

# Chapter 8

## Human Capital: Education and Health in Economic Development

### ■ Key Concepts

Education and health are discussed as part of the development of human capital. Key topics addressed in the chapter include:

- The central role of education and health in the development process.
- The complementary relationship between education and health.
- Child labor and the gender gap.
- Educational systems and development.
- Health systems and development.
- Policy options for improving education and health.

Section 8.2 describes the key complementary relationship between education and health. Section 8.3 discusses child labor and section 8.4 discusses the gender gap in health and education and present data and several approaches to dealing with these two issues.

Section 8.5 focuses on educational systems and development which includes the determinants of the demand and supply of education places, and the distinction between the private and social benefits and costs of investment in education.

- The demand for education is determined by the expected income benefits and direct and indirect costs of schooling, while the supply of school places (at all levels) is determined by the political process, and is often unrelated to economic criteria. In most developing countries expected income gains from additional years of education are high, in that modern sector employers, including the government, select by educational attainment irrespective of actual work requirements.
- The concepts of social and private costs and returns to education are explained. Two graphs illustrate how the private and social costs and benefits change as years of schooling increase. The expected private return increases at an increasing rate while the private cost increases much more slowly, indicating that from an individual's viewpoint it is optimal to secure as much schooling as possible. In contrast, the social returns increase sharply at first and then taper off while the social costs increase at an increasing rate, indicating that there is an optimal quantity of schooling, at the point where the marginal social costs and benefits are equal. The text suggests that public resources are being misallocated by providing too much schooling. It is also suggested that it might be better for the government to invest in higher quality, rather than higher quantity, education.

Several conclusions are drawn with respect to the relationship between education, society, and development.

- *Distribution of Education:* Not only the quantity of education is important. More important is its quality and how it is distributed amongst the population.
- *Education, inequality, and poverty:* The education system can increase inequality if the poor lack access to education and/or the rich are disproportionately represented in secondary and university schooling. A poor person's rate of return to investment in education may be lower than a rich person's. This is demonstrated with an added section on tutor and computer-assisted learning programs.
- *Education, internal migration, and the brain drain:* The more educated tend to migrate out of the rural areas, and sometimes out of the country.
- *Education of women, fertility, and child health:* There is an inverse relationship between the education of women and family size.

Section 8.6 focuses on health systems and development. Section 8.7 provides information on the burden of various diseases (specifically malaria and HIV/AIDS) in developing countries, as well as how the prevalence of certain diseases affects labor productivity. A new section on Parasitic Worms and other neglected tropical diseases has been added. A small case study on Uganda, added in the 11<sup>th</sup> edition, remains. The case study highlights how Uganda's efforts allowed it to become the first to see a significant reduction in the prevalence of HIV/AIDS. The last section of chapter 8 deals with productivity and health policy.

As an example of a conditional cash transfer program (CCT) chapter 8 ends with a case study on Progresa/Oportunidades program in Mexico, which directly benefits over 21 million Mexicans. The case study illustrates how successful development programs increases human capital and can be an effective tool in combating poverty.

## ■ Discussion Topics

- Discuss the short run and long run equity issues related to increasing the quality of education as opposed to the quantity. Students should be able to comment on the short run and long run effects on population growth, employment, growth, and welfare.
- Have students discuss their decision to attend college with respect to private costs and expected private returns.
- Discuss the difficulties associated with allocating scarce public resources. Make up a budget and two or three projects in addition to education, and have students discuss the costs and benefits of each. Alternative projects could include rural public works projects, urban infrastructure improvements for the informal sector, investment subsidies for the modern industrial sector, or credit programs for the rural or informal sector. Students should have enough knowledge at this point to be fairly specific about costs and benefits as they relate to welfare, growth in output, growth in labor productivity, and growth in employment. If your class is small you could also break up into groups and then have each group make a short, informal presentation. A class assignment that puts students in the position of a policy maker, provides them with two or three very different proposals, and then asks to explain which is best is a valuable exercise whether done in class in groups or is included as part of a problem set or homework assignment.

## ■ Sample Questions

### Short Answer

1. Write an essay on the economic relationship of greatest concern for development between education and
  - (a) the level of growth,
  - (b) the character of growth,
  - (c) inequality,
  - (d) fertility,
  - (e) absolute poverty,
  - (f) international migration.

**Answer:** This question may be given as one long essay, or limited to one or more of the parts as a short essay. Discussed in the chapter.

2. What is human capital and why is it crucial to expand human capital as part of the development process?

**Answer:** Human capital is defined as human capacities that raise productivity. In particular, human capital is focused on the level of education and health within the population. As more human capital is accumulated, labor productivity rises, which is essential for sustained growth in the economy.

3. What factors cause private and social rates of return for primary and secondary education to diverge in developing countries?

**Answer:** Subsidies. Credential inflation as a way to select from among qualified applicants in the high wage modern sector.

4. Why have poor nations invested so much money in education and health? Evaluate the soundness of these reasons.

**Answer:** Discussed in the chapter. Education and health improvements will increase labor productivity. Both are essential for sustained growth.

5. Why is eradicating child labor seen as an economic investment?

**Answer:** Answers should include reference to the estimated \$5 trillion in economic gains and a high rate of return on the investment needed to eliminate child labor and provide more education up to age 14.

6. Compare the relative effectiveness of the *balsakhi* program to the Computer-Assisted Learning (CAL) program in India.

**Answer:** Discussed in Box 8.6. Both programs are effective in helping primary school students learn. The *balsakhi* program is relatively more cost effective than the CAL program, though both are fairly inexpensive (\$5–\$16 per child per year).

7. Explain some of the reasons why developing countries have not realized a greater positive development impact from their higher education programs.

**Answer:** Lack of program focus on the needs of the country and lack of mechanisms to ensure college graduates have the incentives to apply their abilities to pressing development needs. See the chapter.

8. Why should the development of a solid elementary education system take precedence over an expansion of the university system in developing countries?

**Answer:** One reasonable answer would apply the law of diminishing returns. Another would stress that university trained graduates have limited benefit without complementary inputs of moderately trained personnel. Also the higher rate of return (both private and social) from investing in primary education.

9. Evaluate critically the following statement: The developed countries have all shown a significant increase in the numbers of university-trained workers as incomes have risen; thus the development of a solid university system should be among the major priorities of developing countries.

**Answer:** Students might be expected to distinguish between cause and effect. A better-educated labor force does not in itself cause development. It is necessary but not sufficient.

10. Explain why the education of girls is probably the most cost-effective development investment. Be sure to include in your answer some discussion of at least two of the following: absolute poverty, health and development, fertility, and agriculture.

**Answer:** Female education leads not just to better employment opportunities but also to a better distribution of benefits within a family. It leads to improved child health, reduced fertility, and it improves agricultural productivity as women do most of the work in this sector.

11. In developing countries higher educational facilities have tended to expand to the point where social benefits exceed private benefits. What is the economic explanation for this?

**Answer:** Supply and demand are not equated by a price adjusting market mechanism, but rather institutionally, through the state. Those with political influence seek to create subsidized education for their children.

12. Is child labor a problem in developing countries? Explain.

**Answer:** Discussed in the chapter. Students might comment on the magnitude of the problem as well as the fact that working children cannot attend school.

13. Explain how a better-educated population will also tend to be healthier, and vice versa, that a healthier population will tend to be better educated.

**Answer:** Education and health care complementary.

14. How can an increase in human capital lead to an increase in GDP? Why might it not lead to an increase in GDP?

**Answer:** will vary. Labor is more productive as human capital increases. Population growth can be expected to eventually fall as human capital increases. It might not lead to an increase in GDP if there is not sufficient job growth, or increased education is not directed at productive activities.

15. Investment in human capital is very similar to investing in physical capital. True or false? Explain your answer.

**Answer:** They are similar in the sense that rates of return can be calculated for each form of capital so one can compare these and make a choice as to which type of investment to undertake. Rates of return to education are provided in Table 8.1. Of course, there is a market for physical capital where it can be bought/sold but no market for human capital.

16. What is educational inequality and how is it measured? Why is it important to measure the degree of educational inequality in a country? Explain your answer.

**Answer:** Measures how the quantity of education is distributed amongst the population ages 15 and above. It can be measured by the Lorenz curve and the Gini coefficient, much like the distribution of income.

17. What are the critical health challenges facing developing countries today and what measure(s) are being taken to confront these challenges? Explain your answer.

**Answer:** Combating the burden of diseases (malaria and HIV/AIDS prominent among these) and breaking the vicious circle between lack of health and low productivity.

18. Why do you think Uganda has been so successful at decreasing the prevalence of HIV/AIDS?

**Answer:** An answer should make reference Box 8.8, especially noting the role of education, awareness, and an analysis of the economic forces behind the disease.

19. Although Progres/Oportunidades has been successful in Mexico, why might a similar program not work elsewhere?

**Answer:** This problem is designed to get students to think about how development solutions in one country cannot necessarily be duplicated and be successful in another country. Answers should discuss the financial cost of implementing a similar program as well as the other necessary actions that would have to go hand in hand with such a program, such as the building of infrastructure and national level investments in health care among other things.

## ■ Multiple Choice

1. Developing countries have not benefited as much as expected from their higher education programs because of
- (a) lack of program focus on the needs of the country.
  - (b) increasing returns to scale in each individual's education.
  - (c) graduates get jobs in the private sector.
  - (d) all of the above.

**Answer:** A

2. Education of girls is a crucial development investment because
- (a) it leads to improved child health.
  - (b) it leads to reduced fertility.
  - (c) women do most of the work in agriculture.
  - (d) all of the above.

**Answer:** D

3. It is important to place particular stress on the role of primary education in the development strategy because of
- (a) LDC's comparative advantage from basic skills education.
  - (b) the law of diminishing returns.
  - (c) development emphasis on poverty alleviation.
  - (d) all of the above.

**Answer: D**

4. Credential inflation results from
- (a) a combination of cost-push inflation and demand-pull inflation.
  - (b) rigidities in the industrial sector.
  - (c) the need to select from among qualified applicants in the modern sector.
  - (d) all of the above.

**Answer: C**

5. The fact that developed countries have strong, widely attended university systems indicates that
- (a) university expansion should be a development priority.
  - (b) universities teach skills used on the job.
  - (c) developing countries place too much stress on agriculture.
  - (d) none of the above.

**Answer: D**

6. An individual's demand for education is most affected by
- (a) direct and indirect costs of schooling.
  - (b) development priorities of the country.
  - (c) the desire to escape agricultural work.
  - (d) all of the above.

**Answer: A**

7. Concentration of resources on higher rather than basic education in developing countries tends to lead to
- (a) greater inequality.
  - (b) lower fertility.
  - (c) less international migration.
  - (d) more job creation.

**Answer: A**

8. The supply of public school places is determined by
- (a) individuals' demand for education.
  - (b) direct and indirect costs of schooling.
  - (c) political processes, often unrelated to economic criteria.
  - (d) all of the above.

**Answer: C**

9. Studies show that improved education of women in developing countries leads to
- (a) lower infant mortality.
  - (b) better designed, market based development policies.
  - (c) lower international dependence.
  - (d) all of the above.

**Answer: A**

10. Human capital is best defined as
- (a) the amount of wealth people have.
  - (b) the amount of money people have to spend on schooling.
  - (c) human capacities that raise productivity.
  - (d) the average education level of the population.

**Answer: C**

11. Child labor is a widespread problem that applies primarily to children
- (a) between the ages of 5 and 14.
  - (b) between the ages of 10 and 14.
  - (c) between the ages of 12 and 14.
  - (d) between the ages of 12 and 16.

**Answer: A**

12. The World Bank approach to combating child labor stresses
- (a) making child labor legal under certain conditions.
  - (b) tackling the sources of poverty.
  - (c) encouraging families to migrate to richer countries.
  - (d) providing each child with a computer so that children have an alternative to working.

**Answer: B**

13. The ILO approach to combating child labor stresses
- (a) encouraging parents to migrate to the cities in search of work.
  - (b) banning child labor.
  - (c) tackling the sources of poverty.
  - (d) all of the above.

**Answer: B**

14. As the number of years of schooling completed increases, the expected private return and private cost of education
- (a) increase at roughly the same rate.
  - (b) increase at different rates with expected private return increasing at a slower rate than private cost.
  - (c) increase at different rates with expected private return increasing at a faster rate than private cost.
  - (d) do not increase.

**Answer: C**

15. According to the 2005 UNDP Human Development Report child mortality (under age 5) has declined in all regions of the world except:
- (a) South Asia
  - (b) Sub-Saharan Africa
  - (c) Middle East and North Africa
  - (d) None of the above

**Answer: B**

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16. According to the Regional HIV and AIDS Statistics data from WHO, which region of the world has the largest number of adults and children living with HIV?
- (a) South and South-East Asia
  - (b) Sub-Saharan Africa
  - (c) Latin America
  - (d) North America

**Answer:** B