improved in the SG countries, although the relationship between growth and this change depicted in Figure 6b appears weak, possibly because economic institutions were already relatively strong by the mid-1980s in the SG cases, as the evidence in Figure 6a would appear to suggest.

25. In turn, the improvement in economic institutions has generally led to a strengthening of political institutions (Figure 6c). The SG cases improved their constraint on the executive rating by nearly 1, while USGs saw a decline in their ratings. This highlights the notion that

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[9] As argued by Satyanath and Subramanian (2004), this measure may better capture instability than a conventional inflation measure: first, because it is market-based and hence can get around the preponderance of regulated prices in LICs; and second, because it can capture instability on the external side such as currency crises, debt reschedulings, etc.

[10] Similar results are obtained if inflation, rather than instability in the parallel market exchange rate, is used as a proxy for nominal instability.

[11] The investment risk rating is the sum of three sub-components (contract viability/ expropriation, payment delays, and profit repatriation), where scores range from 0 to 4 on each sub-component. The measure thus varies from 0 (high risk) to 12 (low risk).

institutions are not immutable, but can respond to economic and policy changes, and thus that the quality of broad institutions is not a permanent barrier to long-term growth. A significant number of countries with sustained growth have found the policy space to improve their institutions over time, thus laying the foundation for sound growth in the medium run.

IV. Possible Implications for PRGF Program Design

26. Many of the relevant levers for sustained growth fall within the existing scope of PRGF conditionality. The SG cases direct attention towards four sets of policies: trade liberalization; exchange rate misalignment; macroeconomic stability; and possibly education. The focus in PRGFs on these areas would appear to be well justified by the cases discussed above, since those results suggest that policy levers in these areas would retain potency to durably accelerate economic growth even when broad economic institutions are weak. Beyond this, conditionality focused in these areas would appear to have potential to create a virtuous circle in which the broad institutions themselves are strengthened over time.

27. Aside from what an analysis of the cases in the previous section allows, PRGFs include conditionality that spans a range of other areas, from privatization to agriculture. Much of the data that would be needed to evaluate the role of policy levers in these other dimensions in past growth accelerations is simply not available. In such instances, the verdict on the effectiveness of such levers is still not in, though in some cases the logic of the lever's possible role in improving institutions is compelling enough to argue in favor of persevering with use of the lever. One example would be conditionality related to fiscal transparency which may be playing a helpful role at present not only with respect to macroeconomic stability (e.g., by reducing wasteful public expenditure), but also by improving some aspects of broad economic institutions (e.g., corruption). Conversely, conditionality pertaining to the costs of entry for new business—by spurring competition in the private sector—could be a useful potential area of focus in future PRGF programs, both insofar as such measures can facilitate efficiency enhancing reforms and adoption of new technologies, but also through a possible impact on the quality of broad economic and political institutions—by creating a legitimate small business sector that stands to benefit from better institutions.

28. Beyond these general messages, another issue is how today's PRGF countries should be viewed in relation to the likelihood that they are poised to embark on an extended period of sustained growth, as the SG cases discussed in the previous section did. In particular, is there a set of PRGF countries that could be on track to sustain high growth even though their initial (or even current) economic institutions are not strong?

29. Table 2 focuses on a set of promising performers in sub-Saharan Africa and compares them to the SG cases discussed earlier (and to some other comparators in sub-Saharan Africa

and the developing world). In terms of economic institutions measured by investment risk in the first column, the average for the group of promising performers (score of 7.9) is already above that for the SGs in the mid-1980s (score of 6.4). In terms of political institutions, as reported in the second column, many of these African countries already have a higher score than did the SGs when their spurts began. Institutions are not perhaps today very strong, but they are potentially good enough in parts of Africa, especially when compared with the SG cases at the time they embarked on their growth acceleration.

30. Turning to export performance, however, export-GDP ratios remain quite low among the group of promising sub-Saharan African performers in Table 2, and this is even more apparent when one focuses on manufactured exports. Part of the reason could lie with trade restrictiveness, though this does not appear to be the case from the data in Table 2 at least when compared to the SG cases at the start of their growth accelerations. Another possible explanation would appear to be currency overvaluation, where the promising performers indeed do not compare favorably with the SG cases at the onset of their growth spurts. Overvaluation, moreover, does not appear to reflect excessive inflation, which seems well contained across the countries in Table 2, and is in fact quite low by historical standards.

31. Turning to other levers, educational indicators vary considerably, though enrollment rates are lower among the promising performers than in the SG cases discussed earlier. Aid ratios are also relatively high compared to the SGs, perhaps affording more opportunities to expand spending on education and other productive social investments. One area that is perhaps worthy of further attention relates to businesses' costs of entry (the units in Table 2 are fractions of income per capita per annum) where the promising performers compare less favorably with other developing countries, a point that could attract greater attention in future PRGFs. This is an issue that may lie more within the World Bank's mandate, however.

V. CONCLUSIONS

32. Broad economic institutions are of fundamental importance for sustained economic growth. Changing these institutions is difficult, particularly for outsiders.

33. But this does not mean that there is no role for the Fund to play in assisting low-income countries to create conditions for sustained growth acceleration. In fact, the experience of countries with sustained growth is that—despite weak initial institutions—judicious use of policy levers within the core areas of the Fund's mandate could play a role in fostering sustained growth, and may even contribute to a virtuous circle in which growth picks up durably and broad institutions—for which direct levers do not exist—also improve.

34. In particular, the empirical analysis of the sustained growth cases suggests a key role for exports, especially of manufactures, underpinned by trade liberalization and a competitive real exchange rate. In addition, all the countries that sustained rapid growth did so with macroeconomic stability and relatively little inflation.

35. The Fund's emphasis—in PRGFs as elsewhere—on macroeconomic stability, trade liberalization, and avoidance of exchange rate overvaluation, can thus potentially sustain a virtuous circle in low-income countries, through which growth in manufactured exports creates constituencies for further reform and growth. Beyond the empirical analysis in the paper, there appears to be anecdotal evidence as well as strong economic logic to suggest that efforts to improve fiscal transparency and reduce costs of doing business could be helpful not only in terms of their favorable effects on nominal stability and growth, but also through positive effects on broad institutions—the assumption being that these changes strengthen domestic constituencies with an interest in working for an improvement in institutions.

Table 1. Countries in Sample by Categories

Countries, with weak initial institutions, experiencing growth of at least 3.5 percent per capita for 7 years and sustained at 3 percent beyond	Countries, with weak initial institutions, experiencing growth of at least 3.5 percent per capita for 7 years but not sustained at 3 percent beyond	Countries experiencing growth of at least 3.5 percent per capita for 7 years with strong initial institutions
Chile	Algeria	Botswana
China	Argentina	India
Dominican Republic	Bangladesh	Mauritius
Egypt, Arab Rep.	Brazil	Sri Lanka
Indonesia	Cameroon	
Korea, Rep.	Chad	
Lesotho	Colombia	
Malaysia	Congo, Rep.	
Singapore	Ecuador	
Taiwan Province of China	Ghana	
Thailand	Guinea Bissau	
Tunisia	Haiti	
Vietnam	Israel	
	Jordan	
	Malawi	
	Mali	
	Morocco	
	Nicaragua	
	Nigeria	
	Pakistan	
	Panama	
	Papua New Guinea	
	Paraguay	
	Peru	
	Rwanda	
	Syrian Arab Republic	
	Trinidad & Tobago	
	Uganda	
	Uruguay	
	Zimbabwe	

Source: Hausmann et al., (2004).

Table 2. Current Indicators for sub-Saharan African Countries with Strong Recent Performance

	Measures of Broad Institutions		Economic Outcomes			Potential Levers for PRGF						
	Economic Insts.	Political Insts.	Growth	Export Performance		Key Characteristics of Recent Sustained Growth Cases, with Weak Initial Institutions						New Issues
	Investment Risk[2]	Constraint on the Executive[3]	p.c., average last 10 years	Exports to GDP	Manufacturing Exports to GDP	Trade Openness[4]	Currency Overvaluation[5]	Inflation[6]	Primary Educ.[7]	Secondary Educ.[7]	Aid to GDP[8]	Costs of Entry[9]
Burkina Faso	9.0	3.0	1.6	5.3	1.2	0.50	1.5	2.03	43.6	n.a.	11.9	3.3
Ethiopia	7.0	3.0	4.0	7.9	0.9	0.83	-19.0	17.78	63.9	19.0	16.6	4.3
Ghana	6.8	4.0	1.9	27.5	4.8	1.00	-17.0	26.7	81.4	37.7	9.4	1.0
Mali	7.5	5.0	1.7	26.0	n.a.	1.00	8.6	-1.4	57.0	n.a.	11.8	2.3
Mozambique	8.5	4.0	5.7	9.9	n.a.	1.00	-3.7	13.4	98.9	13.3	32.0	0.7
Senegal	8.0	6.0	1.3	21.2	6.3	0.00	13.2	0.0	75.3	18.7	7.7	1.2
Tanzania	7.5	3.0	1.3	9.3	1.4	1.00	130.2	3.5	69.9	n.a.	12.2	2.3
Uganda	9.0	3.0	4.1	7.6	0.6	1.00	25.6	7.8	136.4	n.a.	11.1	1.1
Average	7.9	3.9	2.7	14.3	2.5	0.79	17.4	8.7	78.3	22.2	14.1	2.0
Sub-Saharan Africa	7.5	3.7	1.5	26.0	5.7	0.48	12.6	13.1	90.9	38.8	11.0	1.4
Sustained Growth Countries (SGs)	6.4	2.1	6.5	22.4	5.7	0.65	-13.5	9.1	96.0	34.3	5.1	0.2
Developing world	8.3	4.4	1.6	28.9	15.1	0.44	-6.1	8.3	99.0	60.4	7.0	0.7

1 Data are for the most recent period available, except for the sustained growth countries (SGs). For these countries, unless otherwise specified, data refer to the start (T) of the growth episode.

2 ICRGE. The higher the score, the lower the risk. For SGs, data refer to the mid-1980s.

3 The higher the score, the greater the constraints on the executive.

4 From Wacziarg and Welch (2003). The higher the score, the more open a country's trade regime. For SGs, values are averages over the period T to T+5.

5 Percentage overvaluation of the real exchange rate in 2000. Details of the measure are described in the text. For SGs, values are averages over the 10-year period spanning T.

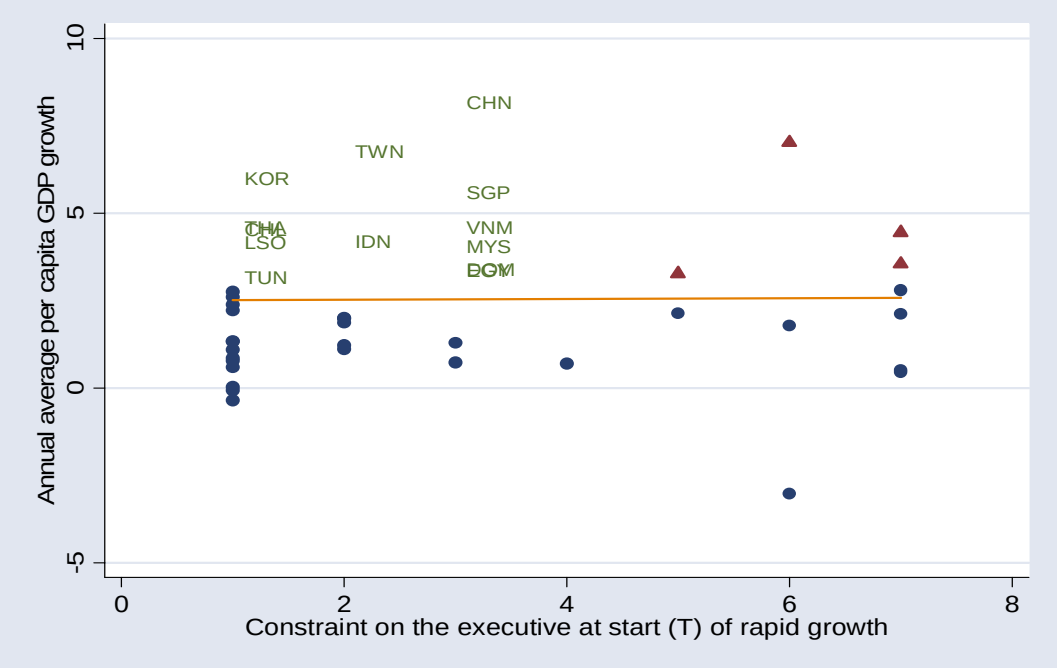
6 For SGs, data refer to the most recent period.

7 Measured as the gross enrollment ratio.

8 For SGs, values are averages over the period T to T+5.

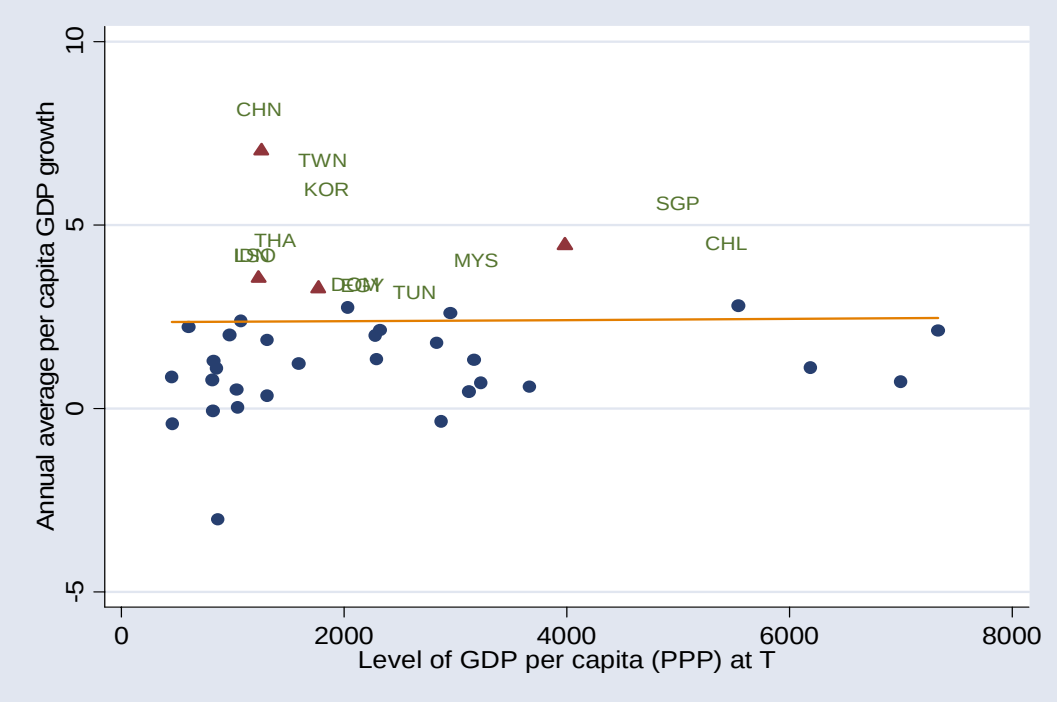
9 From Djankov and others (World Bank Doing Business Database), and measured as the costs per capita of starting a business. For SGs, data are for the most recent period.

Figure 1a. Growth and Initial Political Institutions 1/



Source: World Development Indicators (WDI) and Polity IV.

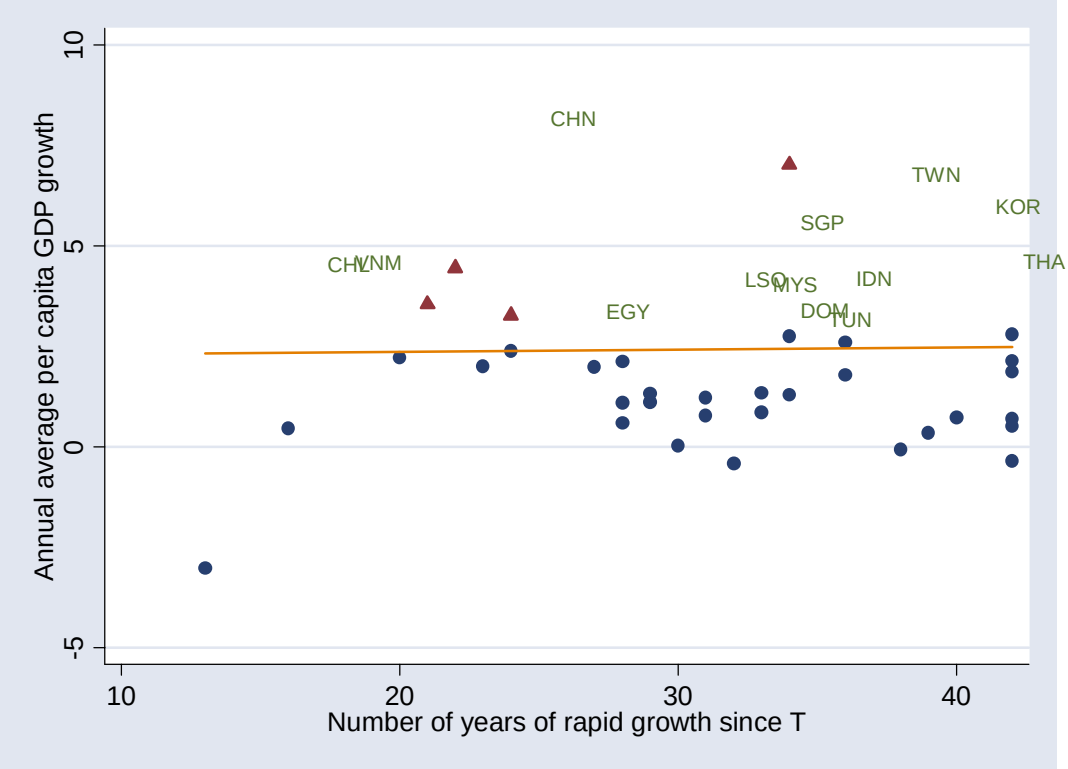
Figure 1b. Growth and Initial Income Level



Source: World Development Indicators (WDI).

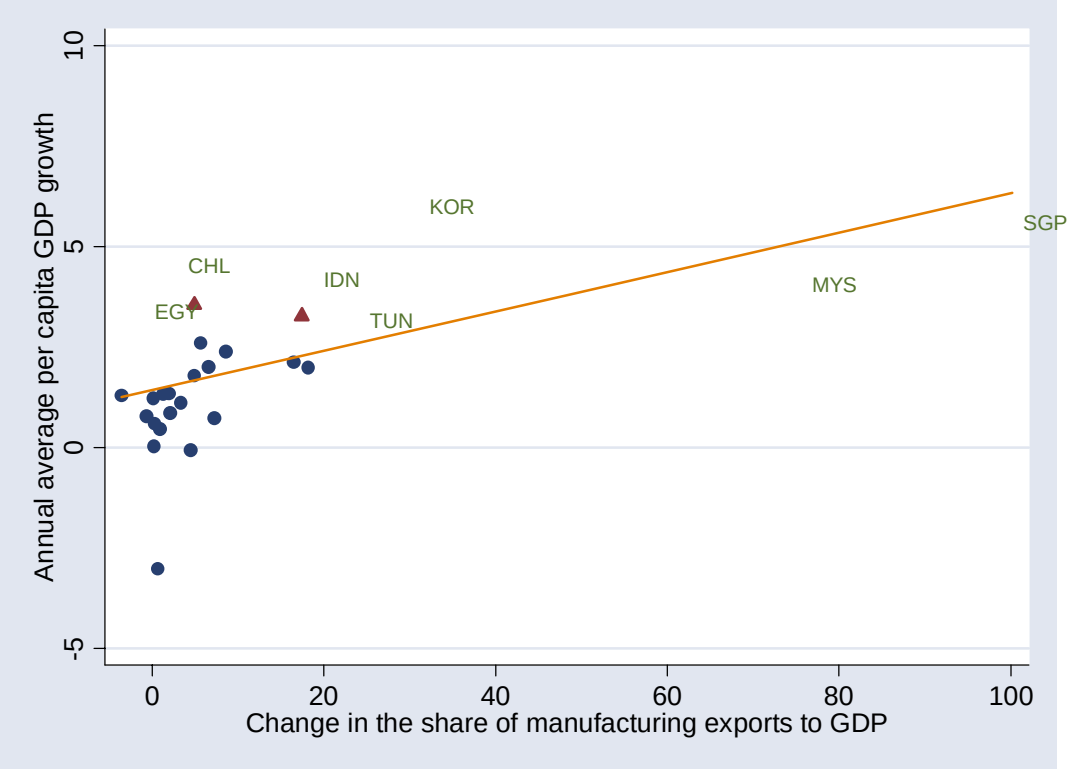
1/ The following notation applies to all the charts: countries with weak initial institutions are represented by country codes in the case of sustained growers and by circles in the case of unsustained growers, and countries with strong initial institutions by triangles (see text for definitions). T refers to the start of the growth acceleration as identified in Hausmann et al., (2004), or to 1970 for countries without accelerations. Unless otherwise specified, all the variables are computed from T to the most recent year for which data are available.

Figure 1c. Growth and Its Duration Since Start



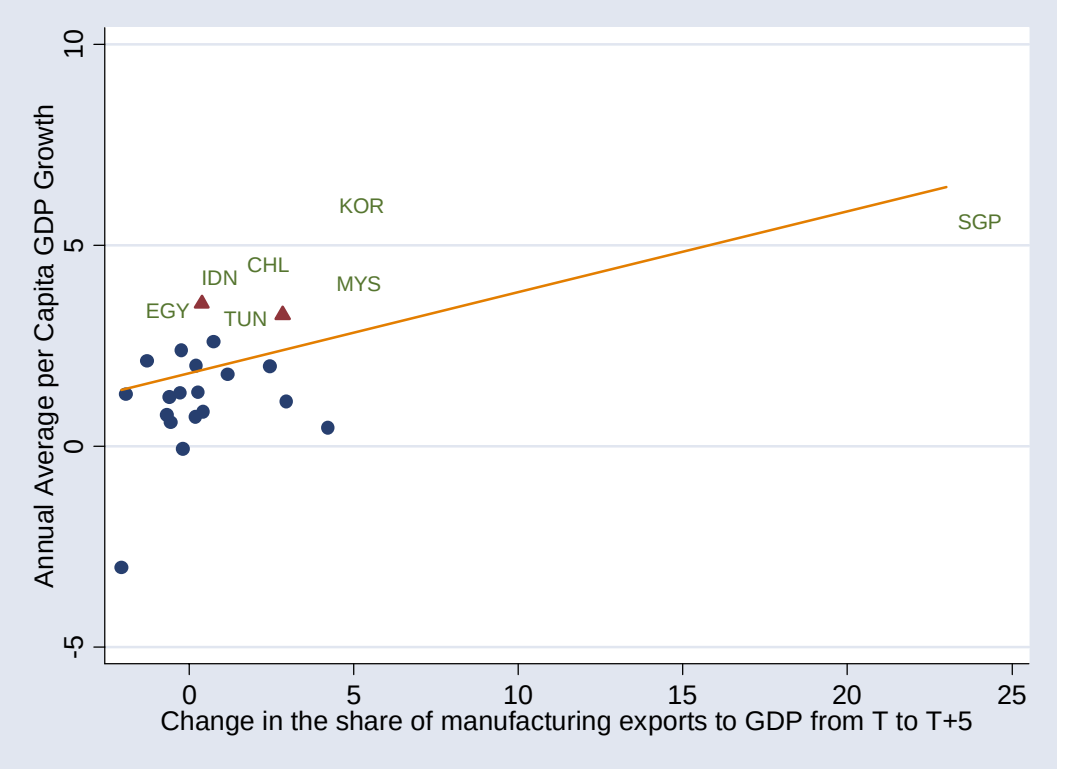
Source: World Development Indicators (WDI) and staff estimates.

Figure 2a. Growth and Change in Manufacturing Exports



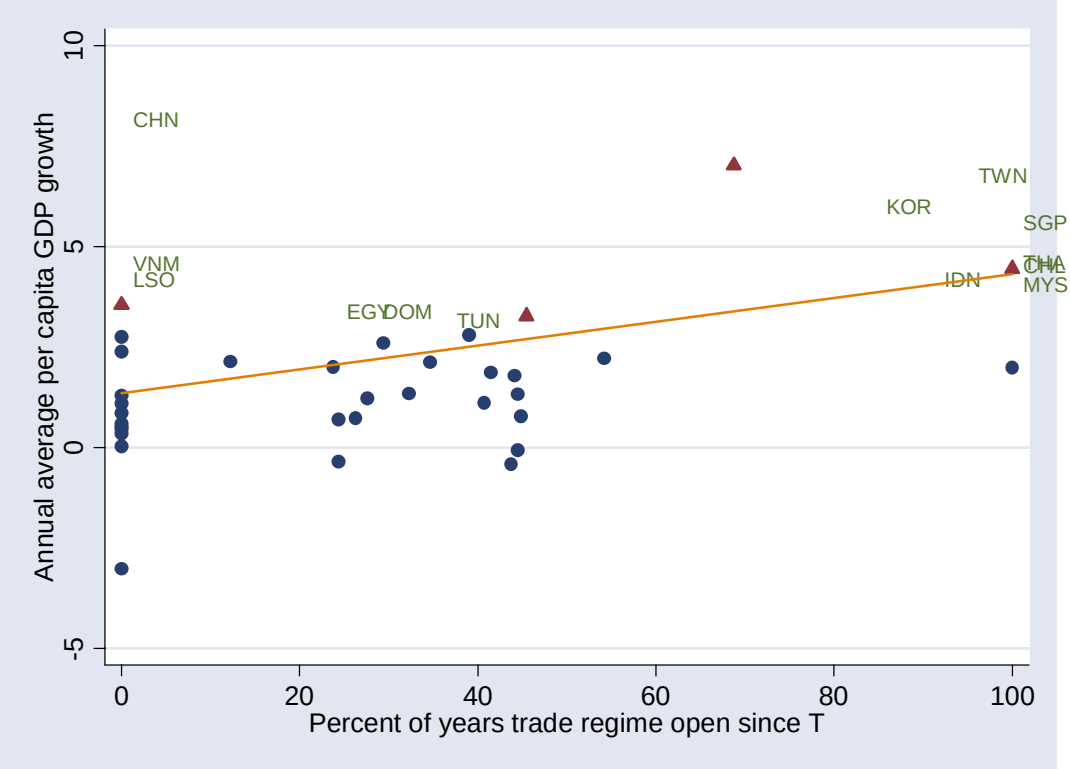
Source: World Development Indicators (WDI).

Figure 2b. Growth and Change in Manufacturing Exports During Rapid Growth



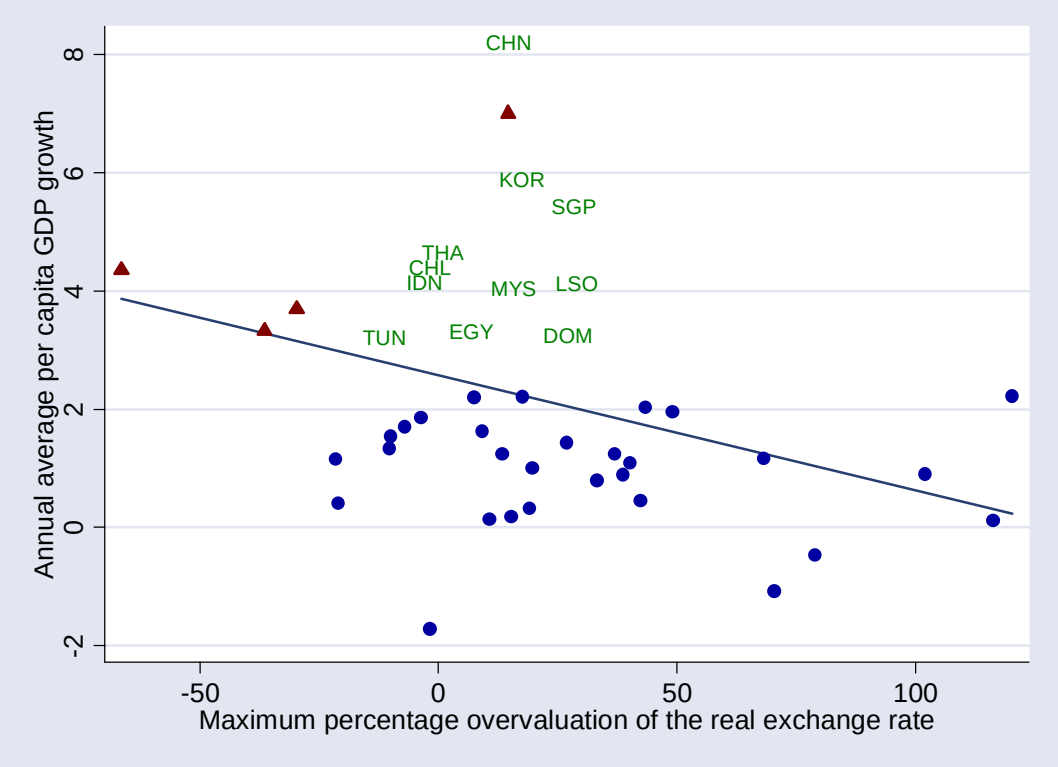
Source: World Development Indicators (WDI).

Figure 3a. Growth and Trade Liberalization



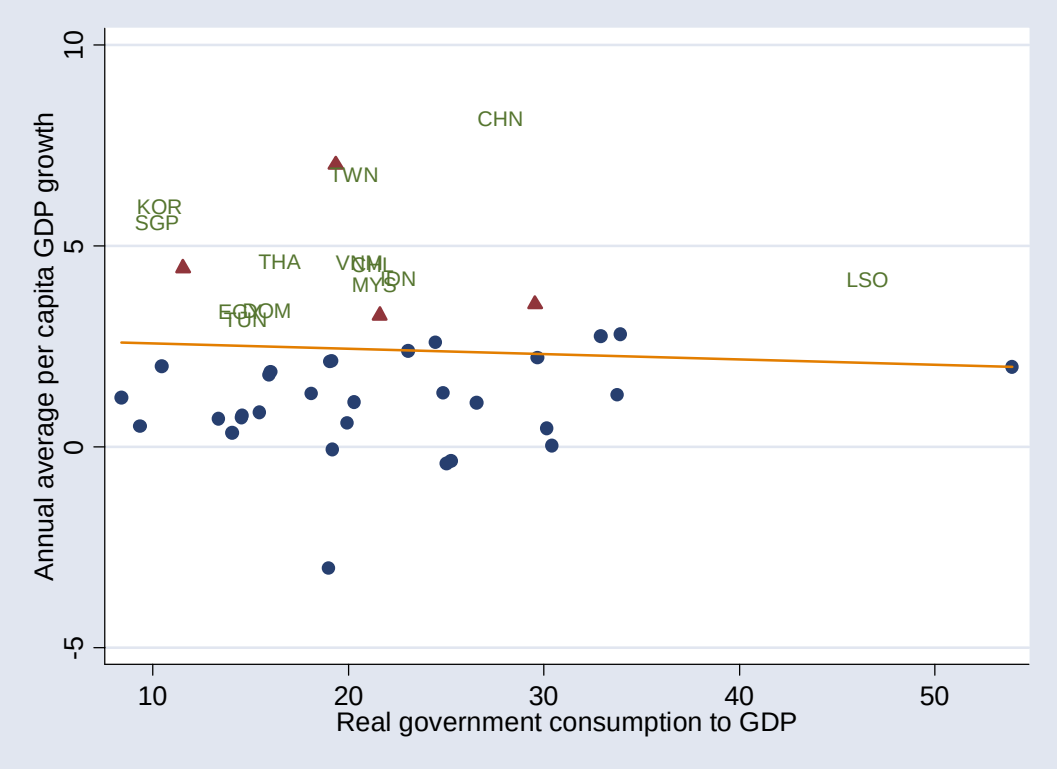
Source: World Development Indicators (WDI) and Wacziarg & Welch (2003).

Figure 3b. Growth and Overvaluation of Exchange Rate



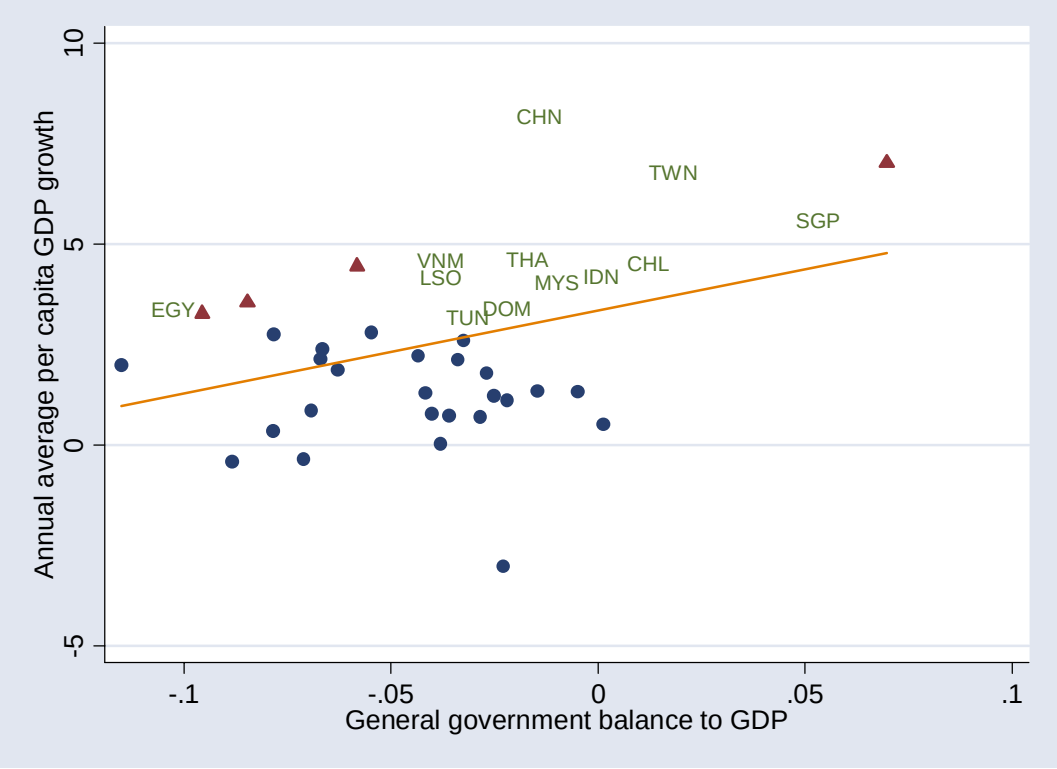
Source: World Development Indicators (WDI) and staff estimates.

Figure 4a. Growth and Government Consumption



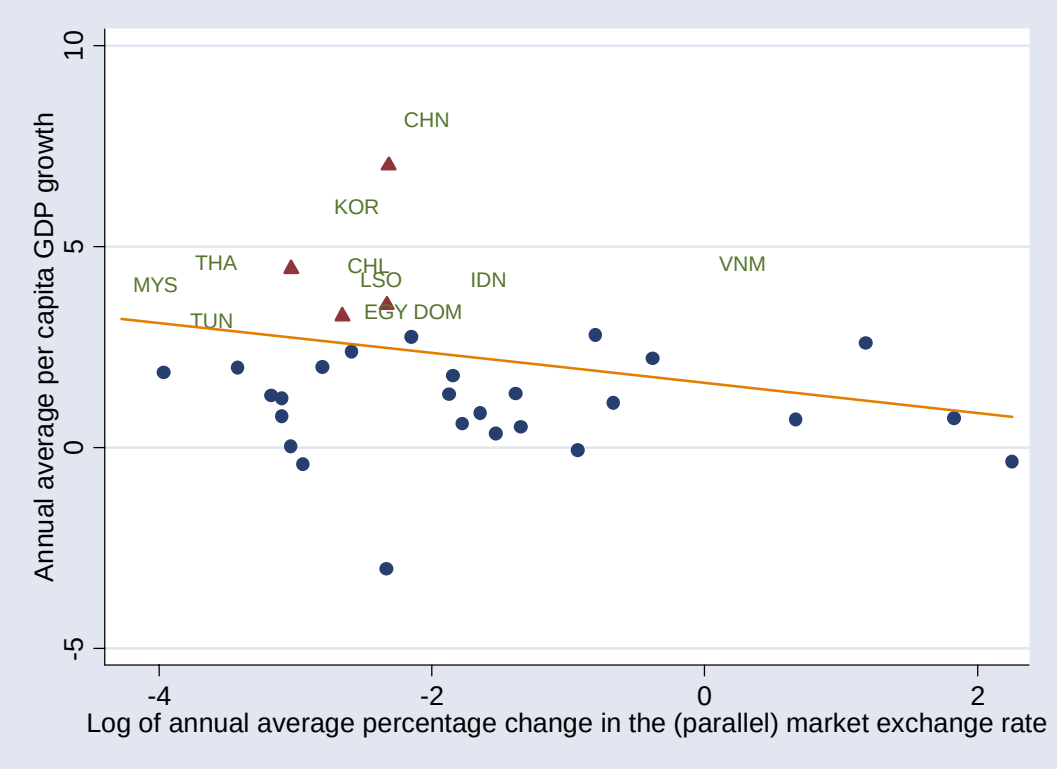
Source: World Development Indicators (WDI) and Penn World Tables 6.1 (PWT 6.1).

Figure 4b. Growth and Fiscal Position



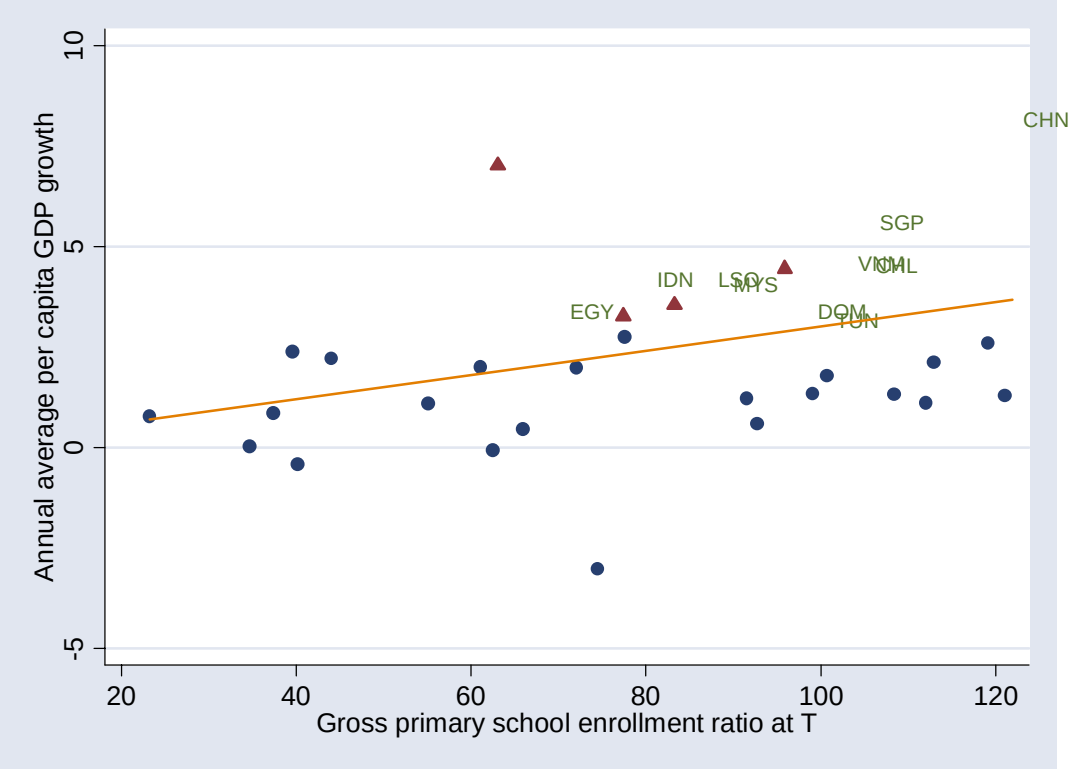
Source: World Development Indicators (WDI) and World Economic Outlook (WEO).

Figure 4c. Growth and Nominal Instability



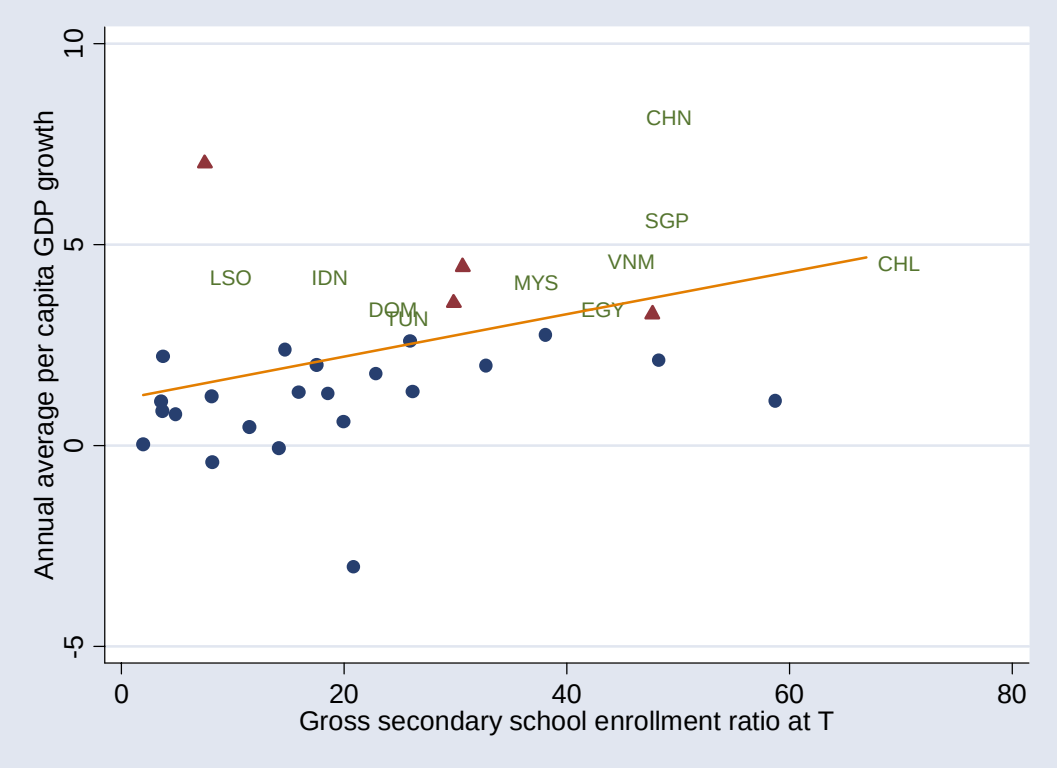
Source: World Development Indicators (WDI), and Satyanath & Subramanian (2004).

Figure 5a. Growth and Initial Primary Education



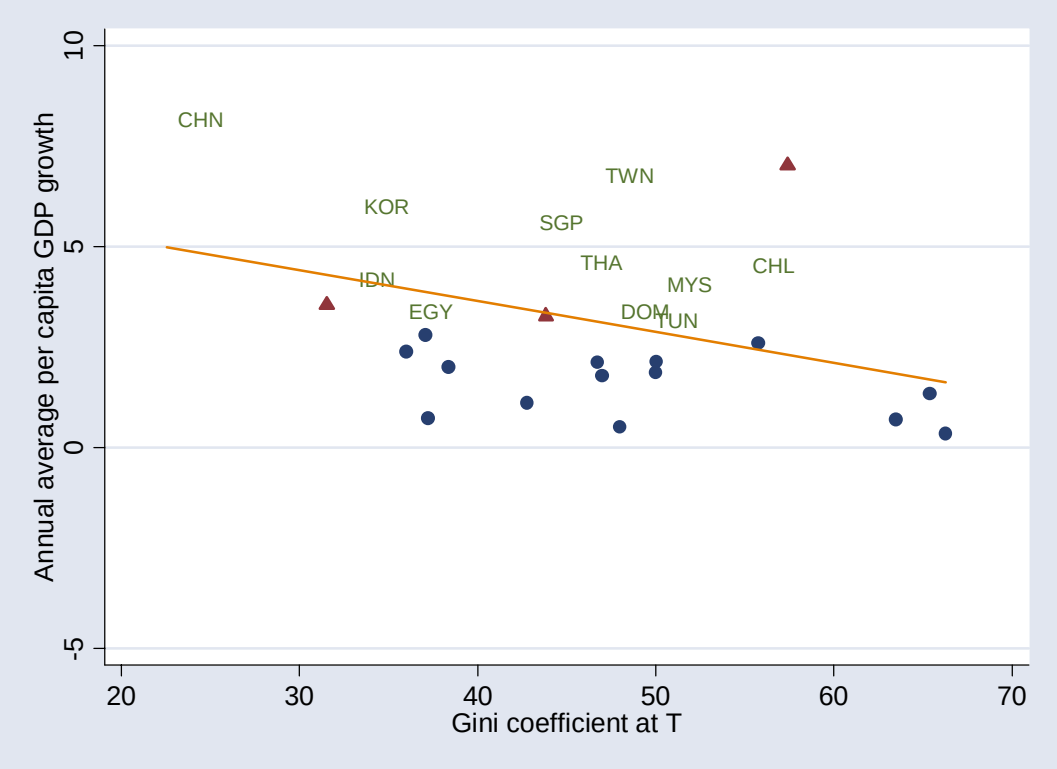
Source: World Development Indicators (WDI).

Figure 5b. Growth and Initial Secondary Education



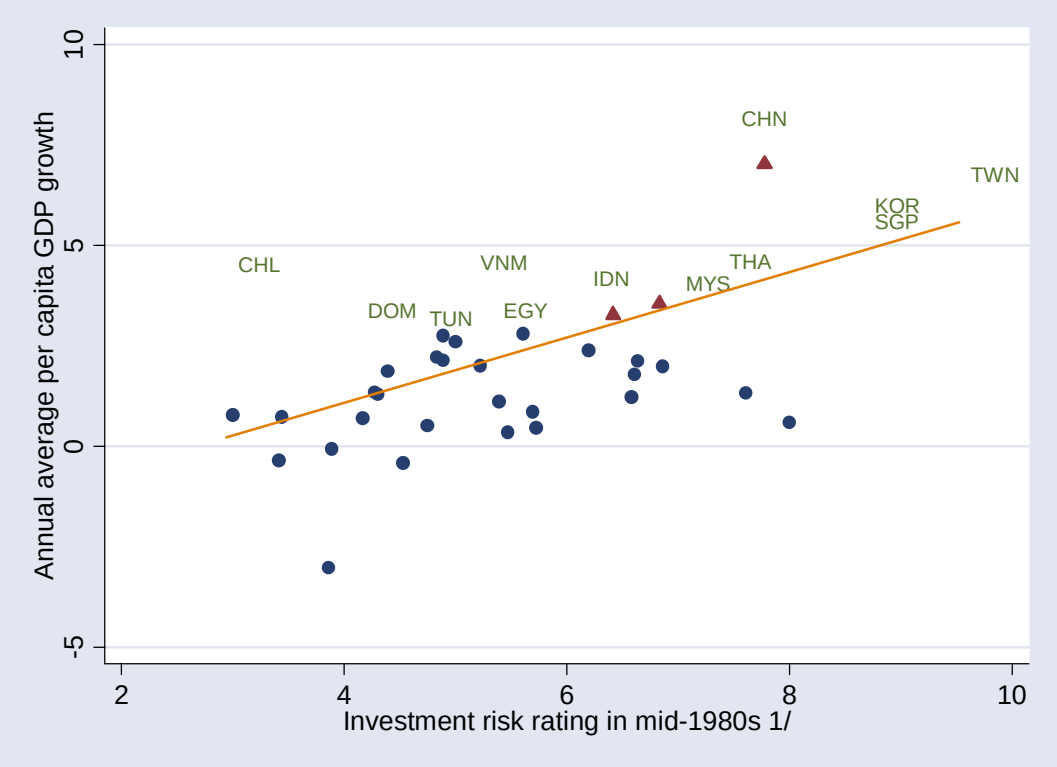
Source: World Development Indicators (WDI).

Figure 5c. Growth and Initial Inequality in Income



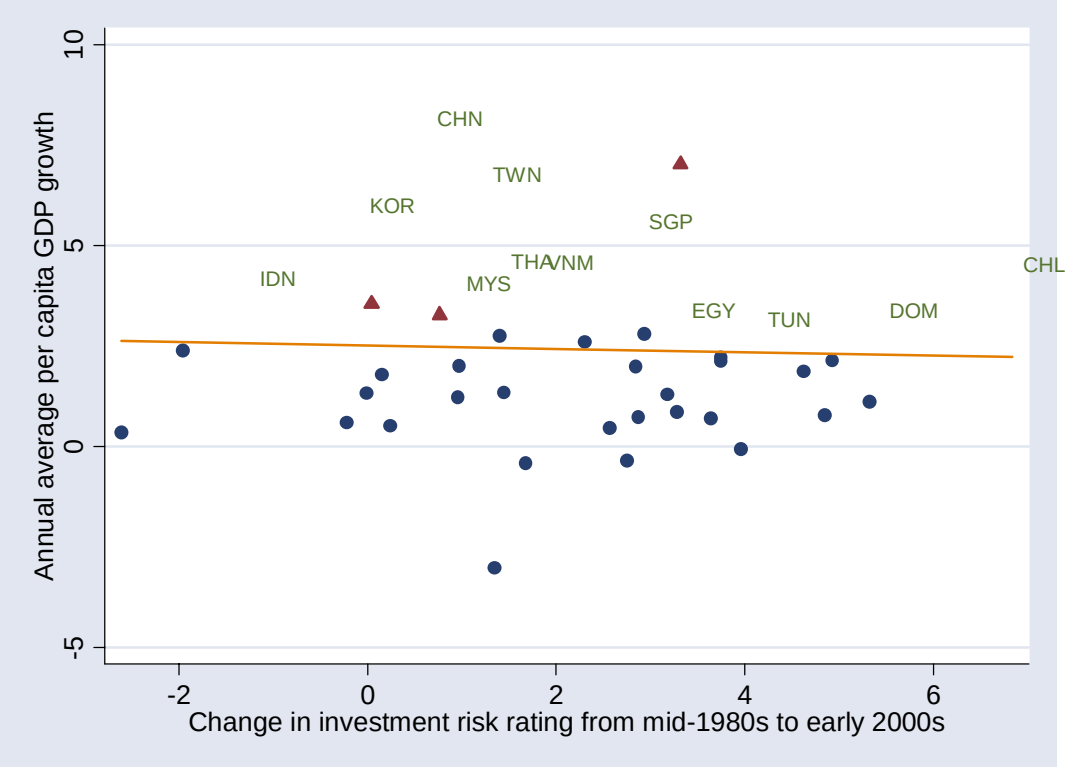
Source: World Development Indicators (WDI).

Figure 6a. Growth and Economic Institutions



Source: World Development Indicators (WDI) and ICRGE.
1/ The mid-1980s are the earliest period for which data are available.

Figure 6b. Growth and Change in Economic Institutions



Source: World Development Indicators (WDI) and ICRGE

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Figure 6c. Growth and Change in Political Institutions

Source: World Development Indicators (WDI) and Polity IV.

Data and Sources

We describe briefly the data used in the analysis in this paper and their sources. The analysis covers the period from the start of the growth acceleration to the most recent year for which data are available. Unless otherwise specified in the text, all variables are calculated as averages over this period.

Variable	*Description*	*Source*
Economic growth	Annual average per capita GDP growth.	World Development Indicators (WDI)
Political institutions	Measured as the constraint on the executive (which is an assessment of the operational (de facto) independence of the chief executive of the country). Values range from 1-7, with higher score denoting better institutions.	Polity IV
Manufacturing exports to GDP	Manufacturing exports exclude agricultural raw materials, food, minerals and ores, and fuels.	WDI
Trade openness	Dummy taking value of 1 if country is considered open (as defined in Sachs and Warner, 1985) and 0 otherwise. A country is considered to be open if it meets all of the following five criteria: average tariffs less than 40 percent; non-tariff barriers covering less than 40 percent of imports; black market premium less than 20 percent; no state monopoly over major exports; no socialist economist system.	Wacziarg and Welch, 2003 (which updates Sachs and Warner, 1985)
Exchange rate overvaluation	This is a measure of the deviation of a country's actual real exchange rate from a benchmark PPP exchange rate. The actual real exchange rate is obtained by dividing the price of GDP for each country by that in the United States. The benchmark is the fitted value obtained from a cross-country-regression of this actual real exchange rate on the country's per capita GDP (in PPP terms). This regression is fitted for 5 different time periods (1960, 1970, 1980, 1990, and 2000), and averages taken over the relevant time periods for a country depending on the start of the growth episode. So, for example, if a country's acceleration began in 1980, the overvaluation measure for that country would be the average of the deviations obtained from the regressions in 1980, 1990, and 2000.	Staff estimates
Aid	Ratio of net overseas development assistance to GDP and includes all multilateral and bilateral assistance, including debt relief.	OECD's DAC database
Size of government	Ratio of real government consumption to GDP.	PWT
Fiscal position	Ratio of general government fiscal balance (after grants) to GDP.	World Economic Outlook (WEO)
Nominal instability	Measured as the logarithm of the annual average percentage change in the nominal parallel market exchange rate.	Satyanath and Subramanian (2004)
Primary education	Measured as the gross primary schooling enrollment ratio. The gross enrollment ratio is the total enrollment at a given educational level, regardless of age, divided by the population of the age group that typically corresponds to that level of education. The specification of age groups varies by country, based on different national systems of education and the duration of schooling at the primary and secondary levels.	WDI
Secondary education	Measured as the gross secondary schooling enrollment ratio.	WDI
Inequality	Measured as the gini coefficient of income inequality	WDI
Economic institutions	This is an assessment of factors affecting the risk to investment. The risk rating assigned is the sum of three subcomponents (contract viability/expropriation, payment delays, and profit repatriation), each with a maximum score of four points and a minimum score of 0 points. The measure thus varies from 0 (high risk) to 12 (low risk).	International Country Risk Guide Economic Rating (ICRGE)
Business environment	Measured as the cost per capita of starting a business.	World Bank's Doing Business Database

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