The Myth of Asia's Miracle

Paul Krugman

A CAUTIONARY FABLE

Once upon a time, Western opinion leaders found themselves both impressed and frightened by the extraordinary growth rates achieved by a set of Eastern economies. Although those economies were still substantially poorer and smaller than those of the West, the speed with which they had transformed themselves from peasant societies into industrial powerhouses, their continuing ability to achieve growth rates several times higher than the advanced nations, and their increasing ability to challenge or even surpass American and European technology in certain areas seemed to call into question the dominance not only of Western power but of Western ideology. The leaders of those nations did not share our faith in free markets or unlimited civil liberties. They asserted with increasing self-confidence that their system was superior: societies that accepted strong, even authoritarian governments and were willing to limit individual liberties in the interest of the common good, take charge of their economies, and sacrifice short-run consumer interests for the sake of long-run growth would eventually outperform the increasingly chaotic societies of the West. And a growing minority of Western intellectuals agreed.

The gap between Western and Eastern economic performance eventually became a political issue. The Democrats recaptured the White House under the leadership of a young, energetic new presi-

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dent who pledged to "get the country moving again"—a pledge that, to him and his closest advisers, meant accelerating America's economic growth to meet the Eastern challenge.

The time, of course, was the early 1960s. The dynamic young president was John F. Kennedy. The technological feats that so alarmed the West were the launch of Sputnik and the early Soviet lead in space. And the rapidly growing Eastern economies were those of the Soviet Union and its satellite nations.

While the growth of communist economies was the subject of innumerable alarmist books and polemical articles in the 1950s, some economists who looked seriously at the roots of that growth were putting together a picture that differed substantially from most popular assumptions. Communist growth rates were certainly impressive, but not magical. The rapid growth in output could be fully explained by rapid growth in inputs: expansion of employment, increases in education levels, and, above all, massive investment in physical capital. Once those inputs were taken into account, the growth in output was unsurprising—or, to put it differently, the big surprise about Soviet growth was that when closely examined it posed no mystery.

This economic analysis had two crucial implications. First, most of the speculation about the superiority of the communist system—including the popular view that Western economies could painlessly accelerate their own growth by borrowing some aspects of that system—was off base. Rapid Soviet economic growth was based entirely on one attribute: the willingness to save, to sacrifice current consumption for the sake of future production. The communist example offered no hint of a free lunch.

Second, the economic analysis of communist countries' growth implied some future limits to their industrial expansion—in other words, implied that a naive projection of their past growth rates into the future was likely to greatly overstate their real prospects. Economic growth that is based on expansion of inputs, rather than on growth in output per unit of input, is inevitably subject to diminishing returns. It was simply not possible for the Soviet economies to sustain the rates of growth of labor force participation, average education levels, and above all the physical capital stock that had pre-
vailed in previous years. Communist growth would predictably slow down, perhaps drastically.

Can there really be any parallel between the growth of Warsaw Pact nations in the 1950s and the spectacular Asian growth that now preoccupies policy intellectuals? At some levels, of course, the parallel is far-fetched: Singapore in the 1990s does not look much like the Soviet Union in the 1950s, and Singapore’s Lee Kuan Yew bears little resemblance to the U.S.S.R.’s Nikita Khrushchev and less to Joseph Stalin. Yet the results of recent economic research into the sources of Pacific Rim growth give the few people who recall the great debate over Soviet growth a strong sense of déjà vu. Now, as then, the contrast between popular hype and realistic prospects, between conventional wisdom and hard numbers, remains so great that sensible economic analysis is not only widely ignored, but when it does get aired, it is usually dismissed as grossly implausible.

Popular enthusiasm about Asia’s boom deserves to have some cold water thrown on it. Rapid Asian growth is less of a model for the West than many writers claim, and the future prospects for that growth are more limited than almost anyone now imagines. Any such assault on almost universally held beliefs must, of course, overcome a barrier of incredulity. This article began with a disguised account of the Soviet growth debate of 30 years ago to try to gain a hearing for the proposition that we may be revisiting an old error. We have been here before. The problem with this literary device, however, is that so few people now remember how impressive and terrifying the Soviet empire’s economic performance once seemed. Before turning to Asian growth, then, it may be useful to review an important but largely forgotten piece of economic history.

‘WE WILL BURY YOU’

Living in a world strewn with the wreckage of the Soviet empire, it is hard for most people to realize that there was a time when the Soviet economy, far from being a byword for the failure of socialism, was one of the wonders of the world—that when Khrushchev pounded his shoe on the U.N. podium and declared, “We will bury
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The Soviet miracle: perspiration, not inspiration

Soviet prospects. To understand this reinterpretation, it is necessary to make a brief detour into economic theory to discuss a seemingly abstruse, but in fact intensely practical, concept: growth accounting.

ACCOUNTING FOR THE SOVIET SLOWDOWN

It is a tautology that economic expansion represents the sum of two sources of growth. On one side are increases in "inputs": growth in employment, in the education level of workers, and in the stock of physical capital (machines, buildings, roads, and so on). On the other side are increases in the output per unit of input; such increases may result from better management or better economic policy, but in the long run are primarily due to increases in knowledge.

The basic idea of growth accounting is to give life to this formula by calculating explicit measures of both. The accounting can then tell us how much of growth is due to each input—say, capital as opposed to labor—and how much is due to increased efficiency.

We all do a primitive form of growth accounting every time we talk
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about labor productivity; in so doing we are implicitly distinguishing between the part of overall national growth due to the growth in the supply of labor and the part due to an increase in the value of goods produced by the average worker. Increases in labor productivity, however, are not always caused by the increased efficiency of workers. Labor is only one of a number of inputs; workers may produce more, not because they are better managed or have more technological knowledge, but simply because they have better machinery. A man with a bulldozer can dig a ditch faster than one with only a shovel, but he is not more efficient; he just has more capital to work with. The aim of growth accounting is to produce an index that combines all measurable inputs and to measure the rate of growth of national income relative to that index—to estimate what is known as “total factor productivity.”

So far this may seem like a purely academic exercise. As soon as one starts to think in terms of growth accounting, however, one arrives at a crucial insight about the process of economic growth: sustained growth in a nation’s per capita income can only occur if there is a rise in output per unit of input.

Mere increases in inputs, without an increase in the efficiency with which those inputs are used—investing in more machinery and infrastructure—must run into diminishing returns; input-driven growth is inevitably limited.

How, then, have today’s advanced nations been able to achieve sustained growth in per capita income over the past 150 years? The

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2 At first, creating an index of all inputs may seem like comparing apples and oranges, that is, trying to add together noncomparable items like the hours a worker puts in and the cost of the new machine he uses. How does one determine the weights for the different components? The economists’ answer is to use market returns. If the average worker earns $15 an hour, give each person-hour in the index a weight of $15; if a machine that costs $100,000 on average earns $10,000 in profits each year (a 10 percent rate of return), then give each such machine a weight of $10,000; and so on.

3 To see why, let’s consider a hypothetical example. To keep matters simple, let’s assume that the country has a stationary population and labor force, so that all increases in the investment in machinery, etc., raise the amount of capital per worker in the country. Let us finally make up some arbitrary numbers. Specifically, let us assume that initially each worker is equipped with $10,000 worth of equipment; that each worker produces goods and services worth $10,000; and that capital initially earns a 40 percent rate of return, that is, each $10,000 of machinery earns annual profits of $4,000. (Cont’d.)
answer is that technological advances have led to a continual increase in total factor productivity—a continual rise in national income for each unit of input. In a famous estimate, MIT Professor Robert Solow concluded that technological progress has accounted for 80 percent of the long-term rise in U.S. per capita income, with increased investment in capital explaining only the remaining 20 percent.

When economists began to study the growth of the Soviet economy, they did so using the tools of growth accounting. Of course, Soviet data posed some problems. Not only was it hard to piece together usable estimates of output and input (Raymond Powell, a Yale professor, wrote that the job “in many ways resembled an archaeological dig”), but there were philosophical difficulties as well. In a socialist economy one could hardly measure capital input using market returns, so researchers were forced to impute returns based on those in market economies at similar levels of development. Still, when the efforts began, researchers were pretty sure about what they would find. Just as capitalist growth had been based on growth in both inputs and efficiency, with efficiency the main source of rising per capita income, they expected to find that rapid Soviet growth reflected both rapid input growth and rapid growth in efficiency.

But what they actually found was that Soviet growth was based on

(Cont'd) Suppose, now, that this country consistently invests 20 percent of its output, that is, uses 20 percent of its income to add to its capital stock. How rapidly will the economy grow?

Initially, very fast indeed. In the first year, the capital stock per worker will rise by 20 percent of $10,000, that is, by $2,000. At a 40 percent rate of return, that will increase output by $800: an 8 percent rate of growth.

But this high rate of growth will not be sustainable. Consider the situation of the economy by the time that capital per worker has doubled to $20,000. First, output per worker will not have increased in the same proportion, because capital stock is only one input. Even with the additions to capital stock up to that point achieving a 40 percent rate of return, output per worker will have increased only to $14,000. And the rate of return is also certain to decline—say to 30 or even 25 percent. (One bulldozer added to a construction project can make a huge difference to productivity. By the time a dozen are on-site, one more may not make that much difference.) The combination of those factors means that if the investment share of output is the same, the growth rate will sharply decline. Taking 20 percent of $14,000 gives us $2,800; at a 30 percent rate of return, this will raise output by only $840, that is, generate a growth rate of only 6 percent; at a 25 percent rate of return it will generate a growth rate of only 5 percent. As capital continues to accumulate, the rate of return and hence the rate of growth will continue to decline.

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rapid growth in inputs—end of story. The rate of efficiency growth was not only unspectacular, it was well below the rates achieved in Western economies. Indeed, by some estimates, it was virtually nonexistent.4

The immense Soviet efforts to mobilize economic resources were hardly news. Stalinist planners had moved millions of workers from farms to cities, pushed millions of women into the labor force and millions of men into longer hours, pursued massive programs of education, and above all plowed an ever-growing proportion of the country’s industrial output back into the construction of new factories. Still, the big surprise was that once one had taken the effects of these more or less measurable inputs into account, there was nothing left to explain. The most shocking thing about Soviet growth was its comprehensibility.

This comprehensibility implied two crucial conclusions. First, claims about the superiority of planned over market economies turned out to be based on a misapprehension. If the Soviet economy had a special strength, it was its ability to mobilize resources, not its ability to use them efficiently. It was obvious to everyone that the Soviet Union in 1960 was much less efficient than the United States. The surprise was that it showed no signs of closing the gap.

Second, because input-driven growth is an inherently limited process, Soviet growth was virtually certain to slow down. Long before the slowing of Soviet growth became obvious, it was predicted on the basis of growth accounting. (Economists did not predict the implosion of the Soviet economy a generation later, but that is a whole different problem.)

It’s an interesting story and a useful cautionary tale about the dangers of naive extrapolation of past trends. But is it relevant to the modern world?

PAPER TIGERS

At first, it is hard to see anything in common between the Asian success stories of recent years and the Soviet Union of three decades

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4 This work was summarized by Raymond Powell, “Economic Growth in the U.S.S.R.,” Scientific American, December 1968.

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ago. Indeed, it is safe to say that the typical business traveler to, say, Singapore, ensconced in one of that city’s gleaming hotels, never even thinks of any parallel to its roach-infested counterparts in Moscow. How can the slick exuberance of the Asian boom be compared with the Soviet Union’s grim drive to industrialize?

And yet there are surprising similarities. The newly industrializing countries of Asia, like the Soviet Union of the 1950s, have achieved rapid growth in large part through an astonishing mobilization of resources. Once one accounts for the role of rapidly growing inputs in these countries’ growth, one finds little left to explain. Asian growth, like that of the Soviet Union in its high-growth era, seems to be driven by extraordinary growth in inputs like labor and capital rather than by gains in efficiency.5

Consider, in particular, the case of Singapore. Between 1966 and 1990, the Singaporean economy grew a remarkable 8.5 percent per annum, three times as fast as the United States; per capita income grew at a 6.6 percent rate, roughly doubling every decade. This achievement seems to be a kind of economic miracle. But the miracle turns out to have been based on perspiration rather than inspiration: Singapore grew through a mobilization of resources that would have done Stalin proud. The employed share of the population surged from 27 to 51 percent. The educational standards of that work force were dramatically upgraded: while in 1966 more than half the workers had no formal education at all, by 1990 two-thirds had completed secondary education. Above all, the country had made an awesome investment in physical capital: investment as a

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share of output rose from 11 to more than 40 percent.\textsuperscript{6}

Even without going through the formal exercise of growth accounting, these numbers should make it obvious that Singapore's growth has been based largely on one-time changes in behavior that cannot be repeated. Over the past generation the percentage of people employed has almost doubled; it cannot double again. A half-educated work force has been replaced by one in which the bulk of workers has high school diplomas; it is unlikely that a generation from now most Singaporeans will have Ph.D.s. And an investment share of 40 percent is amazingly high by any standard; a share of 70 percent would be ridiculous. So one can immediately conclude that Singapore is unlikely to achieve future growth rates comparable to those of the past.

But it is only when one actually does the quantitative accounting that the astonishing result emerges: all of Singapore's growth can be explained by increases in measured inputs. There is no sign at all of increased efficiency. In this sense, the growth of Lee Kuan Yew's Singapore is an economic twin of the growth of Stalin's Soviet Union—growth achieved purely through mobilization of resources. Of course, Singapore today is far more prosperous than the U.S.S.R. ever was—even at its peak in the Brezhnev years—because Singapore is closer to, though still below, the efficiency of Western economies. The point, however, is that Singapore's economy has always been relatively efficient; it just used to be starved of capital and educated workers.

Singapore's case is admittedly the most extreme. Other rapidly growing East Asian economies have not increased their labor force participation as much, made such dramatic improvements in educational levels, or raised investment rates quite as far. Nonetheless, the basic conclusion is the same: there is startlingly little evidence of improvements in efficiency. Kim and Lau conclude of the four Asian "tigers" that "the hypothesis that there has been no technical progress during the post-war period cannot be rejected for the four East Asian newly industrialized countries." Young, more poetically, notes that once one allows for

\textsuperscript{6} These figures are taken from Young, \textit{ibid}. Although foreign corporations have played an important role in Singapore's economy, the great bulk of investment in Singapore, as in all of the newly industrialized East Asian economies, has been financed out of domestic savings.
their rapid growth of inputs, the productivity performance of the “tigers” falls “from the heights of Olympus to the plains of Thessaly.”

This conclusion runs so counter to conventional wisdom that it is extremely difficult for the economists who have reached it to get a hearing. As early as 1982 a Harvard graduate student, Yuan Tsao, found little evidence of efficiency growth in her dissertation on Singapore, but her work was, as Young puts it, “ignored or dismissed as unbelievable.” When Kim and Lau presented their work at a 1992 conference in Taipei, it received a more respectful hearing, but had little immediate impact. But when Young tried to make the case for input-driven Asian growth at the 1993 meetings of the European Economic Association, he was met with a stone wall of disbelief.

In Young’s most recent paper there is an evident tone of exasperation with this insistence on clinging to the conventional wisdom in the teeth of the evidence. He titles the paper “The Tyranny of Numbers”—by which he means that you may not want to believe this, buster, but there’s just no way around the data. He begins with an ironic introduction, written in a deadpan, Sergeant Friday, “Just the facts, ma’am” style: “This is a fairly boring and tedious paper, and is intentionally so. This paper provides no new interpretations of the East Asian experience to interest the historian, derives no new theoretical implications of the forces behind the East Asian growth process to motivate the theorist, and draws no new policy implications from the subtleties of East Asian government intervention to excite the policy activist. Instead, this paper concentrates its energies on providing a careful analysis of the historical patterns of output growth, factor accumulation, and productivity growth in the newly industrializing countries of East Asia.”

Of course, he is being disingenuous. His conclusion undermines most of the conventional wisdom about the future role of Asian nations in the world economy and, as a consequence, in international politics. But readers will have noticed that the statistical analysis that puts such a different interpretation on Asian growth focuses on the “tigers,” the relatively small countries to whom the name “newly industrializing countries” was first applied. But what about the large countries? What about Japan and China?
THE GREAT JAPANESE GROWTH SLOWDOWN

Many people who are committed to the view that the destiny of the world economy lies with the Pacific Rim are likely to counter skepticism about East Asian growth prospects with the example of Japan. Here, after all, is a country that started out poor and has now become the second-largest industrial power. Why doubt that other Asian nations can do the same?

There are two answers to that question. First, while many authors have written of an “Asian system”—a common denominator that underlies all of the Asian success stories—the statistical evidence tells a different story. Japan’s growth in the 1950s and 1960s does not resemble Singapore’s growth in the 1970s and 1980s. Japan, unlike the East Asian “tigers,” seems to have grown both through high rates of input growth and through high rates of efficiency growth. Today’s fast-growth economies are nowhere near converging on U.S. efficiency levels, but Japan is staging an unmistakable technological catch-up.

Second, while Japan’s historical performance has indeed been remarkable, the era of miraculous Japanese growth now lies well in the past. Most years Japan still manages to grow faster than the other advanced nations, but that gap in growth rates is now far smaller than it used to be, and is shrinking.

The story of the great Japanese growth slowdown has been oddly absent from the vast polemical literature on Japan and its role in the world economy. Much of that literature seems stuck in a time warp, with authors writing as if Japan were still the miracle growth economy of the 1960s and early 1970s. Granted, the severe recession that has gripped Japan since 1991 will end soon if it has not done so already, and the Japanese economy will probably stage a vigorous short-term recovery. The point, however, is that even a full recovery will only reach a level that is far below what many sensible observers predicted 20 years ago.

It may be useful to compare Japan’s growth prospects as they appeared 20 years ago and as they appear now. In 1973 Japan was still a substantially smaller and poorer economy than the United States. Its per capita GDP was only 55 percent of America’s, while its overall
GDP was only 27 percent as large. But the rapid growth of the Japanese economy clearly portended a dramatic change. Over the previous decade Japan's real GDP had grown at a torrid 8.9 percent annually, with per capita output growing at a 7.7 percent rate. Although American growth had been high by its own historical standards, at 3.9 percent (2.7 percent per capita) it was not in the same league. Clearly, the Japanese were rapidly gaining on us.

In fact, a straightforward projection of these trends implied that a major reversal of positions lay not far in the future. At the growth rate of 1963-73, Japan would overtake the United States in real per capita income by 1985, and total Japanese output would exceed that of the United States by 1998! At the time, people took such trend projections very seriously indeed. One need only look at the titles of such influential books as Herman Kahn's *The Emerging Japanese Superstate* or Ezra Vogel's *Japan as Number One* to remember that Japan appeared, to many observers, to be well on its way to global economic dominance.

Well, it has not happened, at least not so far. Japan has indeed continued to rise in the economic rankings, but at a far more modest pace than those projections suggested. In 1992 Japan's per capita income was still only 83 percent of the United States', and its overall output was only 42 percent of the American level. The reason was that growth from 1973 to 1992 was far slower than in the high-growth years: GDP grew only 3.7 percent annually, and GDP per capita grew only 3 percent per year. The United States also experienced a growth slowdown after 1973, but it was not nearly as drastic.

If one projects those post-1973 growth rates into the future, one still sees a relative Japanese rise, but a far less dramatic one. Following 1973-92 trends, Japan's per capita income will outstrip that of the United States in 2002; its overall output does not exceed America's until the year 2047. Even this probably overestimates Japanese prospects. Japanese economists generally believe that their country's rate of growth of potential output, the rate that it will be able to sustain once it has taken up the slack left by the recession, is now no more than three percent. And that rate is achieved only through a very high rate of investment, nearly twice as high a share of GDP as in the United States. When one takes into account the growing evidence for
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at least a modest acceleration of U.S. productivity growth in the last few years, one ends up with the probable conclusion that Japanese efficiency is gaining on that of the United States at a snail’s pace, if at all, and there is the distinct possibility that per capita income in Japan may never overtake that in America. In other words, Japan is not quite as overwhelming an example of economic prowess as is sometimes thought, and in any case Japan’s experience has much less in common with that of other Asian nations than is generally imagined.

The China Syndrome

For the skeptic, the case of China poses much greater difficulties about Asian destiny than that of Japan. Although China is still a very poor country, its population is so huge that it will become a major economic power if it achieves even a fraction of Western productivity levels. And China, unlike Japan, has in recent years posted truly impressive rates of economic growth. What about its future prospects?

Accounting for China’s boom is difficult for both practical and philosophical reasons. The practical problem is that while we know that China is growing very rapidly, the quality of the numbers is extremely poor. It was recently revealed that official Chinese statistics on foreign investment have been overstated by as much as a factor of six. The reason was that the government offers tax and regulatory incentives to foreign investors, providing an incentive for domestic entrepreneurs to invent fictitious foreign partners or to work through foreign fronts. This episode hardly inspires confidence in any other statistic that emanates from that dynamic but awesomely corrupt society.

The philosophical problem is that it is unclear what year to use as a baseline. If one measures Chinese growth from the point at which it made a decisive turn toward the market, say 1978, there is little question that there has been dramatic improvement in efficiency as well as rapid growth in inputs. But it is hardly surprising that a major recovery in economic efficiency occurred as the country emerged from the chaos of Mao Zedong’s later years. If one instead measures growth from before the Cultural Revolution, say 1964, the picture looks more like the East Asian “tigers”: only modest growth in efficiency, with
most growth driven by inputs. This calculation, however, also seems unfair: one is weighing down the buoyant performance of Chinese capitalism with the leaden performance of Chinese socialism. Perhaps we should simply split the difference: guess that some, but not all, of the efficiency gains since the turn toward the market represent a one-time recovery, while the rest represent a sustainable trend.

Even a modest slowing in China’s growth will change the geopolitical outlook substantially. The World Bank estimates that the Chinese economy is currently about 40 percent as large as that of the United States. Suppose that the U.S. economy continues to grow at 2.5 percent each year. If China can continue to grow at 10 percent annually, by the year 2010 its economy will be a third larger than ours. But if Chinese growth is only a more realistic 7 percent, its GDP will be only 82 percent of that of the United States. There will still be a substantial shift of the world’s economic center of gravity, but it will be far less drastic than many people now imagine.

THE MYSTERY THAT WASN’T

The extraordinary record of economic growth in the newly industrializing countries of East Asia has powerfully influenced the conventional wisdom about both economic policy and geopolitics. Many, perhaps most, writers on the global economy now take it for granted that the success of these economies demonstrates three propositions. First, there is a major diffusion of world technology in progress, and Western nations are losing their traditional advantage. Second, the world’s economic center of gravity will inevitably shift to the Asian nations of the western Pacific. Third, in what is perhaps a minority view, Asian successes demonstrate the superiority of economies with fewer civil liberties and more planning than we in the West have been willing to accept.

All three conclusions are called into question by the simple observation that the remarkable record of East Asian growth has been matched by input growth so rapid that Asian economic growth, incredibly, ceases to be a mystery.

Consider first the assertion that the advanced countries are losing
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their technological advantage. A heavy majority of recent tracts on the world economy have taken it as self-evident that technology now increasingly flows across borders, and that newly industrializing nations are increasingly able to match the productivity of more established economies. Many writers warn that this diffusion of technology will place huge strains on Western society as capital flows to the Third World and imports from those nations undermine the West’s industrial base.

There are severe conceptual problems with this scenario even if its initial premise is right.\(^7\) But in any case, while technology may have diffused within particular industries, the available evidence provides absolutely no justification for the view that overall world technological gaps are vanishing. On the contrary, Kim and Lau find “no apparent convergence between the technologies” of the newly industrialized nations and the established industrial powers; Young finds that the rates in the growth of efficiency in the East Asian “tigers” are no higher than those in many advanced nations.

The absence of any dramatic convergence in technology helps explain what would otherwise be a puzzle: in spite of a great deal of rhetoric about North-South capital movement, actual capital flows to developing countries in the 1990s have so far been very small—and they have primarily gone to Latin America, not East Asia. Indeed, several of the East Asian “tigers” have recently become significant exporters of capital. This behavior would be extremely odd if these economies, which still pay wages well below advanced-country levels, were rapidly achieving advanced-country productivity. It is, however, perfectly reasonable if growth in East Asia has been primarily input-driven, and if the capital piling up there is beginning to yield diminishing returns.

If growth in East Asia is indeed running into diminishing returns, however, the conventional wisdom about an Asian-centered world economy needs some rethinking. It would be a mistake to overstate this case: barring a catastrophic political upheaval, it is likely that

growth in East Asia will continue to outpace growth in the West for the next decade and beyond. But it will not do so at the pace of recent years. From the perspective of the year 2010, current projections of Asian supremacy extrapolated from recent trends may well look almost as silly as 1960s-vintage forecasts of Soviet industrial supremacy did from the perspective of the Brezhnev years.

Finally, the realities of East Asian growth suggest that we may have to unlearn some popular lessons. It has become common to assert that East Asian economic success demonstrates the fallacy of our traditional laissez-faire approach to economic policy and that the growth of these economies shows the effectiveness of sophisticated industrial policies and selective protectionism. Authors such as James Fallows have asserted that the nations of that region have evolved a common “Asian system,” whose lessons we ignore at our peril. The extremely diverse institutions and policies of the various newly industrialized Asian countries, let alone Japan, cannot really be called a common system. But in any case, if Asian success reflects the benefits of strategic trade and industrial policies, those benefits should surely be manifested in an unusual and impressive rate of growth in the efficiency of the economy. And there is no sign of such exceptional efficiency growth.

The newly industrializing countries of the Pacific Rim have received a reward for their extraordinary mobilization of resources that is no more than what the most boringly conventional economic theory would lead us to expect. If there is a secret to Asian growth, it is simply deferred gratification, the willingness to sacrifice current satisfaction for future gain.

That’s a hard answer to accept, especially for those American policy intellectuals who recoil from the dreary task of reducing deficits and raising the national savings rate. But economics is not a dismal science because the economists like it that way; it is because in the end we must submit to the tyranny not just of the numbers, but of the logic they express.
Letters to the Editor

Asia’s Growth: Miracle or Myth?

Frank Gibney, Paul Krugman, and others

To the Editor:

In his customarily magisterial tone, larded with appeals to “hard numbers” and “sensible economic analysis,” Paul Krugman has set out to show that the extraordinary postwar surge of the Pacific Asian economies is just a flash in the pan (“The Myth of Asia’s Miracle,” November/December 1994). Krugman contends that the huge increases in GNP attained by East Asian countries—the results of heavy capital investment, large savings, sharply rising educational levels, and other “astonishingly” mobilized resources—will quickly level out because they will not be followed by significant increases in productivity. Krugman compares East Asia to the once-lauded prewar gains of Soviet industry, whose “input-driven growth” was not succeeded by corresponding gains in efficiency. As every good neoclassical economist knows, even hugely increased input must be succeeded by gains in “output” (that is, increases in productivity) if the expansion is to continue. Despite its massive mobilization of resources, the Soviet economy was “virtually certain” to stop because Soviet managers were unable to use their resources efficiently. It is the same story, Krugman argues, with what he calls the paper tigers—the four newly industrialized economies of Singapore, Hong Kong, South Korea, and Taiwan—which are coasting on their “astounding” inputs alone without increasing productivity efficiency.

Nothing could be further from the facts. World Bank economists point out that while two-thirds of the growth of the high-performing Asian economies (HPEs, which include Indonesia, Malaysia, Thailand, Japan, and the aforementioned four tigers) is input-driven, “the remaining third cannot be explained by accumulation, and is therefore attributable to increased efficiency or total factor productivity. This is large relative to other countries, both absolutely and as a share of output growth.”

Part of the increased productivity in these export-driven economies can be attributed to imports of foreign knowledge and technology—a significant byproduct of the HPEs’ intense “exports first” emphasis. The products of export-driven economies must compete with other nations’ products to succeed. This means learning intensively from one’s competitors and others. By contrast, the
Soviet economy was a classic case of import substitution at all costs—a short-sighted policy followed, disastrously, by various Third World countries outside East Asia in the postwar period.

Other factors in the increased productivity of the hpaes include continually expanding education opportunities, better organization, and improved work practices. Perhaps the most important is the interlocking cooperation of free enterprise, government financial intervention, and a guidance-minded technocratic bureaucracy on the Japanese model. This flexible industrial policy—in stark contrast to Soviet-style command economies—is found in all these Asian economies. It is a trick, however, that the managers of developed Western economies have yet to learn—still less the neoclassical economists, who hold that all economies must work the same way (that is, just like ours).

The best example of increasing productivity among the hpaes is South Korea, where businessmen and bureaucrats have lost little time waiting for Adam Smith’s “invisible hand” to operate. Long after the groundwork of capital investment and government financing had been laid, Korean manufacturing productivity has soared. Since the 1980s, South Korea has diversified into hightech and knowledge industry products to keep up with the developed-country Joneses. Beyond its past of military governments, the country has become a working democracy—accompanied by sharply rising wage levels. How is this a paper tiger?

Krugman, however, ignores South Korea. Nor does he mention Taiwan, which has been experiencing the same kind of political and economic evolution. Instead, he picks Singapore as his big case in point—a straw man if ever there was one. A sui generis city-state with a population just under three million, Singapore is a kind of glossy international service-sector shopping mall. Unlike other Asian countries, it has no hinterland for expansion and is steadily losing its importance for political as much as economic reasons. Neighboring countries with booming economies, like Indonesia and Malaysia, understandably want to do business on their home grounds. Most of Singapore’s industrialization came from multinational companies invited in by its government, leaving little for domestic industry to build on. The World Bank calls Singapore the hpaes least able to keep pace with the world’s shifting technological frontier. And Lee Kuan Yew’s ruthlessly paternalistic dictatorship may yet stifle its citizenry’s entrepreneurial instincts. So here is one Asian economy that might conceivably be compared to past Soviet output stagnation—even if the slowdown, like the ossification of the Soviet work force in the 1930s, can be only partially attributed to economic reasons. Even here, however, Krugman may be hasty. After an earlier slump, both manufacturing and the hustling service sector in Singapore came up with double-digit growth rates in 1993. Someone out there must be increasing output.

Krugman wisely refrains from deprecating Japan’s past economic growth and contents himself with criticizing the lack of comment on Japan’s current economic slowdown, “with authors writing as if Japan were still the miracle growth econ-
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What the East Asian miracle demonstrates is that growth economies can be built rather quickly through a combination of modern technological adaptation, entrepreneurial push, and government-supported international marketing—all based on cultures that eschew adversarial give-and-take in favor of an ethic of group relationships, not individual responsibility. Contrary to what some neoclassical economists stubbornly continue to think, other people's economies need not be run the way we play it in Peoria.

Frank Gibney
President, Pacific Basin Institute

To the Editor:

In comparing the East Asian “miracle” economies to the Soviet Union of the 1960s, Paul Krugman overlooks a crucial point: whereas Soviet planners rapidly expanded inputs by displacing the market, Asian industrial policymakers use the market to direct civilian actors’ energies toward the state’s developmental goals. The fatal lack of Soviet productivity growth occurred because there were no market incentives in the U.S.S.R. for planners and producers to increase efficiency. In Asia today, by contrast, industrial policymakers use their close ties to the civilian sector to amplify or dampen market signals, but both economic actors and policymakers must respond to the information sent by the market. Krugman correctly points out that some of the hysteria over East Asia’s economic prowess—such as the recent best sellers by Michael Crichton and Tom Clancy—is exaggerated, but his failure to recognize the fundamental difference between Asian market-
utilizing industrial policy and Soviet market displacement delays a much-needed reassessment of U.S. policy toward East Asia.

RONALD BEVACQUA  
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To the Editor:

In his enthusiasm to challenge the conventional wisdom on East Asia’s rapid economic growth, Paul Krugman misses the central point to be learned from the East Asian experience—for which “miracle” is probably not too strong a word. The high-performing Asian economies (HPAEs) are unique in combining rapid growth with both highly equal income distributions and reductions in poverty. An analysis of 40 economies revealed that all of today’s high-growth, low-inequality economies are in East Asia. The conditions for social harmony and stability, which are essential for sustained growth, are also present in those countries. It is, of course, possible that major external economic shocks or internal political ones will upset East Asia’s steady progress. But there is no reason to think that the East Asian miracle will turn out to be a bubble.

One of Krugman’s central arguments is that investment, not productivity growth, has propelled the East Asian “miracle” economies. Investment levels of HPAEs in physical and human capital substantially exceed those for other countries at similar levels of development, leading to faster per capita income growth. High investment rates are thus part of the Asian success story, but they do not fully explain the rise in incomes.

Despite the claims of Alwyn Young, on which Krugman bases his argument, numerous studies show that productivity has grown quite respectably for the region as a whole and in many of the individual countries. Nirvikar Singh and Hung Trieu did their own growth accounting calculations for South Korea and Taiwan. They found that the contribution of total factor productivity (TFP) growth was significant in the cases of both South Korea and Taiwan, similar to Hong Kong but lower than Japan. They do not share the extreme position that only such accumulation has mattered. According to their study, TFP growth also mattered.

Another study found that East Asia had the highest growth rate of TFP among all developing regions. The World Bank’s 1993 study, The East Asia Miracle, found that, on average, two-thirds of growth can be attributed to factor accumulation and one-third to productivity growth. Rapid growth in Indonesia, Malaysia, and Singapore is wholly due to high rates of factor accumulation, while Hong Kong, Taiwan, Japan, Thailand, and South Korea derived 10 percent to 30 percent of their output growth from TFP growth.

Such growth contains an element of catching up. The World Bank study indicated that Hong Kong, Japan, Taiwan, and Thailand were catching up to international technological progress, while South Korea was just keeping pace. The investment-driven economies of Indonesia, Malaysia, and Singapore fell behind, although the 1985-93 data on Indonesia shows significant growth in productivity (presumably for Malaysia, too). The HPAEs, except Singapore, show remarkable ability to keep pace with the world’s
technological evolution, especially when contrasted with their fellow developing regions of Latin America and Africa.

The most important question is whether the HPAs can raise or sustain productivity growth in the future. Encouragingly, most HPAs have consistently maintained macroeconomic stability, avoided high inflation, and implemented fiscal discipline. The East Asian economies’ performance is reflected in their steadily rising share of world exports, which is closely associated with productivity growth. From 1965 to 1990, Japan emerged as the world’s biggest exporter of manufactured goods, increasing its share of the world market to almost 12 percent from nearly 8 percent. In the 1970s and 1980s, the locus of growth shifted to the four tigers. Their share grew nearly four times faster than Japan’s. This rising share of manufactured exports, if sustained, will contribute to future productivity growth.

Recent work on growth rate persistence suggests that growth rates for individual economies are highly unstable over time. The HPAs, however, appear to be an exception. The four tigers and Japan rank with the handful of rapidly growing economies from 1960 to 1988. The HPAs are catching up to the more developed countries.

Of course, this does not mean that the East Asian miracle will continue ad infinitum. East Asia is highly diverse, with wide variation in incomes, economic policies, and potential for productivity growth. As economies mature, ten percent growth rates (China, Thailand) devolve to six percent (Indonesia) and later to the two to four percent rates of the richest countries (Japan). But in East Asia, it would be wrong simply to look at the high end of the spectrum. As South Korea, Thailand, Malaysia, and Indonesia continue their climb as emerging economies, their past growth rates will taper off. China and the Philippines are still below their potential productivity growth, but China is moving rapidly in that direction, while Vietnam, Laos, and Cambodia are appearing on the scene. These newly developing countries are staking a claim as a new generation of East Asian “miracles.” Although they have much catching up to do, these countries can generate the kinds of growth rates we have witnessed in the past for the region as a whole. It would be a rash economist who predicted the demise of East Asia.

These views are my own and should not be attributed to the World Bank or its affiliates.

ISHRAT HUSAIN
Chief Economist, East Asia and Pacific Region, The World Bank Group

To the Editor:

The productivity studies cited by Paul Krugman fail to capture an essential process in the East Asian economies. Since the 1960s, their industries and exports have evolved from unskilled labor-intensive industries like clothing, textiles, and athletic shoes to more skilled labor-intensive and capital-intensive industries like automobiles, machinery, and electronics. This structural transformation is not captured in Krugman’s productivity studies, which provide a false basis for predicting future economic growth. To grasp this point, suppose that Gabon—which had a higher rate of labor
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productivity than all four East Asian tigers—created that productivity gain by continuing to produce clothing and textiles, whereas the four tigers gained less in overall labor productivity by moving labor from producing clothes and textiles to producing cars, chemicals, and electronics. On this basis, would we predict that Gabon has a greater potential for future growth than the tigers?

SUMNER J. LA CROIX
AND CHUNG H. LEE
Senior Fellows, Program on International Economics and Politics, East-West Center

To the Editor:

Paul Krugman does not calculate Chinese growth from its beginning in 1978, but from 1964. He then concludes that China shows “only modest growth in efficiency.” But why calculate from 1964, the year Mao Zedong began an economically irrational war mobilization that devastated China’s economy? Only in 1978 did China’s post-Mao leaders reform collective agriculture and open up to the dynamism of East Asian policies, institutions, and spillover. One does not calculate the impact of Reaganomics by counting from Lyndon Johnson’s presidency. Krugman tries to escape the tyranny of the real numbers on East Asian growth.

EDWARD FRIEDMAN
Professor, Department of Political Science,
University of Wisconsin at Madison

To the Editor:

Paul Krugman does a great service in demystifying the sources of East Asia’s economic performance. The widespread concern that East Asia is inexorably headed toward global economic supremacy is misplaced. The article’s tone, however, may mislead readers. “East Asian growth has been matched by input growth so rapid,” writes Krugman, “that Asian economic growth, incredibly, ceases to be a mystery.” Well, it depends on what one means by “mystery.” Economists have a much better handle on input growth than on changes in productivity, so it is comforting to know that East Asia’s growth is accounted for by processes that we understand comparatively well. But does that make the mystery go away?

Consider South Korea and Taiwan, two countries widely considered to be economic basket cases as late as the early 1960s. Since then, in both countries, investment has risen from 10 percent of national income to 30 percent. Given this investment effort, and the related increases in education and labor force participation rates, there is not much residual growth left over to attribute to productivity increases. But why did investment rates increase at such phenomenal rates in both countries, especially since most other low-income countries failed to come close? Economists have not yet provided a satisfactory answer to the enigma of why South Korean and Taiwanese entrepreneurs decided sometime in the early 1960s to go on an investment binge. East Asian growth is no less a mystery because it is well explained by input growth alone.

What is clear from recent East Asian economic history is that governments went out of their way to ensure the profitability of private investment by creating a
climate of stability and subsidizing and coordinating private investment decisions. We do not fully understand why East Asia's interventionist approach did not lead to the often disastrous results that many other developing countries with similar policies have had. But the argument that government policy had a lot to do with the East Asian "miracle" of input growth cannot be dismissed so easily.

DANI RODRIK
Professor of Economics and International Affairs, Columbia University

MYTHING MY POINT
Paul Krugman replies:
I am glad to see that "The Myth of Asia's Miracle" stirred up so much reaction, even if some readers took offense at my deliberately provocative style. After all, my main purpose in writing the article was to shake up what I feared was becoming a closed circle of intellectual complacency whose logic went as follows: "We know that Asian-style policies work because of the rapid growth those economies have achieved, and we know that this rapid growth will continue because those economies are following the right policies." Many people said the same thing about central planning and Soviet growth circa 1960. One need not believe that Asia will recapitulate the whole sad Soviet story to find that a useful caution.

Let me make three points on the substance of the argument. First, many correspondents complained that the "growth accounting" framework is too simplistic. Surely, however, it is always a good strategy to approach any issue by seeing how much one can explain with a minimalist hypothesis; only then should one turn to more complex explanations. My hypothesis is that the tigers' growth has been driven by inputs. Part of the point behind "The Myth of Asia's Miracle" is the principle of Occam's razor, which holds that one should use the simplest of competing explanations to explain the unknown. It is also, however, a matter of self-discipline: precisely because sweeping hypotheses about policy or culture are more fun to talk about than drab accounting exercises, one needs to make a special effort to give boring explanations their due.

And the surprising thing about Asian growth is just how much the boring approaches explain. While several letters mention the World Bank study, which found somewhat more evidence of efficiency growth in East Asia than did the work of Alwyn Young or of Lawrence Lau and Jong-Il Kim, even that study does not remotely support the almost universally held view that the newly industrializing Asian nations are rapidly converging on Western levels of efficiency. Consider Ishrat Husain's useful letter, in which he compares "catch-up" in efficiency as measured in total factor productivity. Which do you find more surprising: the World Bank's finding that Hong Kong, Taiwan, and Thailand have experienced some catch-up, or the finding that South Korea "was essentially just keeping pace" and that Indonesia, Malaysia, and Singapore have actually fallen behind?

Given how much a minimalist story of input-driven growth—that is, increased expenditure on capital goods and labor—explains about Asian growth, one should be cautious about attributing long lists of additional virtues to the Asian economies.
Frank Gibney writes of the “interlocking cooperation of free enterprise, government financial intervention, and a guidance-minded technocratic bureaucracy” as a key strength of Asian economies “that the managers of developed Western economies have yet to learn.” But even the World Bank’s numbers find no evidence of convergence on Western levels of efficiency in many developing Asian countries—and, in particular, show little evidence of convergence in South Korea, which Gibney regards as the quintessential Asian model. (It will, by the way, be news to many people, not least Lee Kuan Yew, that Singapore is a straw man whose experience offers no lessons about Asian development.) On what basis, then, does Gibney assert that this system of “interlocking cooperation” is such a good thing?

Many Westerners believe that Asian economic growth carries obvious lessons for our own societies. Strangely, however, the content of those lessons lies in the eye of the beholder. To free marketeers, Asia shows the power of the free market; to industrial policy advocates, it shows the effectiveness of industrial policy; to the authority-minded, it shows the virtues of authoritarianism. Personally, I do not find any of these lessons obvious. The only overwhelming lesson I see in Asian growth is that one way to get a lot of output is to use a lot of inputs.

Paul Krugman is Professor of Economics, Stanford University