

The Determinants of Economic Success:

A RECENT World Bank study shows that countries' economic growth rates are highly volatile due to the presence of "luck"—shocks such as shifts in terms of trade. But effective short- and long-term policies can help offset the effects of bad luck and create economic success stories.

The economic "miracles" of the postwar era—Japan, Germany, and the Four Tigers of East Asia—have been justly celebrated. Their success has been the subject of much study by analysts eager not just to explain the rapid growth rates but to apply these explanations to other countries.

Many analysts have held to the implicit assumption that differences in economic growth rates among countries are relatively permanent, with the same countries performing well decade after decade. This assumption has led to generalized explanations that attribute the success of the postwar economic miracles to durable country characteristics: institutional arrangements such as the life-long employment common in Japan's labor market, traditions such as government-business consultations in the Republic of Korea, and even cultural tendencies, such as the German penchant for quality.

But the realities of economic growth contradict the assumption that differences in growth rates remain stable over time; economic success (or failure) is typically short-lived. With some exceptions—notably the countries mentioned above—the same countries do not perform well over long periods. A country's performance may be outstanding one decade but a disappointment the next, and vice versa. There is a surprisingly large volatile element—transitory "booms" and "busts"—that has a significant effect on growth rates over periods of a decade or

more. This volatile element, which can be described simply as "luck," includes internal shocks, such as droughts, as well as external shocks, such as sudden shifts in terms of trade.

But the presence of this volatile element does not imply that luck is the most important factor in economic success. A country may have the good luck to avoid negative shocks, but without good policy, it will turn in only a mediocre performance. Similarly, a combina-

tion of poor luck and poor policy can turn what should have been mere tremors into full-fledged shocks. For despite the presence of luck, established policies have an appreciable effect on economic growth rates and help to explain why some countries are able to sustain growth and others are not.

Do growth differences persist?

Research indicates that very few economies see their success (or failure) persist from

Luck and Policy

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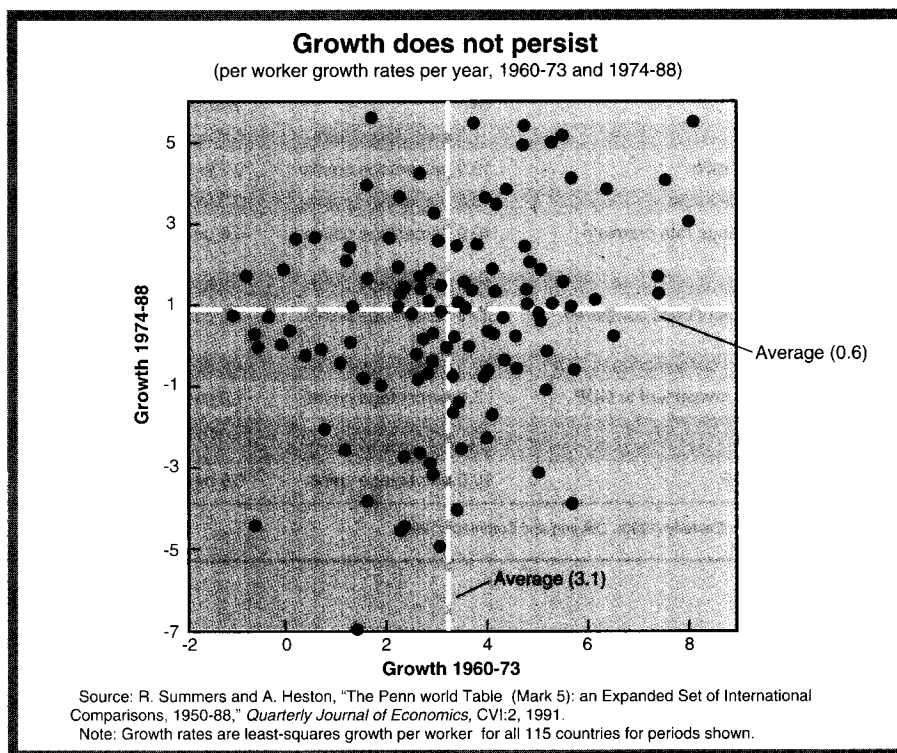
decade to decade. An examination of the relationship between the per capita growth rates for the periods 1960–73 and 1974–88 for 115 countries illustrates this fact (see chart). If countries' growth rate differences were largely permanent, as many have assumed, the countries would lie along an upward sloping line, since those with high growth in the first period would also show high growth in the second. A correlation of growth rates across periods summarizes the volatility of country performance: the correlation is 0.2, indicating that, on average, only 20 percent of the growth differences between countries in 1960–73 persisted into 1974–88.

This low persistence is not an anomalous feature of the particular period or sample of countries we have chosen. Correlations of growth rates across periods are uniformly low for different historical periods, periods of time, and groups of countries. For instance, even across successive 30-year periods since 1870, the correlation for a group of 23 economies from Latin America and the Organisation for Economic Co-operation and Development is only about 0.1. And only four countries (Botswana, Korea, Singapore, and Taiwan Province of China) were in the top one tenth of the growth rates in both 1960–73 and 1974–88 (two other East Asian countries, Hong Kong and Japan, just missed the top rating in the first and second periods, respectively). Only one country (Chad) was in the bottom one tenth in both periods.

The widespread perception that relatively permanent cultural or institutional differences among countries are responsible for economic growth may be due primarily to the well-deserved attention the East Asian success stories have received. For without the East Asian countries in our sample, the already low correlation of growth rates (0.2) is reduced by half. Further, even some of the East Asian miracles performed relatively poorly before 1960: Korea, for example, had per capita growth of 0.1 percent from 1900 to 1950, as well as a lackluster decade in the 1950s.

The typical country saw its per capita growth rate change in absolute value (up or down) by 2.5 percent from the 1960s to the 1970s and by 3.5 percent from the 1970s to the 1980s. For instance, Mauritius had zero growth in the 1960s but achieved 7.3 percent in the 1970s. On the other hand, Jamaica, which grew at 4.5 percent in the 1960s, experienced negative growth of 1.5 percent in the 1970s. Nigeria went from a 2.6 percent growth in the 1970s to contraction—at 4.8 percent annually—in the 1980s.

The variation in growth rates is even larger for periods of less than a decade. In the typical developing country, the year-to-year



change in the growth rate is 5 percentage points. Chile has been through a number of dramatic growth-contraction episodes, some lasting only a few years. Its per capita income grew at a respectable 2.5 percent annually between 1960 and 1972; it then fell by 6.3 percent each year from 1972 to 1976, rose 5.5 percent annually between 1976 and 1981, dropped almost 10 percent yearly from 1981 to 1983, and finally began to recover, growing 3.2 percent annually between 1983 and 1990.

Unlucky forecasting

Economic forecasters, not realizing how quickly growth performance can change, have often made the mistake of extrapolating forward from a country's successes or failures. The first World Bank mission to Korea in the early 1960s described the government's development program as "ludicrously optimistic" because performance in the 1950s had been poor: "There can be no doubt that this development program [the GDP growth of 7.1 percent forecast for 1962–66] far exceeds the potential of the Korean economy. . . . It is inconceivable that exports will rise as much as projected." Korea's growth rate was 7.3 percent during the period in question.

In the early 1960s, a group of distinguished economists forecast a per capita growth rate for Sri Lanka that would exceed Taiwan's over the period 1962–76. Yet during those years, Sri Lanka's growth rate was 0.3 percent, Taiwan's 7.3 percent. According to the same predictions, Argentina and Colombia, coun-

tries that grew rapidly in the 1950s, would far outstrip Hong Kong and Singapore (with "its own potentially explosive problems [of rapid population growth] which threaten a mounting unemployment burden"). Between 1962 and 1976, Hong Kong grew twice as fast as Argentina, and Singapore grew more than twice as fast as Colombia.

The Bank's 1957 economic report was optimistic about the Philippines, describing the country's position in the Far East as "second only" to Japan's and its prospects for "sustained, long-term growth" as "good." Burma (now Myanmar) was put forward as an even more promising case; in 1958, the Bank commented on its "remarkable economic progress," observing that "Burma's long-run potential compares favorably with that of other countries in South East Asia." The Philippines and Burma have been among the few countries left out of the East Asian miracle.

With the exception of anticipated stars like the Philippines and Burma, however, economists were very pessimistic about the economic future of much of Asia because of the low growth rates prior to 1960. A development textbook in 1963 ranked this region last in development potential—behind Latin America, sub-Saharan Africa, and the Middle East.

Asia's prospects in the 1960s looked especially poor compared to Africa's. Inspired by rapid African growth in the 1950s and early 1960s, an economist predicted in 1967 that the continent's economic future could be "bright"

Luck matters, but policy could matter even more

An increase in:	of:	will change growth by:
Investment/GDP	1.0 percentage point	0.1 to 0.2 percentage point
Primary enrollment ratio	10.0 percentage points	0.2 to 0.3 percentage point
Secondary enrollment ratio	10.0 percentage points	0.2 to 0.3 percentage point
Black market exchange rate premium over official rate	10.0 percentage points	-0.4 percentage point
Ratio of M2/GDP	10.0 percentage points	0.2 to 0.4 percentage point
Average producer input price compared to world prices	23.0 percentage points	-1.0 percentage point
Ratio of government consumption to GDP	10.0 percentage points	-1.2 percentage points
Ratio of equipment investment to GDP	3.0 percentage points	1.0 percentage point
Financial repression	from having positive real interest rates to negative	-1.5 percentage points
Export share to GDP	10.0 percentage points	0.6 percentage point

Source: Barro (1991), Easterly (1993), DeLong and Summers (1992).

by the end of the century. He listed seven specific African countries that clearly had "the potential to reach or surpass" a 7 percent growth rate. All of the economies he listed had negative per capita growth in the following two decades.

Forecasting mistakes are more than amusing historical anecdotes. The recent optimism inspired by Latin America's rapid growth in the 1970s and early 1980s, for example, led many to underestimate the risk of a debt crisis. Such mistakes could be repeated today, given the euphoric expectations for East Asia and gloomy predictions for Africa and the states of the former USSR. Even some of the postwar economic miracles are already losing their luster; a recent article by Rudiger Dornbusch of MIT describes "the end of the German miracle." In fact, the primary lesson to be drawn from past economic growth is that "failures" can become "successes"—and vice versa—with surprising speed.

Country traits and growth

If the significant variations in growth rates across countries are not the result of permanent country characteristics, what then is the cause? We asked if the source of this instability could lie in the fact that growth determinants such as policy environments, political climates, and educational enrollment rates are themselves rapidly changing. But in our sample, most political and policy indicators display much higher cross-decade correlations (0.6 to 0.9) than do per capita growth rates (0.1 to 0.2). The stability of these policy indicators over time suggests that they will offer little help in explaining the transitory fluctuations in economic growth rates, although they go some way toward explaining long-term differences.

Even if these various policy indicators are combined to produce an index of "good policy" (using a regression to determine the weights) the cross-decade correlation of this index is also very high—much higher than actual growth rates—ranging from 0.45 to 0.8, depending on the period and the variables included. Other country characteristics that are often invoked to explain economic performance ("culture," "work ethic," "quality of government," or "propensity to save") are likely to be even more stable than the policy indicators we do include, so that the persistence of predicted growth rates is likely to be even stronger if these more durable country characteristics are included.

In light of the stability of policy indicators and the instability of growth rates, even over periods as long as a decade, the policies and other country characteristics we have been able to measure cannot fully explain growth performance. Our findings suggest that luck and temporary policy mistakes—as opposed to permanent policy differences—are important factors in explaining sudden changes in growth.

Policy, luck, and growth

Perhaps the most important type of luck influencing country performance is a shift in external terms of trade, such as a sudden increase or decrease in the world price of a country's main commodity export. Such changes can lower or raise growth by a surprising amount: a negative terms of trade shock averaging 1 percentage point of GDP annually over a decade (defined as the change in terms of trade times the initial trade share) lowers growth by 0.8 percentage points annually in that decade. Shocks of this type explain as much of relative growth performance in the

1980s as policies do. Moreover, measures of policies are themselves affected by external shocks: for example, a black market premium on foreign exchange (a commonly used indicator of macroeconomic policy) is itself affected by changes in terms of trade.

The GDP growth of many countries exhibits boom periods that account for a large part of overall economic growth. Very large booms—and busts—become evident in the 5-year periods showing the strongest and weakest economic performances of various countries between 1960 and 1990. The average growth rate across countries implies that per capita income grew 10 percent every five years during this period, but the strongest 5-year boom for each country created a 30 percent increase. Even considering these periods reflect the countries' top economic performances, the increase is dramatic and suggests that significant growth often takes place in a relatively short time.

Similarly, those countries with positive growth experienced a growth in income during the best 5-year period that is just less than half the income growth over the entire 30-year period. The same is true for busts: on average, the weakest 5-year period saw income fall 15 percent, in spite of the average upward trend.

But while shocks and other forms of luck may have an effect on growth rates over one year, five years, or a decade, policies strongly affect growth over longer periods. Development economists, particularly those associated with the Bank, have amassed evidence for years that outward-oriented, market-friendly policies have positive effects on long-term economic growth. Economists have recently undertaken another round of intensive research on the determinants of long-term growth, adding to this body of evidence. The data show that compared with slow-growth countries over a 30-year period, countries with an overall rapid growth rate have double the investment rates, half the inflation, one-fifteenth the black market premium, twice the export share, four times the secondary enrollment, and double the primary enrollment.

Effective policies raise growth not only by creating an environment conducive to investment, but by increasing the amount of growth payoff to investment. Korea and Zambia provide a dramatic example. Between 1960 and 1989, the two countries had roughly the same rate of investment to GDP but very different trade and financial policies. Korea was outwardly oriented and did not have strongly negative real interest rates; Zambia was inwardly oriented and financially repressed, with very negative real interest rates. Korea's total GDP grew at 9 percent and Zambia's at just 1 percent.

These simple associations have also been confirmed in the econometric literature examining partial correlations between growth and policy variables. The partial correlations can be interpreted as supporting evidence for the argument that policies have a significant effect on growth rates (see table). For example, if a set of long-term policy reforms were implemented that increased equipment investment 3 percentage points of GDP, ended negative real interest rates, lowered the black market premium 20 percentage points, and raised primary and secondary enrollment 10 percentage points, per capita growth would rise a remarkable 3.8 percentage points. This gain translates into an additional increase in income of 45 percent in one decade and a more than doubling of income over two decades.

How do we reconcile the importance of good policy with the simultaneous importance of good luck? In reality, they pose no contradiction. Our findings suggest that while policy indicators are helpful in explaining some of the cross-country differences in growth rates over long periods, they are less successful in explaining changes in growth rates for shorter periods such as a decade. If drastic policy reform in some countries increased the variations across countries, then policy would explain a larger fraction of growth, even over shorter periods. The big policy reforms that lead to high growth are, however, unfortunately rare. For countries that continue to muddle along, luck is an important factor; for the few that dare significant reforms, policy overrides luck.

Moreover, policy itself can help countries cushion the impact of bad luck and take full advantage of good luck. How a country responds to shocks can be as important as the magnitude of the shocks themselves; in fact, the effects of shocks on growth that we found may reflect poor policy responses in a large number of countries. Nigeria and Indonesia provide an effective example. Both are low-income, oil-producing countries that relied heavily on oil revenues in the early 1980s. However, the two countries responded differently to the 1986 collapse in oil prices. Indonesia reacted rapidly, and, by avoiding large fiscal deficits and overvalued exchange rates, made the best of bad luck. Nigeria delayed its reaction allowing internal and external balance pressures to build to crisis stage, and its restrictive import policies and inadequate fiscal adjustment made a bad situation worse. As a result, Indonesia's economy continued to grow, and Nigeria's contracted.

Countries' macroeconomic policy stances are difficult to measure and compare. But as the example illustrates, macroeconomic policy

decisions may explain some of the variation in growth rates and may play a part in their instability. Case studies suggest that macroeconomic policy mistakes can turn a successful country into an unsuccessful one in a hurry. For instance, the "Chilean economic miracle" celebrated in the late 1970s and early 1980s was undone by an appreciating real exchange rate (the nominal exchange rate was held at a fixed level in the face of continuing domestic inflation). Only subsequent stabilization and



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resolution of the external debt overhang allowed growth to resume.

Similarly, in the long run, countries can actually "make" their own luck. While the prices of current exports may be beyond a country's control, for instance, policies that respond to price fluctuations are not. In 1970, mineral ores (primarily copper) accounted for 88 percent of Chile's exports and 99 percent of Zambia's. Between 1970 and 1986, the nominal price of copper did not rise at all, yet Chile's total exports expanded almost fourfold, while the dollar value of Zambia's fell by half. The difference lay in the use of policy: Chile, responding to the market, reduced the share of copper to just half the country's total exports; in Zambia, copper's share remained at 92 percent.

A useful analogy in thinking about the functions of policy involves seat belts. The use of seat belts is not a major determinant of who gets injured in an automobile accident. The main predictor of injury in a car accident is

being in an accident—a possibility that is often beyond the control of both passengers and drivers. Yet the probability of serious injury or fatality is much lower for seat belt users than for nonusers: the US Department of Transportation estimates that one third of all the country's highway fatalities in 1991 could have been avoided had seat belts been used. Few would conclude that because failure to use a seat belt does not explain 100 percent of all car fatalities, wearing seat belts is a matter of indifference.

Like seat belts in an accident, well-planned economic policies may be a country's best chance in the face of an unexpected economic shock. Just as it is difficult to argue against the efficacy of seat belts, it is difficult to argue that because policies are not the single determinant of economic success, they should be ignored altogether. All economies are subject to shocks that influence short- and medium-term growth rates, and in the interest of offsetting these shocks as much as possible, countries should not leave their policy seat belts unbuckled.

Planning ahead

Countries enjoying a period of rapid growth cannot be complacent: most rapid growth episodes are short-lived. Good long-term sectoral and macroeconomic policies that lead to high educational enrollment rates, deep financial markets, increased equipment investment, stable and undistorted prices, and realistic interest rates are the only convincing foundation for future growth. Analysts should seek direct evidence that such policies are being followed and not simply assume on the basis of possibly temporary good performance that effective policies are the cause.

The evidence shows that economic success depends on such long-term policies as well as on short-term contingencies of luck and specific instances of macroeconomic management. While growth rates may take wide swings, countries with better-than-average policy fundamentals can expect to have better-than-average growth in the long run. With the aid of policy reforms, countries can overcome even bad luck and go on to promising futures. ■

A discussion of the World Bank study appears in the October 1993 issue of Journal of Monetary Economics as "Good Policy or Good Luck? Country Growth Performance and Temporary Shocks," by William Easterly, Michael Kremer, Lant Pritchett, and Lawrence Summers.