HEALTH, SANITATION, NUTRITION AND HUMAN DEVELOPMENT

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Summary

A growing body of research has documented the positive impact of health and nutritional status on earnings and economic growth. Moreover, disease control programs that permit previously unsettled regions to be populated and developed will cause both output and employment to increase. However, economic growth can be associated with increased health problems in both developed and developing countries.

Poor sanitation and lack of access to safe water are enormous problems in developing countries. The number of people lacking the above is rising, not falling. The lack of these facilities has enormous negative health and development implications for the developing world. However, the cost of providing such facilities to all households, and particularly to the rural poor, is staggering.

The nutritional status of the poor in developing countries is highly sensitive to personal income and the price of food. Child malnutrition is particularly affected by a decline (or improvement) in family economic status.

In recent years, a number of both experimental and non-experimental studies have documented the positive impact of health and nutrition on productivity and earnings in low-income settings. These findings provide modest support for the Wage-Efficiency

Hypothesis. However, most of these studies focus on manual workers. As development proceeds, manual labor employment will decline and the proportion of skilled and professional workers in the labor force will increase. For the latter, the impact of education and on the job training will likely have more of an impact on employment and earnings than on health care and nutrition.

1. Introduction

The economic benefit of improved health is likely to be higher in developing as compared to higher-income industrialized countries. Not only is nutritional status far lower in developing countries, but also the types of diseases which affect the population differ from those in developed countries. Thus, there is a much higher prevalence of malnutrition and infectious diseases (many of which are preventable) in the former, which often interact, causing even more serious illness. In the latter much of the health care provided to the population reflects chronic illness.

Knowledge of the extent and nature of associations between health and earnings is important for policy. The health sector accounts for an important share of public expenditures in most countries. If improvements in health, water supply and nutrition yield benefits in terms of higher productivity and economic growth, then those benefits should be reflected in the allocation of resources to health programs.

In a developing country context, it is likely that the labor market consequences of poor health are likely to be more chronic for those in poverty, since it is the poor who are more likely to suffer from severe health problems and to be employed in jobs for which strength (and therefore good health) has a benefit in terms of increased income.

Because of the above discussion, this paper will primarily focus on developing countries. In addition, the emphasis will be on ways in which health, nutrition and water supply influence economic status and not the reverse.

2. Health and Economic Development

There are a number of reasons why better health care improves the overall level of earning capacity and the rate of economic growth. Each of these will be explained in turn.

First, health programs increase output by reducing the number of work-days lost due to illness, by raising labor productivity, by providing more opportunities to obtain better-paying jobs, and by prolonging work lives. For example, one study reported that the elimination of deformity in India's 645,000 lepers would have increased the number of days worked by them and added $130,000,000 to the country's GNP in 1985. In a study of 250 Sudanese households, uninfected workers putting in longer hours made up 68 percent of the time lost from contracting malaria. If malaria had not occurred, the extra time worked would have increased output. However, the latter assertion assumes sufficient demand for labor to fully employ the uninfected workers.

Moreover, over a period of time improved health improves the manner in which work is

organized. Thus, employers have no reason to build slack time and redundancy into their production schedules, and are more willing to train workers and to encourage specialization. Farmers no longer have to be risk averse, operating like those in malarious areas of Paraguay, who respond to the threat of disease by primarily growing crops of lower value, which can be cultivated outside the malaria season.

Many studies have examined the impact of schistosomiasis on labor productivity. Five of these studies find productivity losses due to this disease of one-third or more.

In an experimental study, sugarcane workers in Tanzania (who were paid by the amount of sugarcane cut per day) were divided into two groups, those with schistosomiasis and those without the disease. In the experiment, those infected were randomly divided into two groups. The treatment group members were given chemotherapy, and their earnings increased but did not fully make up the gap with the uninfected group. There was no change in the earnings of the control group, the infected workers who were not given chemotherapy. This experimental study clearly suggests that schistosomiasis does affect productivity.

The second way in which better health can increase economic growth is by increasing the efficacy of schooling, and therefore the amount of human capital, which young people can obtain. Healthier and better-nourished children learn faster. Iron deficiency anemia, for instance, reduces cognitive ability; vitamin A deficiency is a major cause of blindness among children. The latter would preclude school attendance unless there are special schools for blind children.

In a study of 350 children from the plains of Nepal, it was found that malnourished children, as measured by low height for age, not only had a lower enrollment level but also performed less effectively in school. In a study of over 3,000 children from urban and rural areas of China, it was concluded that height-for-age had a strong effect on performance. Moreover, children in Northeast Brazil who are inadequately nourished and have poor eyesight have below average promotion rates and above average dropout rates in their schooling. In Jamaica children with moderate whipworm infection did 15 percent less effectively than uninfected children but the gap almost disappeared when the former were treated.

Besides increasing the quantity and improving the quality of human resources, health expenditures can also increase the availability or productivity of non-human inputs. For example, in developing countries, there are large tracts of land that are rendered uninhabitable or unusable by endemic diseases. Malaria and yellow fever limited development in many parts of Latin America, Africa and Asia until these diseases were brought under relatively effective control in the twentieth century. Even today schistosomiasis makes it unsafe for people to enter lakes and streams in some sections of Africa, and trypanosomiasis (African sleeping sickness) restricts the range of the livestock industry. At present, no chemical means of control has been discovered for either of these diseases. China, however, has made progress against schistosomiasis through mass campaigns aimed at ridding lakes and streams of the snails that transmit the parasite. Improved control of hookworm and other parasite conditions would increase resource availability because the productivity of inputs devoted to food

production would be increased.

The reduction in the incidence of river blindness in eleven sub-Saharan countries under the Onchocerciasis Control Program has already made available 25 million hectares of previously inaccessible land for agricultural cultivation. It is also a very cost-effective program with an estimated internal rate of return of between 16 and 28 percent.

One problem in analyzing the impact of disease control on regional development is to determine how much growth is due to the health program per se in comparison to other factors such as improvement in the economic infrastructure, which is often termed social overhead capital. Although in some cases the health program was required before any economic growth could occur, it is an exaggeration to attribute all subsequent growth to the health program.

It is not always recognized that the output increase occurring in the region where the health improvement occurred is obtained to some extent at the reduced cost of output elsewhere, namely in the regions from which labor and capital migrate. The economic gain that should be attributed to health improvements is the net increase in output from all regions combined, not simply the increase taking place in the region where the health improvement occurred.

There is a fourth way in which improved health can contribute to economic growth. Some diseases lead to heavy or even disproportionally high treatment costs in the future. If health conditions are improved now, and the incidence of these diseases is reduced, there will be important savings in future treatment costs. These savings can then be used for alternative projects to produce greater economic growth.

A good example is the disease AIDS. It occurs primarily in adults aged 15-45 so that the indirect costs of premature death and disability are very large. Moreover, given the increasingly expensive health care involved, this can lead to large treatment costs. Thus, research undertaken in nine developing and seven developed countries indicated that the prevention of one AIDS case saves, on average, an amount equal to twice the per capita GNP in terms of discounted lifetime costs of medical care. Thus, if the incidence of AIDS is reduced, there will be large savings in treatment costs and a sharp decline in future output loss due to morbidity and premature mortality. In this sense, improved health can contribute to economic growth.

3. The Effect of Development on Disease — Some Negative Consequences

Higher incomes usually lead to increases in certain kinds of consumption that are harmful to health, such as tobacco products, alcohol, and fatty foods. Economic development is normally associated with a decline in the proportion of the labor force employed in manual labor and an increase in the percentage of workers employed in relatively sedentary positions such as office workers. There is a general decline in physical exercise, which in combination with high calorie diets produces more frequent obesity and associated cardiovascular disease. Higher incomes are usually associated with industrialization, which often can produce health-threatening levels of air and water pollution, as well as creating new occupational hazards to which workers are

subjected. The building of highways increases the number of traffic accidents, a major cause of death and injury in many countries. Moreover, roads may function as a mechanism for transmission of disease. Although their purpose is to encourage movement of people and goods, these facilities encourage the spread of several kind of insect-borne diseases such as trypanosomiasis. For example, with the expanding road and physical communication networks in Africa, which facilitate population movement, the risk of rapid reinvasion of areas by tsetse (and consequent reinfection) is great. This implies that a policy of strict vigilance and control would be of great practical benefit, but it would require inter-country cooperation.

Some economic development projects have ecological consequences that are harmful to health. For example, the spread of schistosomiasis has occurred in areas where land-reclamation projects have expanded the habitat of the water snail, which acts as an intermediate host in the transmission of the disease.

The latter example illustrates the necessity of cooperation between health planners and development planners. Such cooperation can determine the health costs (if any) of future development projects and health preventive measures can be instituted as the development project reaches completion.

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Biographical Sketch

Alan Sorkin is Professor and Chairman of the Department of Economics at the University of Maryland Baltimore County. He is also Adjunct Professor of International Health at the Johns Hopkins University School of Hygiene and Public Health. He received his Ph.D. in economics from Johns Hopkins in 1966. Dr. Sorkin is the author of a number of books and articles focusing on the economics of human resources. His primary research is the economics of health in developing countries.