During the past four decades, poor countries worldwide have experienced a massive expansion of education. But the global mandarins who thought education would lead to surging economies have been sorely disappointed.

by WILLIAM EASTERLY

Education is a powerful instrument for reducing poverty and inequality, improving health and social well-being, and laying the basis for sustained economic growth. . . . [We will] ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

— Declaration endorsed at the United Nations Monterrey Summit on Financing for Development, March 2002

The goal of universal elementary education has been enunciated countless times in international conferences on economic development. In fact the language above, from the Monterrey Summit, is essentially unchanged from that of the World Conference on Education for All, held 12 years earlier in Thailand. The Conference members officially declared that schooling ensures “a safer, healthier, more prosperous and environmentally sound world, while simultaneously contributing to social, economic, and cultural progress, tolerance, and international cooperation.” The delegates in Thailand set a goal of universal primary education in every country by the year 2000. Overall, the campaign has had moderate success in increasing schooling worldwide, but each successive conference displays little curiosity about why the target year must be continually pushed back.

Each conference is similarly incurious about what kind of payoff more education yields. It may come as a surprise— as it did to me— to learn that the dramatic education expansion of the past three decades has had a uniquely disappointing effect on economic growth. Education may have a good payoff when combined with high-tech factories and good institutions, but when these are lacking, its payoff is dismal. Thus Eric Hanushek’s emphasis on education as key to labor productivity seems
not altogether consistent with recent experience. The problem is one of context. In wealthy countries, education is associated with prosperity and high-paying jobs. As a consequence, it is believed that transferring education to poor countries will bring prosperity. Alas, "education" is much more complex than that. If aluminum makes airplanes, and airplanes enable you to fly, it doesn’t follow that jumping off the Empire State Building with a sheet of aluminum will enable you to fly. Creating people with high skill in countries where the only profitable activity is lobbying the government for favors is not a formula for success. Creating skills where there exists no technology to use them is not going to foster economic growth. Parents in such circumstances are understandably unwilling to invest as much in their children’s education as U.N. bureaucrats think they should. Expanding education is worth little more than yesterday’s newspaper if the incentives to invest in the future are not there.

**The Education Explosion**

Fueled by the emphasis of the World Bank and other donors on basic education, enrollment in primary school reached 100 percent in half the world’s countries by 1990, up from 28 percent of the world’s countries in 1960. The median primary enrollment increased from 80 percent in 1960 to 99 percent in 1990. Behind these figures lie miracles like Nepal, which rose from 10 percent primary enrollment in 1960 to 80 percent in 1990.

How have the economies of the world reacted to the education explosion? Hardly at all, it seems. The lack of association between growth in schooling and growth in gross domestic product (GDP) has been noted in several studies. A fricas stagnation in the face of its education explosion provoked economist Lant Pritchett to ask, “Where has all the education gone?” Pritchett’s analyses found no positive association between an expanding education sector and growth in output per worker or in productivity. (He actually found a negative and significant relationship in some statistical exercises.)

African countries with rapid growth in human capital, or the skills and knowledge possessed by laborers, during the 1960 to 1987 period, such as Angola, Mozambique, Ghana, Zambia, Madagascar, Sudan, and Senegal, were nevertheless disasters with regard to economic growth. Meanwhile, countries like Japan became economic miracles despite only modest growth in human capital, but no greater than that of the African growth disasters. For example, Zambia had slightly faster expansion in human capital than Korea, but Zambia’s growth rate was 7 percentage points lower.

Indeed, at the same time that education has experienced a massive expansion in poor countries, the median growth rate of those countries has fallen. Productivity growth was 3 percent in the 1960s, 2.5 percent in the 1970s, -0.5 percent in the 1980s, and 0 percent in the 1990s (see Figure 1). A similar study of how growth responds to the percentage change in the labor force’s average years of schooling found no relationship between growth in years of schooling and growth in GDP per capita.

Alan Krueger and Mikael Lindahl found that changes in years of schooling had a positive effect on economic growth. They argued that Pritchett’s earlier findings of a nonrelationship between education and growth were due to measurement...
error (although Pritchett addressed measurement error). However, Krueger and Lindahl used the absolute change in years of schooling rather than the percentage growth in human capital as their unit of measurement. This has the effect of treating an increase of one year of schooling in a highly educated country as the equal of an additional year in a poorly educated country. This is counterintuitive, since an additional year of schooling in a poorly educated country implies a much faster rate of growth of human capital. Growth of output should respond to the growth of human capital. Even with this methodology and controlling for measurement error and other variables, Krueger and Lindahl found that the effect of the change in schooling on growth did not always pass standard tests for a significant statistical relationship.

Yet another study pointed out a more subtle problem with the idea that growth in human capital is a major force behind economic growth. If human capital growth is driving GDP growth, then rapidly growing economies will have rapidly growing human capital. This means that young workers will have considerably more human capital than the old fuddy-duddies who were educated during a time of much lower human capital. This factor would tend to give the young workers higher wages than the old workers. But wages worldwide almost always increase with years of experience—the older workers always earn significantly more than the young, even in rapidly growing economies. Even if years of experience count for something, fast-growing countries should have less of a wage increase with experience, because of the human capital advantage of the young. But this hasn't been found anywhere. Therefore, the growth of human capital cannot be that rapid in a fast-growing economy and so cannot account for its rapid growth.

**Education and Income**

The finding that education doesn't have much effect on economic growth is intensely controversial. Despite the failure of human capital growth to explain variations in economic growth,
a number of economists aver that both physical capital and human capital can explain the large international variations in income. These economists, like Gregory Mankiw of Harvard, point out that long-run income in Robert Solow's growth model is determined by saving in the form of physical capital and by saving in the form of human capital. Mankiw uses the share of children enrolled in secondary school as his measure of saving in human capital. There is indeed a strong relationship between income levels and secondary enrollment ratios. Mankiw shows that his measures of saving in physical capital and human capital can explain as much as 75 percent of the per-capita income differences among nations. How can this finding be reconciled with the finding that growth in output is not related to growth in human capital?

Here are three problems with Mankiw’s relationship between secondary enrollment and income.

The first problem is that secondary education is a very narrow measure of education accumulation. What about primary education? The relationship between per-capita income and primary enrollment is considerably less satisfying. There appears to be no strong relationship among nations with primary enrollment of 20 percent to 90 percent; all these countries are poor. The many countries with universal primary enrollment have a higher average income, but they also have an incredible range of incomes, from very poor to very rich. In short, primary education varies much less across countries than secondary education and explains much less of the variation in income. As Peter Kenen and Andrés Rodríguez-Clare point out, Mankiw has exaggerated the variation of education in general by concentrating on secondary education alone.

The second problem is with human capital’s earnings under Mankiw’s assumptions. Mankiw assumed that financial capital flows would equalize rates of return on investments in physical capital. That leaves only investments in human capital to have different rates of return across countries. Explaining income differences with human capital alone is explaining big differences in income with a relatively minor ingredient. If a poor country is poor because of lack of skills, as Stanford’s Paul Romer points out, the few skilled workers must be earning very high salaries.

Let’s compare the United States and India. In 1992 per-capita income in the United States was 14 times that of India. This is also the ratio of unskilled wages in the United States to unskilled wages in India. Unskilled labor is abundant in India, while skilled labor is scarce. Mankiw’s assumptions imply that the wage for skilled labor should be three times larger in India than in the United States. Such wage differentials should induce skilled labor to try to move from the United States to India. Instead, we see the reverse: skilled Indians come to America. What’s more, if the predictions of Mankiw’s approach had come true, we would expect that unskilled Indians would want to move to the United States, while skilled Indians would stay put. That didn’t happen: educated Indians were 14.4 times more likely to move to the United States than uneducated Indians.

The propensity of skilled Indians to migrate to the United States is part of the general “brain drain” phenomenon. A recent study of 61 poor countries found that people with secondary education and above were more likely to move to the United States than those with primary education and below in all 61 countries. Those with university education were more likely to migrate than those with secondary education in 51 out of the 61 countries. Some countries are losing most of their skilled workforce to the United States. In Guyana, for example, a conservative estimate is that 77 percent of those with university education have moved to the United States.

Instead of skilled wages being three times higher in India than in the United States, as the Mankiw framework predicted, skilled wages were 24 times higher in the United States than in India. An engineer in Bombay earns $2,300 per year; an engineer in New York earns $55,000 a year. Mankiw’s framework predicts a negative association between skilled wages and per-capita income; instead, there is a very strong positive association.

The third problem is causality (again). What if high-school education is a luxury in which you indulge yourself as you get richer? Then naturally demand for high schools would go up as per-capita income rose, but that would not prove that high schools make you more productive.

Education and Incentives

Why is education worth little more than hula-hoops to a society that wants to grow? One question to ask is what educated people are doing with their skills. In an economy with extensive government intervention, the activity with the highest returns to skills might be lobbying the government for favors. The government creates profit opportunities through its interventions. For example, a government that fixes the exchange rate, prohibits trading of foreign currency, and spurs high inflation has created the opportunity for profitable trading in dollars. Skilled people will want to lobby the government for access to...
foreign exchange at the low fixed rate and then resell it on the black market for a fat profit. This activity does not contribute to higher GDP; it just redistributes income from the poor exporter who was forced to turn over his dollars at the official exchange rate to the black-market trader. In an economy with many government interventions, skilled people opt for activities that redistribute income rather than activities that create growth. (One somewhat whimsical piece of evidence that supports this story is that economies with lots of lawyers grow more slowly than economies with lots of engineers.)

Another question to ask is what kind of education is being provided. Expansion of education is usually driven by the state. But administrative targets for universal primary education do not in themselves create the incentives for investing in the future that fuel growth. The quality of education will vary depending on the economic, medical, and governmental prognosis for a country. In an economy where the future looks bright, students will apply themselves to their studies; parents will monitor the quality of education, and teachers will face pressure to really teach. In a stagnant economy or a nation riven with strife, students will goof off in the classroom or sometimes not show up at all; parents will often pull their kids away to work on the farm, and teachers will while the time away as overqualified babysitters.

Likewise, providing access to education is not the same as providing access to a good education. Corruption, low salaries for teachers, and inadequate spending on classroom materials all plague schools in poor countries. In Vila Junqueira, Brazil, people told interviewers that the “state school is falling apart, there are whole weeks without a teacher, no director or efficient teachers, no safety, no hygiene.” In Malawi, respondents said:

> We hear the government introduced free primary education and provides for all essential requirements, notebooks, pens, and pencils. The pupils have never received these items. We still have to provide them ourselves. We strongly believe it is not the government’s fault, but it is sheer malpractice on the part of the school’s management. We have seen several teachers going around selling notebooks and pens. In addition the teachers are not dedicated to their duty. Often pupils go back home without attending even a single lesson. . . . Only ten pupils have been selected to secondary schools in the last six years.

In Pakistan, politicians dispense teaching positions as patronage. There is large-scale cheating at examinations, which are supervised by unscrupulous or intimidated teachers. Three-quarters of the teachers could not pass the exams they administer to their students. The medium of instruction in the public schools is Urdu, although the working language in this multilingual society is English. Some of the publicly supported schools are Islamic schools where the students mainly learn the Koran. The other public schools are of such poor quality that any parents who can afford to do so send their children to expensive private schools. High-school students from rival religious factions have fought each other with AK-47s. Not much good is going to happen when there are many guns and few textbooks in the schools.

A common pattern is that much more is spent on teacher salaries than on materials like textbooks, paper, and pencils. One study found that spending on school materials has a rate of return 10 to 100 times larger than additional spending on teachers, which means that school materials are very scarce relative to teachers.

These quality-of-education considerations are not the whole story in the failed relationship between education expansion and economic growth. Even high-quality schooling will go to waste if skilled labor and enterprise are not rewarded in the economy or are combined with inferior technology. A sign of this is the frequent mismatches between labor productivity and the test scores presented in Hanushek’s Figure 1 (see p. 15). The most obvious example is the United States itself, which has the highest labor productivity in the world. Meanwhile, at certain points its test scores lag behind those of low labor-productivity countries such as Hungary, the Slovak Republic, and Thailand. The story of an education crisis in the world-beating U.S. economy just doesn’t make sense. Either the quality of education in the United States is being mismeasured, or education quality is not as important for labor productivity as Hanushek makes it out to be.

If school quality is a key to growth, how to explain the case of Africa? Africa has stagnated terribly despite rapid expansion in education. For school quality to be crucial to growth, the quality of African schools would have to have deteriorated dramatically. Aecdotal evidence suggests some deterioration, but not a collapse of the magnitude required to offset the quantitative expansion of schooling. In general, one would think school quality would change rather slowly, thus being a fairly minor influence on quality-adjusted growth in human capital.

Despite all the lofty sentiments about education, the education explosion of the past four decades has been disappointing. I agree with Hanushek that learning under the right circumstances is a very good thing. No country has ever become rich with an illiterate population. But administrative targets for enrollment rates and overwrought rhetoric from international commissions, as well as more measured alarms about school quality, do not in themselves create the incentive to grow. For education to raise earning potential, many supporting conditions and incentives must be present. When they are missing, don’t jump off the building with nothing but a sheet of aluminum.