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**WHY DID
THE POOREST
COUNTRIES FAIL
TO CATCH UP?**

Branko Milanovic

**Trade, Equity, and
Development Project**



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DURING THE PAST TWENTY YEARS, THE POOREST COUNTRIES of the world have fallen further behind the middle-income and rich countries. The median per capita growth of the poorest countries was zero. This is an unexpected outcome because, from the perspective of economic theory, both globalization and economic-policy convergence imply that poor countries should grow faster than the rich. The main reasons why this has not happened lie in poor countries' much greater likelihood of being involved in wars and civil conflicts. This factor alone accounts for an income loss of about 40 percent over twenty years. Slower reforms in poor countries compared with faster reforms in middle-income countries played some, albeit a minimal, role. Increased flows from multilateral lenders did not help either because the net effect of the flows on growth rates is estimated to have been zero. Finally, neither democratization nor better educational attainment of the population can be shown to have had any notable positive impact on poor countries' growth. Reducing the prevalence of conflict seems to be the first and most important step toward restoring growth.

GENERAL CHARACTERISTICS OF GROWTH IN THE 1980–2002 PERIOD

The period 1980–2002 was a time of uneven development among the countries of the world. The average annualized rate of growth for all countries, unweighted by population, was only 0.7 percent per annum—a full 2 percentage points less than during the previous twenty years (1960–1980).¹ However, on a population-weighted basis, the average annualized growth rate was 3.1 percent, thanks to the very high growth rates registered by the two most populous countries in the world, China and India. China's per capita growth averaged 7.8 percent per annum, and India's averaged 3.6 percent.² Similarly, if we look at the global total of goods and services (that is, world GDI), we can see that per capita it expanded on average by 2.1 percent per annum. In this case, of course, it is the countries with the largest economies that matter the most. The annual per capita growth of the United States was 1.7 percent; Japan's and Britain's, 2.0 percent.

There are three different ways to measure growth. Each type of measurement yields different results, highlighting the unevenness of global outcomes. Thus, if we look at *total world income*, growth of 2.1 percent per annum may be considered respectable. If we look at how *individuals, on average*, fared during these twenty-two years, the growth record, at more than 3 percent per annum, turns out to have been satisfactory, primarily because China and India—with their huge populations—grew at higher-than-average rates. But if we look at *individual countries*, the mean growth rate of only 0.7 percent per capita clearly implies that many countries failed to grow at all, or they even declined. This is where we detect unevenness in outcomes among the countries.

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The unevenness in outcomes was not random. As figure 1 shows, the 1980–2002 period was characterized by divergence in income *between countries*. Differences in relative incomes between rich and poor countries have increased. Figure 1 plots the average per capita growth rate during the period against the initial (1980) income level of the country. The relationship is positive: richer countries have tended on average to grow faster.

Figure 1. Growth During 1980–2002 as Function of Initial (1980) Income



Source: Author's calculations based on World Bank's *Statistical Information, Management, and Analysis (SIMA)* data.

HOW DID THE LDCs FARE?

In table 1, we focus on the distribution of growth rates of the three groups of countries: the rich world that includes the “old” OECD countries (that is, excluding new members like South Korea, Mexico, and the post-Communist countries), the least-developed countries (LDCs), and the rest. The rest are those countries that fall between rich and poor countries; we shall call them interchangeably “others” or “middle-income countries,” although strictly speaking they include quite a few relatively poor countries that are not normally considered middle-income countries as defined by the World Bank and other international agencies. The average annual growth rate for the countries belonging to the rich world was approximately +1.9 percent per capita, and the distribution of outcomes was quite narrow. In other words, rich countries tended to grow at moderate rates, and to grow as a club—there was little difference in performance among them.

Table 1. Distribution of Annual Per Capita Growth Rates, 1980–2002

| | Mean | Standard deviation | Median | Percentage of negative growth rates |
|-------------------------|------|--------------------|--------|-------------------------------------|
| “Old” OECD | 1.9 | 2.4 | 2.0 | 17.0 |
| Middle-income countries | 1.0 | 6.5 | 1.8 | 33.1 |
| LDCs | 0.1 | 5.8 | 0.8 | 42.6 |

Source: Author’s calculations based on World Bank’s Statistical Information, Management, and Analysis (SIMA) data.

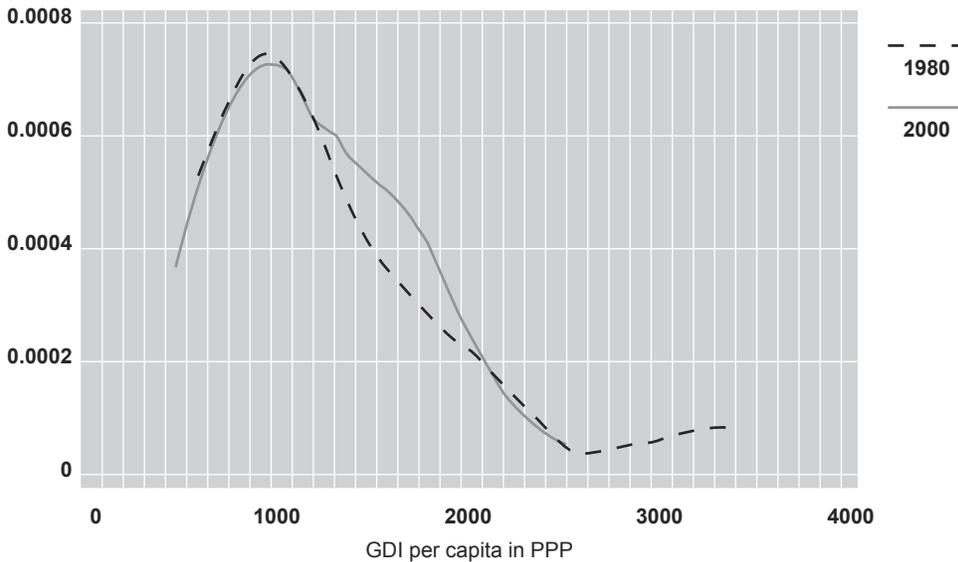
Note: Growth rate for each country/year is one observation.

For both LDCs and others, the divergence in outcomes was much greater. The group of others, which includes the Asian “tigers,” comprised a number of fast-growing countries. The best performers were China (average growth of 7.8 percent per capita), South Korea (6.3 percent per capita), Singapore (4.6 percent per capita), and Mauritius (4.5 percent per capita). This group also has many failures—for example, countries like Russia and Ukraine that have seen their incomes between 1980 and 2002 drop by some 20 to 30 percent. Outside of the transition economies, the worst record is that of Saudi Arabia (with a decline of GDI per capita of 47 percent), Nicaragua (a decline of 34 percent), and Ivory Coast (a decline of 30 percent). The mean annual growth rate for the group of others is 1 percent, just a bit over one-half of that of the rich world.

We are most interested in the LDCs. They, like the middle-income countries, show a wide distribution of outcomes. Among them, however, are no stellar, high-growth performers like China and South Korea. More than 40 percent of these countries had negative growth rates during the 1980–2002 period. This is substantially higher than 33 percent for the middle-income countries and 17 percent for the rich countries. Those among LDCs that lost the most were Djibouti, Sierra Leone, Madagascar, and Haiti, all with GDI per capita losses between 40 and 50 percent. The best performers among LDCs were Bangladesh (average growth of 2.6 percent per capita), Uganda (2.4 percent), and Lesotho (2.3 percent). The mean growth rate for LDCs was just barely above zero; the median was 0.8 percent, again substantially lower than that of the other two groups.

The near universal absence of growth among LDCs during the past twenty years can also be seen in figure 2, which shows GDI per capita of LDCs in 1980 and 2000. The two distributions are almost the same—there was no movement toward higher incomes among the LDCs.

Figure 2. Distribution of LDCs' GDI Per Capita, 1980 and 2002



Note: Expressed in international 1995 PPP dollars.

Another comparison of the performance of LDCs with that of the rest of the world is shown in table 2, where all countries of the world are divided into four groups. The best performers are those countries in which GDI per capita has increased by more than the mean growth among the countries with positive overall growth. These are countries in which the average annual growth rate was in excess of 2.1 percent per person. The second group includes countries with positive overall growth (income in 2002 higher in real per capita terms than income in 1980, minus of course those that belong to the first group). The third group includes countries with incomes in 2002 that were less than in their incomes in 1980 but the loss was only between 0 and 20 percent of income per capita.³ The worst performers are countries that lost more than one-fifth of their per capita income between 1980 and 2002. The list of countries per group is provided in Appendix 1.

Table 2. Countries: Winners and Losers, 1980–2002

| 2002 GDI per capita compared with 1980 GDI per capita | Africa | Asia | Latin America | Eastern Europe/ FSU | WENAO ^a | Total |
|---|--------|-------|---------------|---------------------|--------------------|-------|
| Gain of more than 58 percent | | | | | | |
| Number of countries | 4 | 11 | 2 | 0 | 5 | 22 |
| Population (millions) | 92 | 2,984 | 24 | 0 | 60 | 3,163 |
| Gain of between 0 and 58 percent | | | | | | |
| Number of countries | 13 | 4 | 11 | 8 | 18 | 56 |
| Population (millions) | 247 | 222 | 338 | 76 | 750 | 1,633 |
| Loss of between 0 and 20 percent | | | | | | |
| Number of countries | 14 | 3 | 8 | 5 | 0 | 29 |
| Population (millions) | 323 | 87 | 112 | 184 | 0 | 707 |
| Loss greater than 20 percent | | | | | | |
| Number of countries | 7 | 1 | 3 | 8 | 0 | 19 |
| Population (millions) | 65 | 21 | 38 | 105 | 0 | 231 |

Source: Author's calculations based on World Bank SIMA data.

^a WENAO refers to Western Europe, North America, and Oceania (in other words, the "old" OECD).

Table 2 shows that the population living in the countries belonging to the most successful group amounted to almost 3.2 billion in 2000. This is mostly due to India and China. Four African countries are also in that group: Botswana, Lesotho, Egypt, and Uganda, with a total population of 92 million. In total, seventy-eight countries with the combined population of 5 billion have experienced an overall positive growth during the past twenty-two years. The remaining one billion people living in forty-eight countries have seen real incomes in their countries go down.

In terms of regional composition, almost 400 million Africans live in negative-growth countries; this represents more than one-half of Africa's total population. The second-largest group of people living in countries with negative income growth are those in post-communist states: almost 300 million, or three-quarters of the population from those countries. In addition, 140 million Latin Americans live in "shrinking economies": this represents 30 percent of the Latin American population. Finally, four countries in Asia (with a combined population of 100 million) have had negative growth.⁴ There are no negative-growth economies in the rich world. Thus, about one billion people live in countries that have declined during the past twenty or so years; unfortunately, many of these countries had already been among the poorest.

Table 3 shows LDCs divided into four similar groups; full sets of annual data exist for thirty-two out of fifty-two officially classified LDCs.⁵ The total population of these thirty-two countries in 2002 was 625 million. The above-average performers included only three LDCs: Lesotho, Uganda, and Bangladesh, with a total population of 162 million. Another ten countries with a combined population of 166 million have had positive per capita growth. However, sixteen LDCs with more than 300 million people had real incomes in 2002 that were less than in 1980.⁶ These are the

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countries that we are chiefly interested in. All but one of them (Haiti) are located in Africa. They represent about 5 percent of the world population, and they produce only 0.7 percent of world (purchasing power parity [PPP]) output, down from 1 percent in 1980. Their total output in 2002 was \$PPP 310 billion, which makes their average per capita income a bit more than \$PPP 1,000 per capita.

Table 3. GDI Gains and Losses of Selected LDCs, 1980–2002

| 2002 GDI per capita compared with 1980 GDI per capita | Africa | Asia | Latin America | Total population (millions) |
|---|--|------------|---------------|-----------------------------|
| Gain of more than 58 percent | Lesotho Uganda | Bangladesh | | 162 |
| Gain of between 0 and 58 percent | Benin Burkina Faso Chad Guinea Mali Mozambique Senegal Sudan Tanzania | Nepal | | 166 |
| Loss of between 0 and 20 percent | Angola Central African Republic Ethiopia Gambia Guinea-Bissau Malawi Mauritania Nigeria Rwanda | | | 239 |
| Loss greater than 20 percent | Djibouti Madagascar Niger Sierra Leone Togo Zambia | | Haiti | 57 |
| Total | | | | 625 |

Source: Author's calculation based on World Bank SIMA data.

In current dollar terms, the average income of the LDCs with the negative growth record is only \$272 per capita, which implies an average income per person of less than \$1 per day. Their total output at current exchange rates is only about \$81 billion, or one-quarter of 1 percent of world total dollar output—the same amount of goods and services that the United States, with a total population approximately the same as the total population of these sixteen countries, produces in less than three days. An average American has an income that is, at market exchange rates, some 120 times higher than the incomes of people in those poorest and declining economies.

The generally poor and, in some cases, disastrous performance of LDCs during the era of globalization is puzzling for two reasons. First, according to standard economic theory, globalization (greater trade and capital flows) should be particularly helpful for the poor countries. They are supposed to benefit from greater demand for the unskilled products in which their labor has a comparative advantage and also from easier transfer of information and technology from the rich world. Second, the period studied here has witnessed a general trend toward policy convergence in the sense that policy similarity among countries is much greater today than at any time since World War II (Mukand and Rodrik 2002; Banks et al. 2005). Thus, if globalization is helpful for poor countries, and they have adopted policies that have proved their worth in the rich world, the poor countries should, in theory, grow faster than the rich. But this, as we have just seen, was not the case.

There are several possible reasons why. First, it is possible that, while globalization went on elsewhere, these countries were left outside of the process. This might have happened because their policies were inimical to globalization (e.g., policy convergence did not occur throughout the world) or perhaps because globalization passed them by because they had nothing to offer. The latter is not impossible to envisage in a world of mobile capital and labor because in such a world it is absolute rather than comparative advantage that matters. If one country is more efficient in the production of both wine and cloth (to use Ricardo's celebrated example), then world output would be maximized by all capital and labor moving there and producing both products there. That, in turn, would tend to empty out the less-productive country of both its labor and capital, reduce its output, and leave it to vegetate as an "excluded" enclave. Another possibility is that other factors that are often taken for granted in the rich world (institutions, governance, private property protection, absence of war) have not been present in the poor countries and, consequently, the lack of good institutions rather than policies per se could have been the chief cause of their failure.

TRYING TO DISCERN THE PROXIMATE CAUSES OF FAILURE

We look first, in a descriptive way, at several possible proximate causes of LDC failure.

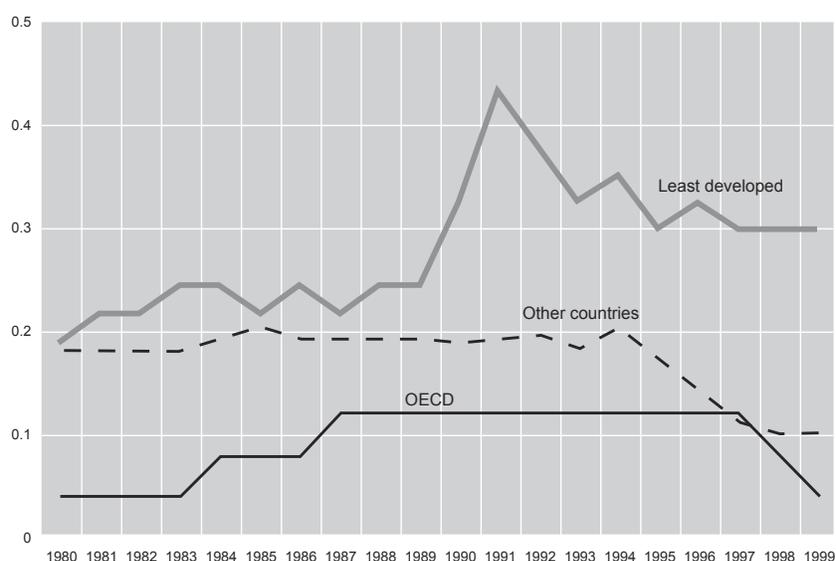
- Is it because these countries have been involved (more than the rest of the world) in civil wars and international conflicts?
- Is it that these countries have failed to reform as much as others did?
- Did they consistently have worse institutions, and did they pursue worse policies?
- Were they less open in terms of both trade policies and trade outcomes (lower trade-to-GDP ratio)?
- Were they unable to attract foreign investment as a way to gain access to new technology?

For two reasons, these results should give us only a first cut at the possible causes. First, the causality is questionable. LDCs may indeed turn out to have been involved in more wars than the rest of the countries of the world, but that could be because they were poorer. In other words, causality may run from poverty to conflict rather than the other way around. Second, every two-way correlation (say, between reforms and growth performance) is partial: it leaves out other possible causes of bad performance. It is only if we put them all together in the same regression that we can be more confident of our results. But as a first approximation to the data, this partial and limited approach is useful.

Frequency of Wars in the LDCs

Figure 3 displays the likelihood of being engaged in a civil or international conflict in any given year for three groups of countries: the “old” OECD countries, the LDCs, and other countries in between.⁷ The generally held view that LDCs have been plagued by conflict is correct. On average, upwards of one-third of all LDCs were at war in any one year. This is significantly more than rich-world countries (where the probability was less than 10 percent) and more than the other in-between countries where the probability until the mid-1990s was approximately 20 percent and since then has decreased to just over 10 percent.⁸ The worst period for the LDCs was in the early 1990s, when almost every second country was involved in a war or civil conflict. Several LDCs were in a state of civil war throughout the 1980–2000 period: Angola, with 20 years of war, is followed by Bangladesh and Chad, each with 18 years of war, and Sudan, with 17 years.⁹

Figure 3. Probability of War in Three Groups of Countries, 1980–2000



Source: Author’s calculations from Sambanis (2004) database.

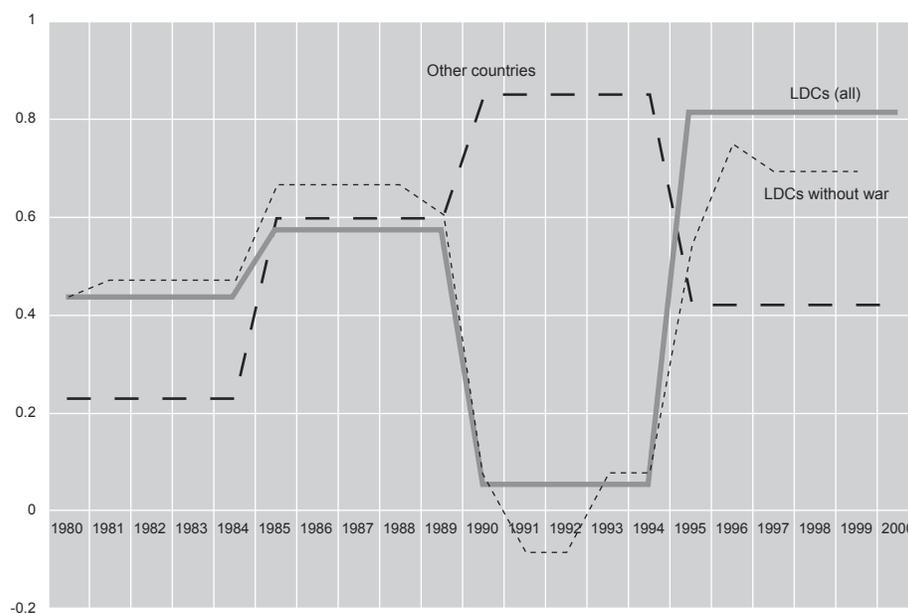
Frequency of Reforms in the LDCs

The era of globalization was associated with policy convergence (Mukand and Rodrik 2002; Lora 2001 for Latin America; European Bank for Reconstruction and Development index for the post-communist countries). But were LDCs as “assiduous” in their reforms as other countries? It could be that, assuming they had started with policies inimical to growth, LDCs failed to reform as thoroughly and as frequently as the rest of the world and that their unsatisfactory performance was in part due to this failure. To look at this, we use the “Free the World” (FTW) database produced by the Fraser Institute.¹⁰ The database provides information on the extent of economic freedom¹¹ in 123 countries at five-year intervals, starting with 1975; the most recent year used here is 2000.¹² We have selected four variables. For the restrictiveness of trade policies, we use FTW’s percentage of trade-related taxes in the value of trade and the mean unweighted tariff rate. For other policies, we use the FTW indicator for exchange rate regulation (ranging from 1 to 10, with 10 indicating the most liberal

regime), and the FTW indicator for interest rate regulation (with 10 again being the most liberal). Each of these cardinal measures has been transformed into an ordinal measure (or, more exactly, a “trinomial” measure: -1, 0, +1) indicating, respectively, anti-liberalization reform, no reform, and pro-liberalization reform.¹³ This transformation has one big advantage: it reduces significantly the measurement error that may be fairly large in cardinal indicators. It also allows us to focus on what may be considered unambiguous cases of reform. For each of the four indicators we thus have a five-year-based measure of reform (or absence thereof). These four reform indicators are then summed up to obtain the overall index of reform, where the most pro-liberalization reformist government may score +4 and its antipode -4.

Figure 4 shows that LDCs were not obviously less reformist than the middle-income countries. One striking fact that emerges, however, is that throughout the 1980s the LDCs and the middle-income countries reformed with about the same intensity; but in the first half of the 1990s, the latter group reformed very heavily, with an average reform index of 0.8 (out of a maximum of +4), while LDCs in contrast displayed almost no reform (an average reform index of 0.05). This was not due to the LDCs being involved in wars (when, one might guess, the likelihood of reform might be less) because the LDCs not involved in war similarly failed to reform. It was only in the second half of the 1990s that LDCs, both at war and at peace, started serious reforms, with the reform index approaching 0.8.

Figure 4. Reform Among LDCs and Middle-Income Countries, 1980–2000



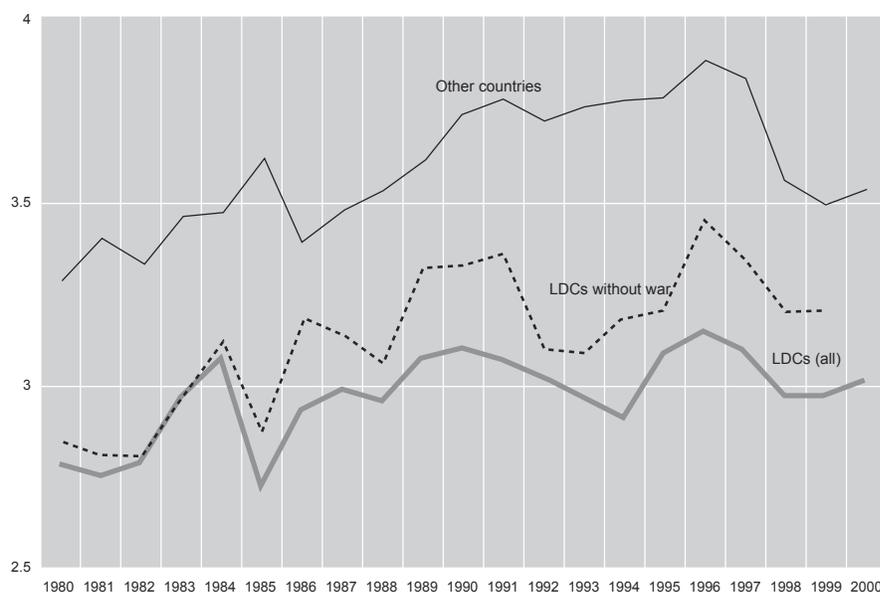
Source: Author's calculation based on the FTW index.

Notes: The reform index ranges from -4 (antireform) to +4 (reforms in all four policy areas). The four policy areas relate to the trade-tax ratio, the mean unweighted tariff rate, the exchange rate regime, and interest rate regulations. The index is calculated at five-year intervals. Reform index per country per year is one observation. Data show unweighted country averages.

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Another measure of policy reform and institutional capacity is the World Bank's Country Policy and Institutional Assessment (CPIA) index.¹⁴ The index covers four categories: economic management, structural policies, policies for social inclusion and equity, and quality of institutions. Countries are rated on each of these categories, and the composite index used here is the unweighted average of performance in the four categories (figure 5). This story parallels what can be seen in the FTW reform measure. First, in terms of policy appropriateness, the middle-income countries consistently outperform LDCs, whether we look at all of the latter or those at peace only. Moreover, while the middle-income countries register a major upswing in policy quality from around the mid-1980s to the mid-1990s (with the index increasing from about 3.25 to almost 4), the LDCs remain at the same level of policy quality (around 3), and only LDCs at peace show a slight improvement in the decade of the 1990s.

Figure 5. Policy Appropriateness as Judged by the World Bank CPIA Index, 1980–2000



Source: Author's calculations based on World Bank's CPIA index.

Note: The scale of the index ranges from 1 (worst policies) to 6 (best policies).

In conclusion, we notice generally less reform among LDCs than among the middle-income countries; also policies and institutions in LDCs are judged to have been less appropriate. On the latter point, however, one must be cautious because the World Bank's bad marks for LDCs might have been due to their slow growth (which thereby implied that policies were not appropriate) rather than to the policies themselves being really bad.¹⁵ But this objection probably applies with greater force to levels than to changes. And, regarding the changes, an important feature that distinguishes LDCs from other countries is less reform (that is, less change in the index) in the period ranging approximately from 1985 to 1995. This is reflected in both Fraser Institute index and the World Bank index. This lack of reform among LDCs was pervasive although it was even more noticeable among LDCs engaged in civil conflict and war.

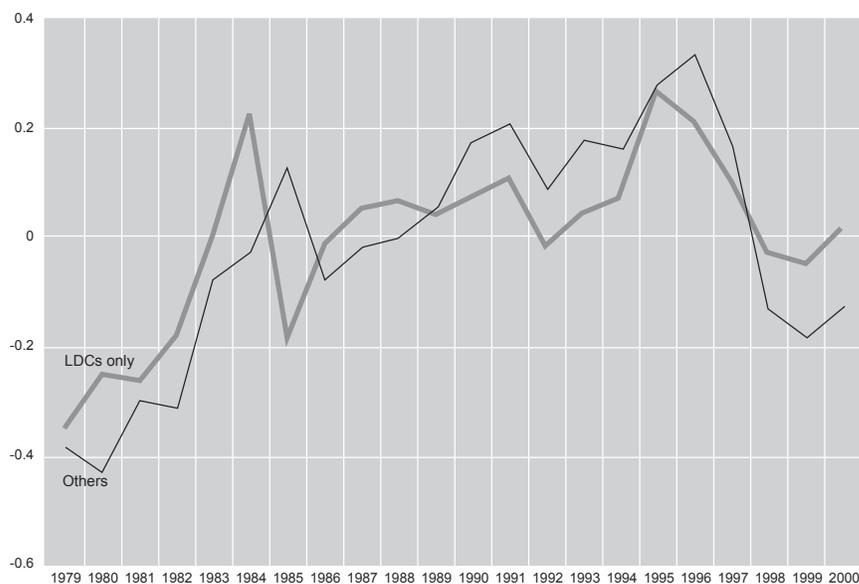
As mentioned, we would ideally like to have an index of LDC reform that would not be influenced by previous growth performance. This is based on the idea that a measure of economic management and institutional appropriateness should be separated from immediate growth results because the results may depend on a number of other factors like changing relative prices of exports and imports, war in the environment, recession in large countries, and change in technology. We try to account for this by regressing the CPIA index on lagged growth performance and an LDC dummy variable:

$$CPIA_{it} = \alpha + \sum_{n=1}^4 \beta_n ROG_{i,t-n} + \gamma D_i \quad (1)$$

where $CPIA_{it}$ = CPIA index for country i at time t ; $ROG_{i,t-n}$ = lagged growth rate of country i ; and D = LDC dummy variable.

The results (shown in Appendix 2) confirm that past growth rates strongly influence CPIA and that, for a given growth performance, LDCs get worse scores than other countries. The dummy variable is highly statistically significant and amounts to -0.56. This can be interpreted to mean that, on average, LDCs get a lower policy score by half a point than other countries even if their growth performance is the same. In other words, there may be an anti-LDC bias in the way the World Bank regards the quality of their economic management. If we “net out” both the effects of growth and any bias regarding the quality of LDC institutions, we focus a bit better on the estimated change in economic management and institutional quality. We do so by taking the residual between the actual value of the CPIA and its predicted value from regression (1) as an indicator of net reforms. We thereby obtain the results shown in figure 6, where we notice an overall improvement in CPIA for the LDCs, which does track that for the other countries although, again, the LDC performance through the 1990s falls short of that of middle-income countries.

Figure 6. “Net” Policy and Institutional Appropriateness as Judged by the World Bank



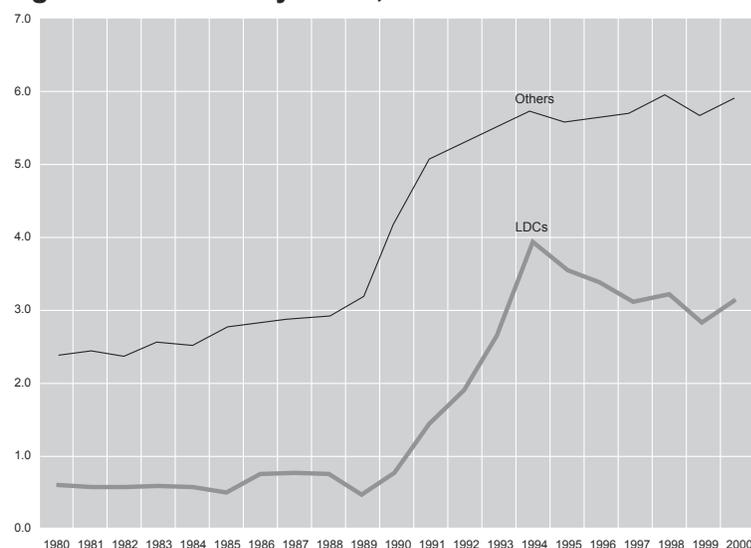
Source: Author's calculations based on World Bank's CPIA index.

Note: This is called a “net” CPIA index, which means it is adjusted for past growth rate experience and anti-LDC bias.

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Democracy. Because LDCs are by definition poor, it is often thought that they are less democratic. Figure 7 confirms this. On average, LDCs—despite significant gains in the early 1990s—are less democratic than the middle-income countries. (There is no statistically significant difference between LDCs at war and at peace; results are not shown here.) On the Polity IV democracy scale that ranges from 0 to 10, in 2000 the average value for LDCs was only 3 while it was 6 for the middle-income countries and almost 9.9 for the rich world.¹⁶ Both LDCs and middle-income countries registered great progress in the early 1990s, increasing the democracy score by more than 3 points. However, it is noticeable that LDCs have since backslid: from the peak of 4 in 1994, the average level of democracy by 2000 dropped to 3. In 2000, the best score among LDCs was that of Senegal (8), Nepal, Malawi, and Madagascar (each with a score of 7). But seven countries in 2002 have a democracy score of zero, which is still an improvement if we realize that in 1980 no fewer than twenty-three LDCs had scores of zero.¹⁷

Figure 7. Democracy Index, 1980–2000



Source: Author's calculations based on the "democracy" variable from the Polity IV (University of Maryland, College Park) database, available at www.cidcm.umd.edu/inscr/polity.

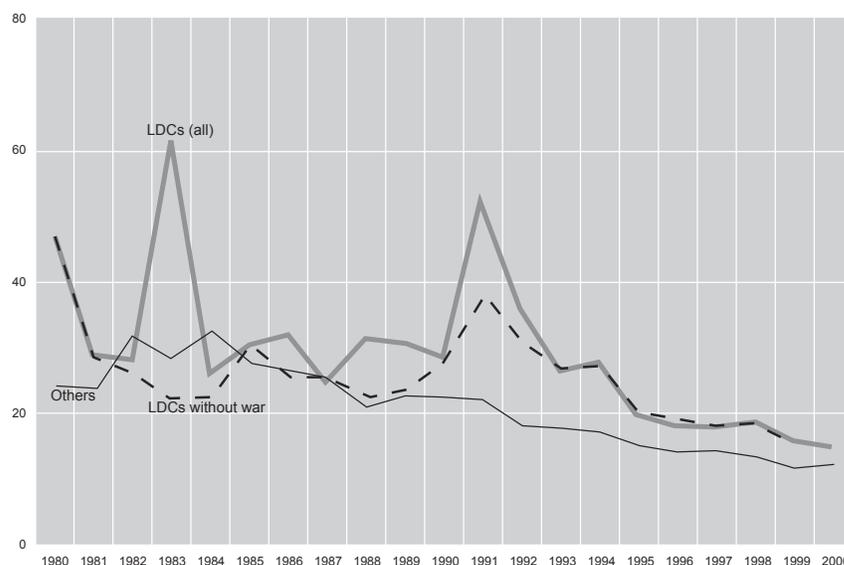
Note: The democracy index ranges from 0 (worst) to 10 (best).

Were LDCs less open to trade? Another often adduced reason for LDCs' bad performance is their autarky, or at least their lower propensity to trade (World Bank 2002, Yusuf 2003, Dollar and Kraay 2001). This can take two forms: higher protective barriers (tariff rates or quotas) or simply a lower trade-to-GDP ratio (an outcome rather than policy measure). The latter can be deemed negative because trade is one of the main conduits for the import of technology and innovation.¹⁸

Figure 8 shows that, although on average LDCs have had higher tariff rates than the middle-income countries, both groups display a steady decrease in protection during the past twenty years and the gap between the LDCs and the others is narrowing. Here too, however, we notice that the decline in LDCs' average tariff rates started only after the mid-1990s (a fact that corroborates our earlier findings regarding the delay in reforms). This is some ten years after the middle-income countries started reducing their tariff rates. Some of the spikes in the figure are due to the fact that

our sample composition is changing (that is, we do not have the data on average tariff rates for all countries annually), but if we look at 1997–2000, where we have the data for fifteen LDCs and almost sixty middle-income countries, we notice that the differences in average tariff rates are small. The average (unweighted) rate is approximately 16 percent for the LDCs and approximately 12 percent for the middle-income countries. Here, too, we readily see the policy convergence that was noted by several authors—but also that this policy convergence took place in the latter part of the 1990s only.

Figure 8. Average Tariff Rates in LDCs and Other Countries, 1980–2000

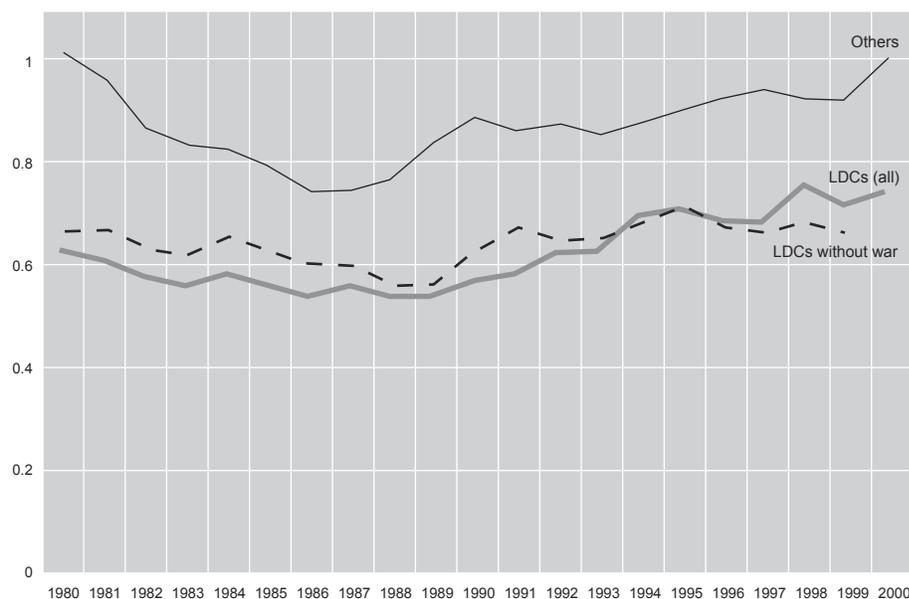


Source: Author's calculations based on World Bank's SIMA data.

Note: Country composition not constant throughout the years.

We move next to looking at trade-to-GDP ratios for the LDCs. Some authors have singled this out as a potential difference between LDCs and the rest: This is an indicator of LDCs not participating in globalization, whether willingly or because they had little to trade. Figure 9 indeed shows that the trade-to-GDP ratio (in current dollars) for LDCs is consistently and significantly lower than for the middle-income countries. The difference amounts to about 20 percent of GDP, and there is no apparent tendency for this gap to decrease with time. On the positive side, however, we note that in 2000 LDCs do trade more than they did in the early 1980s; their trade-to-GDP ratio in 2000 is almost 80 percent compared with 60 percent earlier.

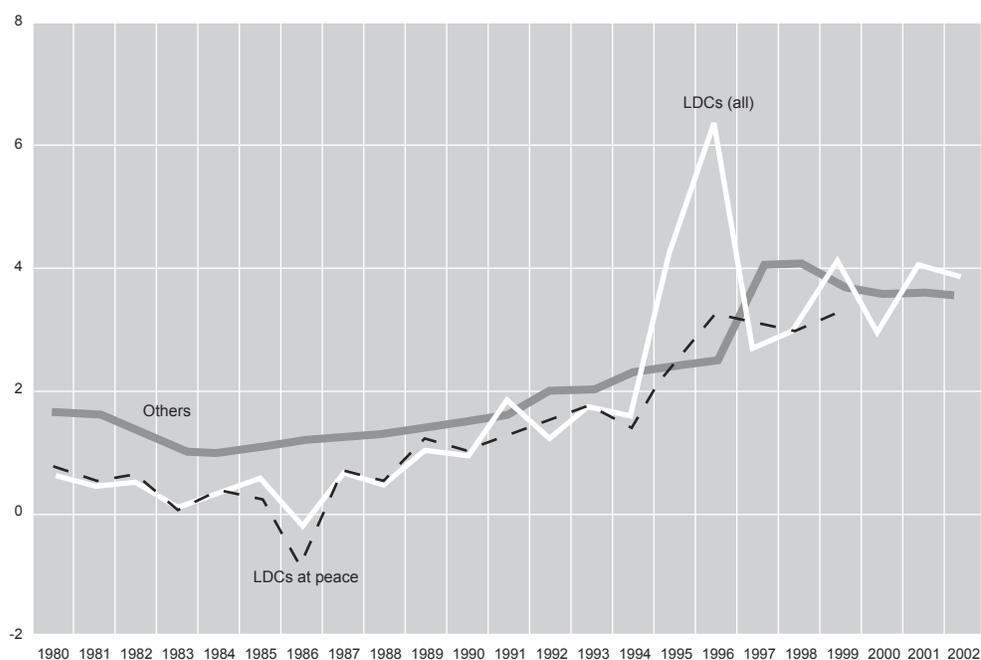
Figure 9. Trade-to-GDI Ratios for LDCs and Middle-Income Countries, 1980–2000



Source: Author's calculations based on World Bank's SIMA data.

Direct Foreign Investment and LDCs

LDCs are also thought less able to attract direct foreign investment (DFI). Figure 10 shows, however, that this is not the case—or rather not according to some yardsticks. In terms of net DFI inflow as a ratio of recipient country's GDI, the difference between middle-income countries and LDCs, which was present throughout the 1980s, disappeared by the turn of the century, when DFI amounted to about 4 percent of GDI in both groups of countries.¹⁹ But because LDCs have a much lower level of GDI per capita, net DFI inflows expressed in per capita terms were much smaller than for the middle income countries. The difference on a per capita basis is staggering. In the second half of the 1990s, the LDCs were receiving only about \$20 per capita annually in terms of net DFI. Middle-income countries, on the contrary, were averaging more than \$100, and rich countries almost \$1,000 per capita.²⁰

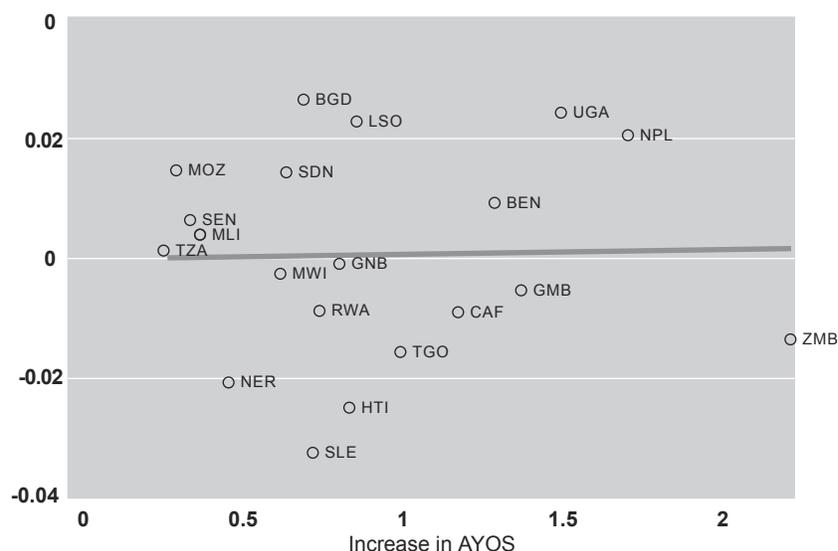
Figure 10. DFI as a Share of Recipient Country's GDI, 1980–2000

Source: Author's calculations based on World Bank's SIMA data.

The Puzzle of Schooling

While the growth record of the LDCs has been almost invariably bad during the past two decades, all of the countries for which we have data have registered increases in the average educational attainment of their populations. The average unweighted (across countries) number of years of schooling (AYOS) was 1.8 in 1980, and it increased to 2.6 twenty years later. (If we use population weighting, the increase was from 1.74 years to 2.54 years.) Not a single LDC for which data are available had not had an increase in AYOS. The most significant increases were recorded in Zambia (+2.2 years), Nepal (+1.8 years), and Uganda (+1.5 years). But when we look at the correlation between change in educational attainment and change in GDI per capita, it is zero (see figure 11). Thus, even some of the worst growth performers like Sierra Leone, Niger, Haiti, and Togo had between 0.5 and 1 year increases in educational attainment. This, of course, represents somewhat of a puzzle because we would normally expect to find a positive association between increases in education and output.²¹ But, as we shall see in the regressions below, the lack of association between growth performance during the 1980–2000 period and changes in education holds not only for LDCs but for all the countries.

Figure 11. Relationship between Increase in AYOS and Average Growth in GDI per Capita in the LDCs, 1980–2002



Source: Author's calculations based on World Bank's SIMA data.

REGRESSION ANALYSIS

In this section, we take together all the factors that we have looked at up to now and see how combined they explain growth performance of all the countries during the past two decades. The reduced-form regression is

$$ROG_{it} = fct(Y_{it}, REFORM_{it}, TARIFF_{it}, OPEN_{it}, POP_{it}, DFIGDP_{it}, DEMOCR_{it}, LDC_i) \quad (2)$$

where ROG = annual rate of growth of GDI per capita during the period 1980–2002, Y = real GDI per capita in 1995 international dollars, $REFORM$ = different measures of reform effort, $TARIFF$ = average unweighted tariff rate, $OPEN$ = trade/GDP ratio in current prices, POP = population, $DFIGDP$ = DFI as a percentage of GDI, $DEMOCR$ = level of democracy from Polity IV database (ranging from 0 to 10), LDC = dummy variable 1 for LDCs and 0 otherwise, and i and t , respectively, are country and time subscripts. All variables in regression (2) are annual and contemporaneous.

The rationale for including GDP per capita as an explanatory variable stems from both convergence theory and the observation (made above) that growth during the past two decades has been faster among richer countries. All other variables have already been introduced. In all cases, we assume, as is conventionally done, that levels of the right-hand side variables (e.g., level of democracy, level of tariff protection) affect changes in income per capita. Or, in other words, changes in RHS variables (e.g., more democracy, less protection) are viewed as leading to a change in the rate of growth (faster or slower growth).²² The only exception to that is the reform variable where a change in policy stance (namely, reform) is supposed to affect growth rate. To simplify matters, we do not use lags—thus assuming that the level effects work their way out on growth within a year. (This assumption will be relaxed below.)

We run three sets of regressions: a simple pooled regression that combines cross-sectional and time-series data, an instrumental variable (IV) regression where we instrument openness because of its possible endogeneity (simultaneity) with growth rate,²³ and, finally, a fixed-effects regression where we allow for unobservable country characteristics. We also use three different formulations for the policy stance (*REFORM* variable). In the first group of regressions (1 to 3), we use the average tariff rate as calculated by the World Bank. In the second group of regressions (4 to 6), we add the cumulative reform index calculated with the FTW database, which ranges from -4 (anti-liberalization reforms in all four areas) to +4 (pro-liberalization reforms in all four areas). In the third group of regressions (7 to 9), we look at the FTW's three individual reform components (average tariffs, exchange rate, and interest rate).²⁴ Results are shown in table 4.

Table 4. Explaining Growth Performance of Countries, 1980–2002

| | With average tariff rates | | | Adding reform index | | | With separate reform indexes | | |
|------------------------|---------------------------|-------------------|--------------------|---------------------|-------------------|--------------------|------------------------------|--------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| | Pooled | IV | Fixed effect | Pooled | IV | Fixed effect | Pooled | IV | Fixed effect |
| Ln (GDI per capita) | 0.007 (0.002) | | 0.016 (0.131) | 0.007 (0.001) | | 0.018 (0.099) | 0.005 (0.005) | | 0.029 (0) |
| War dummy | -0.004 (0.258) | -0.006 (0.133) | -0.014 (0.010) | -0.004 (0.232) | -0.008 (0.076) | -0.014 (0.015) | -0.001 (0.744) | -0.0005 (0.875) | -0.010 (0.022) |
| Average tariff rate | 0.0002 (0.049) | 0.0003 (0.011) | 0.000002 (0.99) | 0.0003 (0.010) | 0.0004 (0.003) | 0.00002 (0.887) | | | |
| Reform (all) | | | | 0.002 (0.051) | 0.003 (0.028) | 0.002 (0.128) | | | |
| Reform tariff | | | | | | | 0.004 (0.23) | 0.004 (0.257) | 0.008 (0.012) |
| Reform exrate | | | | | | | -0.004 (0.025) | -0.003 (0.162) | -0.006 (0.004) |
| Reform interest | | | | | | | 0.005 (0.003) | 0.005 (0.002) | 0.003 (0.038) |
| Openness (GDI / trade) | 0.016 (0) | 0.098 (0.001) | 0.0017 (0.883) | 0.018 (0) | 0.102 (0.001) | 0.002 (0.838) | 0.015 (0) | 0.070 (0.002) | 0.039 (0) |
| LDC dummy | 0.006 (0.246) | 0.014 (0.055) | | 0.004 (0.374) | 0.011 (0.110) | | 0.003 (0.373) | 0.011 (0.075) | |
| Ln (population) | 0.005 (0) | 0.017 (0) | 0.013 (0.414) | 0.004 (0) | 0.016 (0) | 0.007 (0.665) | 0.006 (0) | 0.013 (0) | -0.011 (0.248) |
| DFI / GDI (%) | 0.001 (0.005) | -0.004 (0.041) | 0.0009 (0.119) | 0.001 (0.013) | -0.004 (0.028) | 0.001 (0.087) | 0.002 (0) | -0.002 (0.248) | 0.002 (0.001) |
| Democracy | 0.001 (0.046) | 0.003 (0) | 0.0002 (0.762) | 0.001 (0.019) | 0.003 (0) | 0.0001 (0.852) | 0.001 (0.099) | 0.002 (0) | 0.001 (0.118) |
| Constant | -0.076 (0) | -0.117 (0.001) | -0.160 (0.096) | -0.083 (0) | -0.121 (0) | -0.162 (0.102) | -0.061 (0) | -0.079 (0) | -0.239 (0) |
| No. of obs. | 959 | 959 | 959 | 918 | 918 | 918 | 1815 | 1815 | 1815 |
| R-squared | 0.09 | | 0.0228 | 0.099 | | 0.023 | 0.0895 | | 0.0709 |
| F value | 12.1 (0) | 13.3 (0) | 2.8 (0.007) | 11.12 (0) | 13.0 (0) | 2.47 (0.012) | 17.74 (0) | 24.35 (0) | 14.43 (0) |
| Hansen J statistics | | 0.006 (0.93) | | | 0.050 (0.823) | | | 0.694 (0.404) | |

Notes: Dependent variable: annual GDI per capita growth rate, in fractile. Coefficients significant at 5 percent level and less are shaded. F value for instrumental variable regression is F test of excluded instruments. R-squared in fixed-effects regressions are within R2; p values between parentheses.

WHY DID THE POOREST COUNTRIES FAIL TO CATCH UP?

Countries that are more populous, more democratic, and more open (to both trade and DFI) have grown faster. However, these three effects that are strong in a cross-sectional setting do not always carry over when we adjust for unobserved country features. This in turn means that population size, democracy, and openness are heavily correlated with country-specific characteristics. Indeed, they may be viewed—over the medium term—as *the* country specifics. Once we account for the features of each country, the effects of population size, democracy, and openness in almost all cases dissipate. Neither greater democracy nor greater population size seems to matter for a given country, and, similarly, the effect of increased openness to trade and to foreign investment becomes smaller and is significant in only one out of three fixed-effects regressions.

The positive effect of GDI, however, seems more robust to alternative formulations, highlighting the fact that growth in the 1980–2002 period was faster among richer countries. When it comes to the average tariff rate, the results are similar to results for openness: cross-sectional regressions show that countries with higher tariffs have tended to grow faster, perhaps contrary to conventional wisdom; but once we include country dummies, change in tariff rates has no impact on growth. Moreover, when we use the FTW reform index, tariff liberalization (lower tariff rates) is, in fixed-effects regression, *positively* associated with growth. This seemingly contradictory evidence may be reconciled to argue that, to grow fast, it was helpful to have had relatively high tariff rates and also to have *reduced* them. Indeed, India, South Korea, and China fit that mold precisely. Exchange rate liberalization was negatively associated with growth, while interest rate liberalization was positively associated with growth.²⁵ Finally, the LDC dummy is statistically significant in none of the formulations; this would imply that the overall growth determinants in 1980–2000 were not different for the poorest countries.

ROLE OF INTERNATIONAL AID AND LENDING

When it comes to the performance of LDCs, the role of the international community is of crucial importance. This is for two reasons. First, the key role of the World Bank is to promote development and reduce global poverty. On both accounts, the LDCs should be World Bank's primary focus. Second, private capital flows in the past 20 to 30 years have generally gone from one rich country to another rich country or, at best, from rich countries to middle-income countries. This is in marked contrast to an earlier era of globalization (1870–1914) when the most advanced nations were net exporters of capital. Today, for example, the largest net importer of capital in the world is the United States. This is, of course, not what we would expect from economic theory, and this tendency of capital to flow to rich countries has been dubbed the Lucas paradox (Lucas 1990). Because this is, for whatever reason, the case, the role of international agencies in providing capital flows to the LDCs becomes even more crucial as private capital investors seem to shun the poorest nations.

Table 5 shows that World Bank lending alone and World Bank lending combined with International Monetary Fund (IMF) lending²⁶ have, first, been more important for the LDCs than for the other (middle-income) countries and, second, that the evolution of the lending to the two groups has been different. Total disbursements from international financial institutions (IFIs) to the LDCs have grown from 2.75 percent of recipient's GDI in the first half of the 1980s to about 3 percent of their GDI in the first years of the new century.²⁷ The expansion was mostly due to an increase in World Bank loans and credits to the LDCs.²⁸ Meanwhile, the World Bank and the IMF

have become much less important for the middle-income countries because their combined lending to these countries dropped from the already low level of 1.4 percent of GDI to less than 1 percent. Consequently, the increase in the importance of IFI lending to LDCs has been accompanied by the decreased importance of IFI lending to middle-income countries. In other words, multilateral agencies have been growing more important for the poorest countries and less important for the middle-income countries.

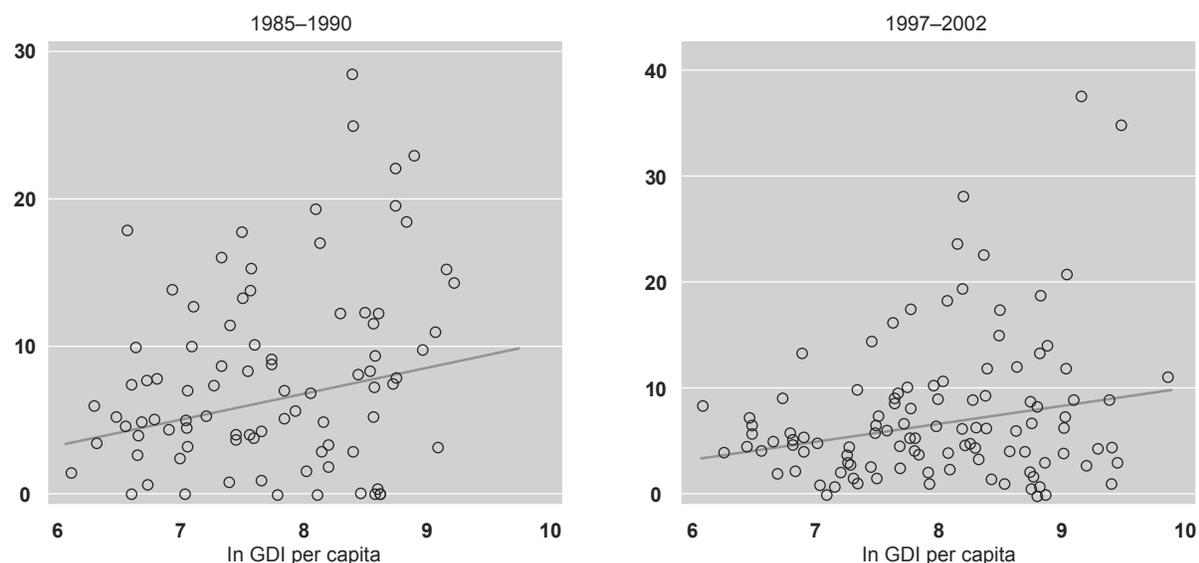
Table 5. IFIs, Gross Disbursements, 1980–2003

| Years | All World Bank lending as percentage of borrower countries' GDI | | All IFI lending as percentage of borrower countries' GDI | |
|-----------|---|----------------------------|--|----------------------------|
| | To LDCs | To middle-income countries | To LDCs | To middle-income countries |
| 1980–1985 | 1.31 | 0.68 | 2.75 | 1.41 |
| 1986–1990 | 2.36 | 0.72 | 3.12 | 1.12 |
| 1991–1995 | 2.32 | 0.78 | 2.85 | 1.35 |
| 1996–2000 | 1.99 | 0.77 | 2.87 | 1.24 |
| 2001–2003 | 2.30 | 0.59 | 3.03 | 0.92 |

Notes: These are unweighted averages. Each country's World Bank (or all IFI) lending divided by country's GDI represents one observation. World Bank disbursements include the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). IFI disbursement includes IBRD, IDA, and IMF purchases.

Because LDCs have incomes that are lower than incomes in the middle-income countries, a greater share of lending in GDI of these countries does not automatically mean that on a per capita basis LDCs received more money. Indeed, throughout almost the entire period, the World Bank's lending on a per capita basis was greater to the middle-income countries, where it ranged from \$6 to \$10 per capita per year, than to the LDCs, where it was only \$2 to \$3 per capita in the early 1980s before increasing to approximately \$7 around the turn of the century. Thus, in 2002, per capita World Bank disbursements to both groups of countries were about the same: about \$7 per year. The simple correlation coefficient between World Bank per capita disbursement and (ln) GDI per capita is positive (+0.2). However, the correlation coefficient between World Bank disbursement as a share of countries' GDI and their (ln) GDI per capita was (as expected) negative: -0.47. World Bank lending tended to be geared basically toward middle-income countries, but such a "bias" was not sufficient to make lending to them more important in terms of their own GDIs. Figure 12 illustrates the positive relationship between GDI per capita and World Bank per capita disbursements for two five-year periods, ending, respectively, in 1990 and 2002.

Figure 12. World Bank Lending on Per Capita Basis and Countries' GDIs Per Capita



Source: Author's calculation based on World Bank's SIMA data.

Note: World Bank lending includes the IBRD and the IDA.

For the combined World Bank and IMF disbursements, the disbursements on a per capita basis were even more clearly higher for the middle-income countries than they were for the LDCs. During the past two decades, the average IFI disbursements have been \$14.6 per capita annually for the middle-income countries and \$8.4 for the LDCs. The difference has been more or less constant throughout the period. A similar correlation to the one found before between per capita lending and level of GDI (+0.18) and lending as a share of GDI and level of GDI per capita (-0.32) holds for all IFI lending combined.

Perhaps the best summary of the different positions of the LDCs and the middle-income countries is the comment that during the 2000-2002 period, LDCs were receiving, on a population-weighted basis, gross disbursement of about \$6 per capita annually from multilateral sources and \$8 per capita annually from DFI (table 6). At the same time, middle-income countries were also receiving about \$6 per capita from multilateral sources and about \$37 per capita from foreign investments. For comparative purposes, we show the data for China, India, and Russia as well.

Table 6. DFI and IFI Lending Per Capita, 2000–2002

| | IFI lending | DFI |
|-------------------------|----------------|------|
| LDCs | 6 | 8 |
| Middle-income countries | 6 | 37 |
| China | 1.5 | 35 |
| India | 1.7 | 3 |
| Russia | 2.7 | 19 |
| OECD countries | — ^a | 1104 |

Source: Author's calculation from World Bank data.

Note: Amounts are in U.S. dollars, as population-weighted averages.

^a The only country among the OECD group that had some IFI borrowing was Turkey.

HAS IFI LENDING HELPED THE GROWTH RATE OF LDCs?

When we try to estimate the effect of IFI lending on a country's growth rate, we deal with a fundamental problem of reverse causality.²⁹ It is much more severe here than for other variables. Thus, for example, while DFI may negatively respond to a slowdown in growth (thus creating endogeneity), IFI lending is almost by design created to respond to such growth slowdowns. This is particularly true of IMF lending, which generally takes place when a country faces a crisis. Likewise, as World Bank lending has in the period under study moved toward adjustment loans, the same has become true for the bank to a much greater extent than earlier, when the bank was mostly involved in infrastructural projects. This then creates a problem in that the use of contemporaneous variables (a country's growth rate and World Bank or IFI lending) is bound to show a negative correlation.

To lessen this type of simultaneity, we have transformed all variables from regression (1) into five-year averages. The contention is that lending should have enough time—over a period of five years—to affect a country's growth rate, presumably positively. The same sets of regressions as before are run, with the addition that we now introduce on the right-hand side total IFI disbursements (as a share of country's GDI) and its interaction with the LDC dummy (to check whether IFI disbursements might have had a different impact on LDCs compared with other countries). Results are given in table 7.

WHY DID THE POOREST COUNTRIES FAIL TO CATCH UP?

Table 7. Results of Regressions with IFI Disbursements as Explanatory Variable

| | With average tariff rates | | | | Adding reform index | | | | With separate reform indexes | | | |
|---|---------------------------|-------------------|-------------------|--------------------|---------------------|-------------------|--------------------|--------------------|------------------------------|--------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| | Pooled | IV | Fixed effect | Fixed effect | Pooled | IV | Fixed effect | Fixed effect | Pooled | IV | Fixed effect | Fixed effect |
| Ln (GDI per capita) | 0.003 (0.018) | | -0.012 (0.003) | -0.022 (0) | 0.003 (0.019) | | -0.013 (0.001) | -0.022 (0) | 0.001 (0.378) | | -0.014 (0) | -0.022 (0) |
| Ln(population) | 0.005 (0) | 0.014 (0) | -0.022 (0) | -0.017 (0.001) | 0.005 (0) | 0.014 (0) | -0.030 (0) | -0.024 (0) | 0.005 (0) | 0.007 (0) | -0.013 (0.002) | -0.007 (0.08) |
| Ln (GDI per capita) *LDC dummy | | | | 0.083 (0) | | | | 0.079 (0) | | | | 0.057 (0) |
| LDC dummy | 0.002 (0.567) | 0.014 (0.057) | | | -0.003 (0.385) | 0.004 (0.537) | | | -0.006 (0.036) | -0.004 (0.319) | | |
| War dummy | -0.004 (0.015) | -0.005 (0.034) | -0.013 (0) | -0.010 (0) | -0.004 (0.019) | -0.005 (0.103) | -0.013 (0) | -0.010 (0) | -0.002 (0.246) | -0.002 (0.361) | -0.011 (0) | -0.008 (0.001) |
| Democracy | 0.0007 (0.001) | 0.002 (0) | 0.0002 (0.438) | 0.0003 (0.319) | 0.001 (0) | 0.002 (0) | 0.001 (0.025) | 0.001 (0.012) | 0.0004 (0.027) | 0.001 (0.002) | 0.001 (0.003) | 0.001 (0.003) |
| Average tariff rate | 0.0003 (0) | 0.0004 (0) | -0.0003 (0) | -0.0002 (0.051) | 0.0004 (0) | 0.0005 (0) | -0.0002 (0.011) | -0.0001 (0.074) | | | | |
| Average tariff rate*LDC | | | | -0.0001 (0.389) | | | | | | | | |
| Reform (all) | | | | | 0.002 (0.001) | 0.003 (0.012) | 0.002 (0) | 0.001 (0.094) | | | | |
| Reform*LDC | | | | | | | | 0.0007 (0.684) | | | | |
| Reform tariff | | | | | | | | | 0.0002 (0.939) | 0.00001 (0.998) | 0.006 (0.002) | 0.005 (0.014) |
| Reform ex | | | | | | | | | -0.006 (0) | -0.006 (0) | -0.007 (0) | -0.007 (0) |
| Reform interest | | | | | | | | | 0.006 (0) | 0.006 (0) | 0.004 (0) | 0.003 (0.005) |
| Openness (trade/GDI) | 0.014 (0) | 0.078 (0.004) | 0.033 (0) | 0.034 (0) | 0.015 (0) | 0.086 (0.001) | 0.035 (0) | 0.033 (0) | 0.012 (0) | 0.029 (0.028) | 0.034 (0) | 0.033 (0) |
| DFI to GDI | 0.002 (0) | -0.003 (0.198) | 0.002 (0) | 0.003 (0) | 0.002 (0) | -0.005 (0.074) | 0.003 (0) | 0.003 (0) | 0.002 (0) | 0.001 (0.421) | 0.003 (0) | 0.003 (0) |
| All IFI disbursement/ GDI | -0.003 (0) | -0.004 (0) | -0.002 (0.003) | -0.003 (0) | -0.003 (0) | -0.002 (0.146) | -0.002 (0.001) | -0.003 (0) | -0.003 (0) | -0.003 (0) | -0.002 (0.001) | -0.003 (0) |
| All IFI disbursement/ GDI* LDC dummy | 0.002 (0.039) | 0.002 (0.029) | 0.002 (0.073) | 0.003 (0.002) | 0.002 (0.012) | 0.002 (0.315) | 0.002 (0.1) | 0.003 (0.005) | 0.003 (0.002) | 0.003 (0) | 0.003 (0.007) | 0.004 (0) |
| Constant | -0.044 (0) | -0.090 (0.002) | 0.153 (0) | 0.099 (0.005) | -0.048 (0) | -0.097 (0.001) | 0.183 (0) | 0.152 (0) | -0.022 (0.019) | -0.029 (0.014) | 0.127 (0) | 0.112 (0) |
| No of obs | 1838 | 1838 | 1838 | 1838 | 1692 | 1025 | 1692 | 1692 | 2318 | 2318 | 2318 | 2318 |
| R-squared | 0.189 | | 0.1238 | 0.158 | 0.210 | | 0.1418 | 0.1672 | 0.1818 | | 0.1414 | 0.1537 |
| F Value | 42.6 (0) | 11.43 (0) | 26.88 (0) | 29.21 (0) | 40.74 (0) | 14.26 (0) | 26.08 (0) | 26.39 (0) | 42.69 (0) | 37.23 (0) | 32.95 (0) | 33.3 (0) |
| Hansen J statistics | | 0.178 (0.673) | | | | 0.055 (0.814) | | | | 0.376 (0.539) | | |

Notes: Dependent variable: rolling five-year annualized GDI per capita growth rate, in fractiles. Coefficients significant at 5 percent level and less are shaded. F value for instrumental variable regression is F test of excluded instruments. R-squared in fixed-effect regression is within R2; p values between parentheses.

Both level of income and population, which in cross-sections are positively associated with growth, change their signs in fixed-effects formulation. In other words, once we account for country characteristics, higher population and higher initial income are not advantages. For the LDCs, the role of income (in fixed-effects regressions) is positive, indicating that among the LDCs it is low income in particular that is associated with low growth. A different way to put it is that poverty and decline feed into more decline (lower growth rates).

Most important, other features that are often associated with LDC poverty were responsible for their slow growth. One of them is, of course, war. On average, each year of war reduced the growth rate by about 1 percent.³⁰ On average, LDCs were at war 28 percent of the time; non-LDCs were at war only 16 percent of the time. Over the twenty-year period, this implies an additional 2.4 years of war for LDCs, which in turn reduces their average annual rate of growth by about 2.4 percent per capita. Cumulated over the same twenty years, we get a loss of output of almost 40 percent compared with the rest of the world.

Democracy is now positively associated with growth. The effect, while statistically significant, is small. A three-point improvement on the democracy scale (which is normally deemed a major democratization) raises an annual growth rate by 0.3 percent per capita only.

Turning to reforms, we get (as in the previous equations), an overall positive effect of reforms in both cross-sections and fixed effects. The effect of reform does not vary between LDCs and other countries. Each individual reform contributes, on average, to a 0.2 percent increase in per capita growth rate.³¹ However, all reforms are not equal: tariff and interest rate liberalization are good for growth (once we adjust for country-specific effects). Exchange rate liberalization is bad. These results are the same as the results in the previous formulation (see table 4). For protection, we also detect the same ambiguity that we noted before: across countries, those with a higher level of protection have tended to do better, but—for a given country—reducing tariff rates was helpful. Greater openness to trade and DFI is now unambiguously positive: trade and DFI raise the rate of growth in almost all the formulations.

The results that we are most interested in are the effects of IFI disbursements (averaged over five years) on countries' growth rates (also averaged over five years). On average, these effects are negative: IFI disbursement equal to 1 percent of a recipient country's GDI is associated with the reduction in the growth rate of about 0.3 percent per capita per annum. Yet this negative effect is entirely offset for the poorest countries: as we can see from the size and significance of the interaction term (between IFI disbursements and the LDC dummy), the two effects cancel each other out. In other words, increased IFI disbursements were associated with zero change in the growth of LDCs.³² This is very similar to the results obtained by Easterly (2005) in the case of repeated World Bank borrowers: The growth effects in each case seem to be close to nil.

CONCLUSION

Why have the poorest countries not only failed to catch up but have even failed to keep up with the rest of the world? The reasons must be highly country specific, but, in a cross-sectional study, we can still uncover some possible causes—or at least state positively why growth was so low and negatively what are *not* likely to be the reasons for low growth.

WHY DID THE POOREST COUNTRIES FAIL TO CATCH UP?

One key factor associated with low growth is war and civil strife. The poorest countries have lost, on average, some 40 percent of their output through much greater frequency of war compared with the rest of the world. If we take the effect of wars alone, we find that the entire relative decline of the LDCs compared with the middle-income countries can be thus explained. In other words, had prevalence of war among LDCs been at the same level as elsewhere, the LDCs would have at least kept pace with the rest of the world.

The next most important variable is the delay in reforms among LDCs. While the middle-income countries' reformed from the mid-1980s onwards, comprehensive reforms among the poorest countries started only some ten years later. The effect of reforms should not be exaggerated, however; each reform (as defined above with the FTW index) tended to be associated with an increase in the growth rate of about 0.2 percent per capita per annum. Had LDCs had the same frequency of reforms as the middle-income countries, their annual growth rate would have been raised by only 0.01 percent.³³ Cumulated over twenty years, this gives an income gain of less than 1 percent—hardly overwhelming. Yet it is possible that the failure to reform in the mid-1980s (rather than in the second half of the 1990s) might have been costlier than these numbers suggest. Finally, the use of IFI resources seems to have had an indifferent effect on LDC growth. On balance, greater flows from multilateral lenders were not associated with higher growth rates.

Factors that do not seem to have been associated with LDCs' poor performance were DFI and democracy. The former has positively affected growth, and LDCs did not perform worse than middle-income countries in attracting DFI. Democracy has had no effect on growth.³⁴ Similarly, the average level of protection measured by tariff rates is not different for LDCs than it is for other countries, so this too is unlikely to have been a cause of poor countries' bad performance.

The lower trade-to-GDI ratio in poor countries played an unclear role. Greater openness is related to higher growth in cross-sectional and fixed-effects formulations although that effect dissipates when we instrument for openness, on the reasonable assumption that there may be reverse causality (going from faster growth to greater trade). Furthermore, the lower trade-to-GDI ratio cannot be shown to have been caused by some particularly inimical policy stance of the LDCs: their protection levels were not higher than elsewhere, and even their reform performance was not out of the ordinary. It is more likely that the observed lower trade-to-GDI ratio was the product of both lower growth and wars and the general marginalization of poor countries—that is, their absence of clear comparative advantage in the world of mobile capital.³⁵

What lessons can we draw from the experience of the past twenty years that would help LDCs' future growth? There may be three.

The first lesson, and an obvious one, is that less war and less civil strife are key.

Second, the reliance on multilateral lenders is unlikely to help the poorest countries.

Third, the much-touted positive roles of democracy and higher education are very difficult to discern on the basis of the empirical evidence alone. Indeed, it could be that both are primary goods, desirable in themselves, instead of purely instrumental goods acting as tools for higher income. In that sense, democratization and better education in poor countries are worthy goals, but neither seems to be an instrument for economic development—particularly so if other enabling conditions, like peace, are not present.

NOTES

- ¹ All growth rates are in real terms. All GDI income levels (unless specifically stated otherwise) are in 1995 \$PPP (purchasing power parity dollars).
- ² The numbers for China are not universally accepted. For a dissenting view, see Maddison (2003; 1998) and Heston (2001).
- ³ The mean unweighted income loss among countries with negative growth was 20 percent (or about -1 percent per capita annually).
- ⁴ These countries were Jordan, Kuwait, Saudi Arabia, and the Philippines.
- ⁵ GDI data are missing for Afghanistan, Bhutan, Comoros, Eritrea, Kiribati, Liberia, Maldives, Myanmar, Sao Tome and Principe, Solomon Islands, Vanuatu, Samoa, Cambodia, Laos, Cape Verde, Burundi, Yemen, DR Congo (Zaire), Equatorial Guinea, and Somalia. Their combined population in 2000 was approximately 190 million, with three countries (Afghanistan, Myanmar, and DR Congo) accounting for the bulk of it (about 130 million).
- ⁶ Contrast this with the fact that not a single rich country was poorer in 2002 than in 1980. The slowest-growing rich country was Switzerland, with an average annual growth of 0.8 percent per capita; the fastest-growing rich country was Ireland, with a gain of 5.5 percent per capita per annum.
- ⁷ Data on conflict come from Nicholas Sambanis's database, <http://pantheon.yale.edu/~ns237/index/research.html#Data>; see also Sambanis (2004).
- ⁸ Out of thirty-nine LDCs for which data exist, twenty-four faced at least one instance (year) of civil war.
- ⁹ These conflicts comprised the three-way and then the two-way civil war in Angola that started just after its independence, the Libyan invasion of Chad and domestic conflict in Chad, the conflict in the Chittagong Hills in Bangladesh (ended in 1997), and the North-South civil war in Sudan.
- ¹⁰ Available at www.freetheworld.com, the report is issued by the Fraser Institute, Vancouver, Canada. The September 2003 issue of *European Journal of Political Economy* was dedicated to the issue of reform measurement and, in particular, to the FTW database; for a description of the procedures used in defining and grading reforms, see Gwartney and Lawson (2003).
- ¹¹ This is as understood by the free-trade, right-wing, non-redistributionist view of the world.
- ¹² The number of countries is almost constant: FTW includes 116 countries in 1975 and 120 in 2000.
- ¹³ We transformed the two trade-related indicators into ordinal measures of reform by assuming that there is a meaningful pro-liberal policy change when a country's index of restrictiveness decreases by one-half of the initial period's overall standard deviation. Thus, if the mean trade revenues as a share of trade value in the world are 10 percent and the standard deviation is 5 percent (both in year 1980), and if a country's trade taxes (as a share of its total trade) decrease by more than 2.5 percentage points between 1980 and 1985, the country is deemed a pro-openness reformer over the entire 1980–1985 period. The same but in the opposite direction means that the country is an anti-openness reformer. For the other two variables (exchange and interest rate regulation), a country is deemed a liberalization reformer if the index increases by 1 percentage point.
- ¹⁴ The World Bank CPIA index covers, in principle, all World Bank borrowers annually since 1977. However, the coverage is less thorough partly because of lack of information (e.g., the indexes for China and India are reported only after 1980) and partly because of unsettled political conditions in some countries (e.g., civil wars or no relationship with the World Bank). Country coverage steadily increased from 79 countries in 1977 to 118 countries in 2002. The value of the index varies from 1 (worst policies as judged by World Bank economists) to 6 (best policies). CPIA data are not in the public domain and cannot be released for individual countries. Before the mid-1990s, the scale was different. The earlier data were rescaled by Aart Kraay (who also kindly supplied them) so that the earlier scale corresponds with the current (1 to 6) scale.
- ¹⁵ Exogeneity of the CPIA is strongly questioned by Mauro (1995) and Dalgaard, Hansen, and Tarp (2003). In support of this hypothesis, Dalgaard, Hansen, and Tarp (2003, 20) report that including the growth rate of GDI per capita between 1999 and 2001 improves the CPIA forecast (conditional on the 1999 CPIA value). In other words, CPIA, which in principle is a sluggish variable, is shown to respond to observations of higher growth.
- ¹⁶ The level of democracy is being assessed (or approximated) by using the "democracy" variable from the Polity IV project (University of Maryland at College Park) database. Democracy is defined as "general openness of political institutions." For more detail, see Marshall and Jaggers (2000, 14). Scores are taken from the Polity IV project dataset available at www.cidcm.umd.edu/inscr/polity.
- ¹⁷ Ironically, by far the most democratic country in 1980 was Gambia, which in 2000 was ranked as a dictatorship (with the democracy indicator of zero).

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- ¹⁸ Grossman and Helpman (1991, 166–7) wrote: “It is plausible to assume that the foreign contribution to the local knowledge stock increases with the number of commercial transactions between domestic and foreign agents. That is, we may assume that international trade in tangible commodities facilitates the exchange of intangible ideas [and that the extent] of [technological] spillovers between the two countries increases with the volume of the trade.”
- ¹⁹ The LDC spikes in 1995 and 1996 are due to huge investments (compared with GDI) in Equatorial Guinea (77 percent and 145 percent of GDI); these investments were related to the development of oil fields.
- ²⁰ These are all unweighted averages. Each country/year is one observation.
- ²¹ This lack of association has been noticed before; see Pritchett (1996).
- ²² Put differently, rate of growth is a stationary series.
- ²³ It can be quite plausibly argued that faster growth leads to more trade. The instruments for openness are land area and GDI per capita.
- ²⁴ The fourth component of reforms (trade taxes as a share of GDI) is omitted because of its collinearity with the average tariff rate.
- ²⁵ The negative correlation between exchange rate liberalization and growth may be the reflection of the following succession of events: a current account crisis triggered by either debt payment issues or shortfall in exports or increased cost of imports followed by a stabilization program that has the objective of increasing net exports through reduced domestic absorption. This is achieved by the devaluation of the real exchange rate. Thus, low growth (recession) and exchange rate liberalization will tend to be positively correlated.
- ²⁶ For simplicity, the terms “lending” and “(gross) disbursement” are used interchangeably. Note that the World Bank distinguishes between commitments and actual disbursement. The figures here always refer to the latter, that is, to the money that has actually found its way to the recipient country.
- ²⁷ This is approximately 1 GDI percentage point less than the importance of DFI for these countries (see figure 11).
- ²⁸ “Credits” is the term used for International Development Association (IDA) lending that has a substantial grant element (unlike International Bank for Reconstruction and Development (IBRD) loans where the grant element is much less, or IMF purchases where it is practically absent).
- ²⁹ There is an added problem of selection bias in the sense that countries that depend on IFIs’ financial help are generally less economically successful than those that do not. In a nice metaphor used by Easterly (2005), countries that depend on IFI assistance are like patients in a hospital. We would expect patients in a hospital to be sicker than the population at large, but the hospital is clearly not the cause of their sickness.
- ³⁰ Estimates range (in fixed effects) from -0.8 to -1.3 percent.
- ³¹ This is much lower than estimates by Fernandez-Arias and Montiel (1997) and Loayza, Fajnzylber, and Calderón (2005), who find reform’s effect raises the growth rate by between 1.7 and 1.9 percent per annum. Methodologies of course differ. However, if we assume that all four liberalization reforms are implemented together, the effect in our regressions is 0.8 percent per capita, which is only one-half of what they find. Also, unless we assume that reforms raise the growth rate permanently, the effect of reforms must wear off.
- ³² We have also experimented with the average number of years of education and commodity dependence (share of primary commodity exports in total exports) as independent variables. Neither is significant, whether alone or when interacted with the LDC dummy.
- ³³ The average probability of reform was 0.52 for middle-income countries and 0.47 for the LDCs (over the 1980–2002 period).
- ³⁴ This finding parallels findings of Przeworski and Limongi (1993), Barro (2000), and Persson (2004, 19). Tavares and Wacziarg (2001) identify four channels whereby democracy might (statistically significantly) affect growth. They find two of them to work positively on growth (lower income inequality and higher educational achievement) and two of them negatively (lower capital accumulation and higher government spending). On balance, they conclude that the effect of democracy is negative (mostly on account of the large negative impact of low capital accumulation). However see the opposite finding by Rodrik and Wacziarg (2004) who, using political variables only, find that democratization leads to an increase in the growth rate.
- ³⁵ Without capital and labor mobility, every country has to have comparative advantage if the number of goods is greater than the number of countries. But with mobile factors of production, absolute rather than relative advantage matters. In that case, as mentioned before, a country can be excluded from the positive aspects of globalization (growth of income) although it can still participate in globalization by exporting its labor and capital. Such export is, however, unlikely to increase its per capita income.

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APPENDIX 1. WINNERS AND LOSERS DURING THE GLOBALIZATION ERA, 1980–2002

| 2002 real per capita GDI in relation to 1980 real per capita GDI | Africa | Asia | Latin America | Eastern Europe/FSU | WENAO ¹ |
|--|---|---|--|--|---|
| More than 58 percent gain ² | Botswana Egypt Lesotho Uganda | Bangladesh China Hong Kong India Indonesia Korea Malaysia Pakistan Singapore Sri Lanka Thailand | Chile Dominican Republic | | Spain Ireland Luxembourg Norway Portugal |
| Gain between 0 and 58 percent | Benin Burkina Faso Chad Ghana Guinea Mali Morocco Mozambique Senegal South Africa Sudan Tanzania Tunisia | Iran, Islamic Rep. Japan Nepal Papua New Guinea | Bahamas Barbados Brazil Colombia Costa Rica El Salvador Guyana Jamaica Mexico Panama Trinidad and Tobago | Albania Bulgaria Belarus Estonia Hungary Latvia Poland Slovenia | Australia Austria Belgium Canada Denmark Finland France Germany Greece Israel Italy Netherlands New Zealand Sweden Switzerland Turkey United Kingdom United States |
| Loss between 0 and 20 percent ³ | Algeria Angola Cameroon Central African Rep. Congo (Braz) Ethiopia Gabon Gambia Guinea-Bissau Kenya Malawi Mauritania Nigeria Rwanda | Jordan Kuwait Philippines | Argentina Bolivia Ecuador Guatemala Honduras Paraguay Peru Uruguay | Croatia Kazakhstan Lithuania Romania Russian Federation | |
| Loss over 20 percent | Cote d'Ivoire Djibouti Madagascar Niger Sierra Leone Togo Zambia | Saudi Arabia | Haiti Nicaragua Venezuela | Armenia Georgia Kyrgyz Rep. Moldova Turkmenistan Ukraine Uzbekistan Serbia and Montenegro | |

¹ WENAO refers to Western Europe, North America, and Oceania (in other words, the "old" OECD).

² 58 percent is the average unweighted increase in per capita real GDI between 1980 and 2002 among countries that have a higher income in 2002 than in 1980.

³ 20 percent is the average unweighted decrease in per capita real GDI between 1980 and 2002 among countries that have a lower income in 2002 than in 1980.

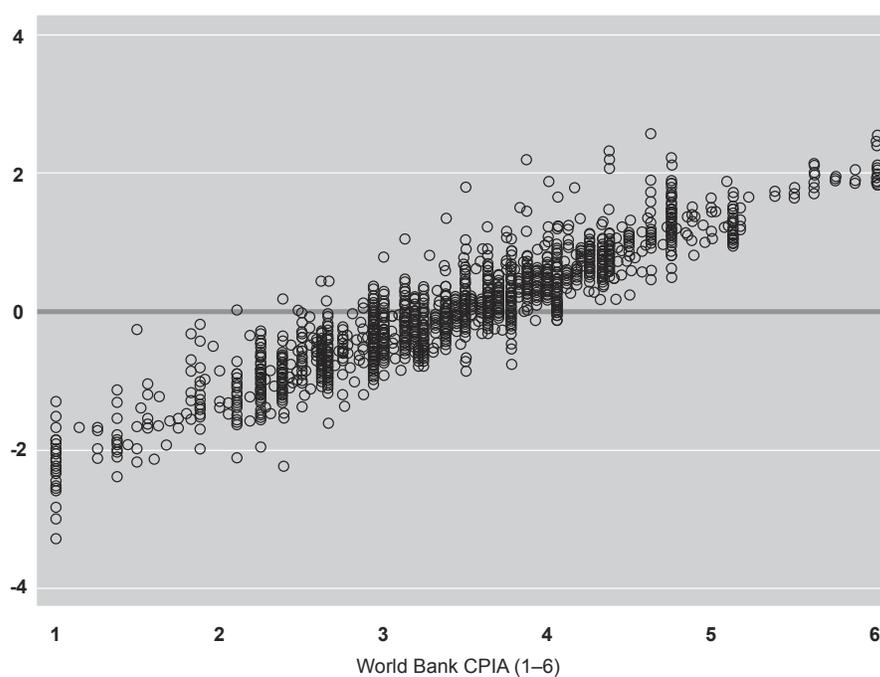
APPENDIX 2. REGRESSION RESULTS FOR CPIA INDEX

| | |
|--|------------------|
| Dependent variable: CPIA index | |
| GDI per capita growth (lagged 1 year) | 3.181 (0) |
| GDI per capita growth (lagged 2 years) | 1.718 (0) |
| GDI per capita growth (lagged 3 years) | 0.996 (0.001) |
| GDI per capita growth (lagged 4 years) | 1.137 (0) |
| LDC dummy | -0.563 (0) |
| Constant | 3.563 (0) |
| No. of obs | 1980 |
| R-squared | 0.2254 |
| F value | 114.88 |
| p value | (0) |

Note: p values between brackets. All statistically significant (at <5%) coefficients shaded.

Figure A2.1 displays residuals from regression (1) plotted against CPIA values. It clearly indicates a possibility of having an omitted variable in regression (1), which is positively correlated with the level of CPIA index. This omitted and unobserved variable is, we argue, policy and institutional appropriateness “netted” of other effects.

Figure A2.1. Residuals from Regression (1) and CPIA level



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