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**Human Capital
and Poverty Alleviation**

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Human Capital and Poverty Alleviation

by
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The Importance of Human Capital

Since I believe that the main purpose of economics is to understand and to help alleviate poverty, it may seem redundant for me to place the word poverty in the title of this talk. I have done so because there is such an intimate and transparent relation between investments in human capital and the alleviation of poverty. That is the theme of my presentation. I will not break new ground but discuss some of the available evidence.

Prior to the nineteenth century, systematic investment in human capital was not important in any country. Expenditures on schooling, on-the-job training, and other forms of investment were quite small. This began to change radically during that century with the application of science to the development of new goods and more efficient methods of production, first in Great Britain, and then gradually spreading to other countries.

During this century, education, skills, and other knowledge have become crucial determinants of a person's and a nation's productivity. One can even call the twentieth century the Age of Human Capital in the sense that the primary determinant of a country's standard of living is how well it succeeds in developing and utilizing the skills, knowledge, health, and habits of its population.

It has been estimated that human capital — education, on-the-job and other training, and health — comprises about 80 percent of the capital or wealth in the United States and other advanced countries. Even if such estimates are somewhat exaggerated — and I do not believe any exaggeration is large — these estimates clearly indicate that human capital can be neglected at a country's peril.

The importance of human capital to growth is perhaps excessively illustrated by the outstanding records of Japan, Taiwan, Hong Kong, South Korea, and other fast growing Asian economies. But they are obvious examples because they lack natural resources — which is typically greatly overstated as a determinant of economic performance — and face discrimination against their exports in the West. Nevertheless, they have managed to grow extremely rapidly in significant part because they have had a well-trained, educated, and hard-working labor force, and dedicated parents.

The Asian examples are very relevant for another reason that is not emphasized enough. Not very long ago, Asia was considered culturally unable to progress because of the Mandarin tradition and other 'obstacles. Similarly, Latin America was considered to have cultures that were too 'easy going' to allow rapid economic development. That claim has also been disproved by the great successes in many parts of Latin America — including Chile, it looks like in Mexico, and perhaps in Argentina, Peru, and Brazil — and by a few African success stories. There is not a major cultural tradition anywhere that would prevent sizable economic growth with proper government policies toward investments in human capital and in other areas.

But, to protect against the risk that considering the Asian tigers or other examples involves selection of cases favorable to the thesis that human capital is important to growth, it is desirable to look systematically at the growth records of a large set of countries. Studies have related the growth in per capita incomes since 1960 of more than one hundred countries to the fraction of the populations with elementary school, high school, and higher education, life expectancy, initial per capita incomes in 1960, investments in physical capital, and to many other variables.

Almost without exception, these studies show a close relation during the past several decades between economic performance and schooling, life expectancy, and other human capital measures. In particular, although on the average third world nations grew a little less rapidly than richer ones, poorer nations with more educated and healthier populations managed to grow faster than average. Especially important are elementary and secondary education.

The importance of education and training as factors in promoting economic growth was ignored in writings on economic development after World War II in the 1950s and 1960s. Most of this literature believed that physical capital and protected domestic markets were the keys to growth, and that countries which encouraged more investments in machines and plants and export substitution would succeed in growing more rapidly.

Of course, machines and other physical capital are important. But alone they are far from sufficient in producing growth because skilled workers and managers, and innovative entrepreneurs are needed to operate complicated machinery, to produce efficiently, to develop new products and processes, and to utilize innovations from other countries. Neglect of human capital and world markets by most economists at that time led to a seriously distorted view of the growth process, and ultimately to a failed vision of what is necessary to achieve economic progress and reductions of poverty.

The World Bank gave very little attention to human capital at that time, both in its lending policies and in its research and country studies. Gradually, the Bank, as well as the profession, began to change its approach to development. I am happy to know that now not only is research on human capital thriving at the Bank, but the Bank's lending practices also have shifted a little towards health, education and training programs.

Since differences in the economic experiences of countries are not controlled experiments, one should be hesitant to assume that investments in human capital cause economic welfare to improve. Fortunately, other kinds of evidence support the inference that human capital greatly raises economic well being and reduces poverty.

The early literature on human capital did not formalize the relationship between development and human capital investment. That is what so-called endogenous growth models have done in recent years. An important ingredient in most of these models is the attention paid to human capital as an engine of economic growth.

I am not going to summarize that literature, because that is not the main theme of my talk today. But I want to refer briefly to some work that I have been involved in that tries to link not only human capital and growth, but also human capital and population change.

Our work builds on family choices, for families have a choice between investments in human capital of each child and the number of children they have. In the literature this is sometimes called a tradeoff between the quality — this may not be a good word — and the quantity of children.

Families tend to have fewer children as they invest more in the education and health of each one. And with the increasing value of the parents' time, families also do not want to have as many children and shift toward doing more for each child — greater concern about health, schooling, training, and values.

We show in our paper that these considerations could lead to a cumulative growth process, where a society has high incomes, low fertility, substantial investments in human capital, and continuing growth — more or less like the rich economies of the developed world today.

On the other hand, a country could end up with low per capita incomes, high fertility, and little investment in human capital. We tried to analyze what determines which path a country takes.

Birth rates and other measures of family size are negatively related to the education and training of parents, especially that of mothers, in poorer as well as richer nations. More educated parents have fewer children because they spend their time and limited financial resources on investing in the education and health of each child rather than in having many children.

This evidence indicates that education and training contributes to growth in per capita incomes partly by helping to control the Malthusian specter of rapid population increases that eat up the potential for growth in living standards. Parents do spend more on children when their incomes and education increase — as Malthusian models predict — but they spend more mainly by caring for fewer children much better, and by educating them much more extensively.

Therefore, countries concerned about population growth and high levels of mortality can take important indirect steps to reduce family size, especially by encouraging elementary school and secondary education, particularly among women. The education of girls tends to lag in all less-developed countries, although it especially lags in Moslem countries and in traditional families.

Mexico's experience is very instructive. Although Mexico experienced good economic development in the 1950's and 1960's, birth rates fell little. But since the early 1970's, the fall in fertility has been spectacular: the total fertility rate was cut by more than 50 percent.

A study by Dr. Gabriel Martinez of the Mexican government shows that the decline in fertility was closely related to the growing education of women as well as to general economic development. Only about 17 percent of teenage girls were enrolled in secondary schools in 1970, but this rate grew spectacularly by 1990 to over 50 percent.

Less frequently appreciated is that greater education of parents, perhaps especially of mothers, also tends to improve the treatment of daughters. For example, several studies have shown a significant preference for sons in China, India, and other parts of Asia. Korea, for example, has been experiencing an increase in the relative number of male births, but this tendency is absent among educated parents, who presumably have less of a preference for boys. I also believe that the gap between the education of sons and daughters is smaller when parents are more educated, but I have not seen any evidence.

More educated men and women tend to invest more in their own health and the health of their children. Indeed, education may be the most important single personal determinant of a person's health and life expectancy. I will only mention a few examples of the considerable evidence on the link between education and health.

Educated persons in the US and other rich nations are the least likely to smoke. Smoking in the United States is now found in significant numbers only among those with no college education, and is especially common among high school dropouts.

Education of the poor helps improve their food intake not only by raising their incomes and spending on food, but also by inducing them to make better, i.e., healthier, choices. All the studies from different nations I have seen indicate that educated persons tend to consume a healthier diet even when the total amount spent on food is held constant.

A recent study at Chicago shows that education increases the use of condoms among single males in the urban United States, presumably in large measure to help protect against HIV infections.

Of course, the relation between education and better health and life expectancy involves causation in both directions. Greater health and lower mortality also induces larger investments in education and other human capital since rates of return on these investments are greater when the expected amount of working time is greater.

Dr. David Meltzer of Brigham and Women's Hospital in Boston shows in his dissertation that the large reductions in adult mortality which occurred during the past half century in less developed nations significantly increased rates of return to schooling. He also shows that the decline in mortality in these nations and the higher rates of return induced a fall in fertility, presumably partly by encouraging parents to invest less in the number of children and more in the human capital per child.

These links between education and mortality help explain why there is not an unambiguous relation between population growth and economic growth. Greater population growth that is mainly due to declining adult mortality tends to raise economic growth by stimulating investments in schooling and other human capital — which is what Meltzer finds in

analyzing growth of less-developed nations since 1960. However, by the same token, more rapid increases in population due to rising fertility may retard growth in per capita incomes by discouraging investments in human capital.

The modern economic environment places more of a premium on education, training, and other sources of knowledge than was true even 50 years ago. This can be inferred from changes in the relation between education and earnings within countries. In the United States during most of the past 40 years, college graduates earned on the average about 40 to 50 percent more than high school graduates, and the latter earned about 30 percent more than high school drop-outs.

The advantages of completing high school and going on to higher education have risen substantially during the past 20 years in the United States and many European countries. I believe this is mainly due to an increasing value in modern economies of having greater command over information and skills.

Education-earnings differentials are generally much larger in developing countries — as George Psacharopoulos has clearly shown. His recent update suggests a mixed picture for these countries during the 1980s: declines in returns to elementary and high school education, but increased returns to higher education. This may be consistent with the widening differentials in rich countries since many developed countries had significant increases during the 1980s in the number of workers with elementary and high school educations. A study for South Korea, for example, shows that greater supply during the past 20 years outweighed the increased demand for more educated persons.

Education and training not only promote growth and efficiency, but they can reduce inequality and the impact of disadvantaged backgrounds. Education is the most effective way for able young people of poor backgrounds to rise in the economic hierarchy because human capital is the main asset of 90 percent of any population. This is why income inequality in a nation is greater when inequality in education is greater. Indeed, income inequality is more generally related to inequality in all types of human capital: in training and health as well as in schooling.

Therefore, it is not surprising that the increased inequality in incomes in the United States since the mid-seventies has been caused in good part by larger returns to schooling and other training, and that many countries, like Mexico and Brazil, have major pockets of poverty related to regional disparities in opportunities for education

Of course, human capital is not of much use to an economy if trained personnel are not effectively used. If there is inefficient organization of production, people will go into the wrong specialties because of bad incentives. For example, if wage-price controls do not allow better-trained persons to earn more, there is little incentive to invest in on-the-job and other training.

Thus there is interaction between investments in human capital and the functioning and organization of the economy. For example, without markets and competition, education's contributions to an economy are blunted, and even an extensive education system will not lead to economic progress. This happened in the former Soviet Union and elsewhere in the communist world. Many of these nations had widespread education programs, which looked good on paper, but their economic system wasted most of the educated personnel. In the 1960s and 1970s human capital analysts did not sufficiently appreciate the important interactions

between human capital and public policies in determining the effects of human capital on economic growth.

Reforming Education

The role of human capital in the economy means that policies toward education, health, and other investments are important partly for their implications about economic prosperity, economic growth, and income inequality. I would like to make a few points on education policy before closing.

In many countries not enough is spent on education, and what is spent is often spent inefficiently. Let me add some remarks about efficiency.

Education through secondary school tends to be dominated by public schools that charge no tuition; e.g., 90 percent of students in the United States are in public elementary or high schools. Persons generally go to school in the neighborhoods where they live, or in larger geographic units. Curricula and other programs are determined politically. There is no need for schools to compete for students by offering better programs or through tuition charges since the supply of students to a school is largely given.

This system works reasonably well for upper- and middle-class students, for their parents exercise considerable control over the schooling of their children. When these parents are dissatisfied with public schools, they may have means to enroll their children in private schools. Or they can move to communities with public schools more to their liking. Indeed, suburban communities in many developed countries compete for residents partly through the

quality of their public schools. So to speak, residents vote with their feet if they do not like the public schools in their neighborhood.

But this system does not do justice to the schooling demands of poorer families who need good schools to overcome weak family training and learning. Disadvantaged families cannot afford private-school tuition and can seldom move to communities with better public schools. Usually they must accept whatever public schools are available to them, no matter how bad.

To remedy these defects a proposal that is growing in popularity is to give vouchers to students that they can use to help pay their tuition at any school, private or public, that accepts them. Versions of this system have been partially implemented in Sweden, Denmark, Chile, and on a small scale in the United States.

I believe that the best voucher system is limited to poor families. This is partly for fiscal reasons, but mainly because the bottom quarter or so of the population are most in need of better education, and the poor are most likely to benefit from competition by private schools.

Vouchers are a way to help partially privatize the provision of schooling, and fits in with efforts to privatize other sectors. Those public schools that cannot compete will lose students and may be forced to close. On the whole, private schools do a better job of educating their pupils.

The World Bank studied private and public schools in Colombia and Tanzania. But the most detailed studies compare public and private high-school education in the United States.

Private schools here, especially Catholic schools, spend much less per student than big-city public high schools, yet they are more successful in raising the performance and cutting the dropout rates of pupils. The reasons are not clear, although these schools are less subject to political interference that limits disciplinary procedures, and they manage to get parents and the neighborhood community closely involved in their programs.

Two recent studies at Chicago show that private schools in the United States raise earnings and other performance measures even after detailed efforts to implement selectivity corrections for the unobserved characteristics of students who attend private schools. What is especially important for this talk and the proposal to have vouchers for poor families is the evidence from these studies that students from disadvantaged backgrounds tend to gain the most from attending private schools. This is not surprising in light of the more extensive choices available to middle class and rich students.

I will be even briefer about whether education policy in developing nations should promote mass education rather than university and other education of elites. I do not believe there is a hard and fast answer that holds everywhere and for all times. But the apparent high rates of return to the first 9-12 years of schooling in practically all nations — especially in less developed ones — suggests that at least in early stages of development, the best policy is to have a broad reach, so that the vast majority of the population attain decent schooling levels.

The emphasis on mass education is also supported by the positive effects of elementary school and high school education on investments in health.

Conclusion

I have discussed some evidence that relates investments in education and other human capital to employment and earnings, health and mortality, fertility and family size, and discrimination against girls in education, diet, and other ways. All in all, I believe the case is overwhelming that investments in human capital are one of the most effective ways to raise the poor to decent levels of income and health.

Questions from the Floor and Professor Becker's Responses

QUESTION: *For a country to take its place in the world economy, to be able to provide the kind of human capital that is necessary to make foreign investment want to come in, they need a certain critical mass of highly educated people, and that in a large number of developing countries that critical mass isn't there. So the question is, is there any research that would shed light on this question that there is some critical mass of highly trained people that is necessary for an economy really to start growing rapidly?*

ANSWER: There is such a critical mass. The real issue for public policy is deciding between a few percentage points of the population or a large fraction of those people. Do you want to take a really small fraction of people and put them all the way through? It is very expensive to do that, because the higher up you get, the more expensive is your education. Or do you want to put a small fraction of people all the way through and put the bulk of the people rising up to elementary and then ultimately to some high school education?

The most important feature in terms of attracting foreign investment is not whether a country has an elite or well-educated people. It is whether the workers that they encounter there in terms of literacy, work habits, and potential knowledge, are sufficiently skilled or can be taught, that they can be used to produce the products that the companies are thinking of locating there. That is the first decision, the first issue that foreign investors will think about.

I think, for example, the countries that have attracted a lot of investment have done so not mainly because there has been a large elite of college graduates, but because they had not

just cheap labor, but cheap labor that is efficient — labor that can produce enough, given what you have to spend, and who know enough and work hard enough.

If you want to ask where the relevant division should be placed, at the margin I think for most of the developing nations, it isn't so much a shortage of college-educated people that is holding them back, but it is what kind of education the poor of South America or Mexico or India are getting. Can we make this a much more attractive and hard-working and efficient labor force by bringing that fraction of the population up to decent levels?

QUESTION: *Can you talk about the role of training and development?*

ANSWER: The locus of training should be in the private sector. The financing of it, maybe most of that should be in the private sector, as well. People and companies would be willing to pay for training if it pays off. The biggest evaluation of retraining programs I know of finds by a big margin that the private sector-based retraining and training programs are far more successful in terms of rates of return than the public sector training.

QUESTION: *In a number of countries, in spite of high returns to primary education, we see dwindling enrollments in primary schools. Do you have an explanation for why this is so and what could be done about it?*

ANSWER: What has happened to income in these countries? A lot of countries have suffered a lot in the last decade or so in terms of incomes, and we know that is related to my last remark about efficient investments by different families. When family incomes go down, they cut enrollments of their children.

QUESTION: *Do you recommend some policies that would increase their income level and purchasing power?*

ANSWER: In poor countries, children's labor is important, and families have to make the calculation — even with a voucher to pay for tuition or with free schooling, they are giving up these foregone earnings. I think, therefore, a relevant government policy wants to attract people into school beyond simply compulsory school. To make that have some value, I would contemplate maybe adding to this voucher a component that would go to the families that would help make up some of the lost income of the families.

QUESTION: *What would you advise a country that is interested in improving the quality of basic schooling outcomes for children from poor homes, if their tradeoff is improving the quality of primary schooling versus providing access to initial schooling in the very early years, let's say ages 4 and 5?*

ANSWER: Early childhood interventions are important and they become cumulative. It is possible to improve the quality of the schools by trying to bring in — either private or public — more competition.

QUESTION: *May we have your comment on general education versus technical vocational training?*

ANSWER: One of the traditional cases for liberal education is precisely that, in the long run, as economies change and we don't know what the future will bring, a broader

education of general knowledge and skills is most effective in providing precisely that. So I don't think there is a conflict between the two. It is a short-run versus a long-run.

I don't believe that schools are the appropriate place to provide vocational type education, not for very subtle reasons, but for obvious reasons. Schools aren't making the products, they don't know what is necessary, they don't keep up to date.

One alternative is vocational schools. But if you want to give them job-related training, it seems to me the best way to do that is on the job, and the way to do that is with vouchers. I come back to the voucher, because a voucher is just a general technique of using government funds to finance private activity.

So I am not against vocational training. I think it is a mistake to put it in a school system on a very large scale. I don't think they do a good job of it. I think you should harness that to the private sector.

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