

# HEALTH AND DEVELOPMENT

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- BENEFIT INCIDENCE: PUBLIC HEALTH EXPENDITURES AND INCOME DISTRIBUTION, A CASE STUDY OF COLOMBIA.* By ELKE C. MELDAU. (North Quincy, Mass.: Christopher Publishing House, 1980. Pp. 224. \$9.75.)
- THE CHILDREN OF SANTA MARIA CAUQUE: A PROSPECTIVE FIELD STUDY OF HEALTH AND GROWTH.* By LEONARDO J. MATA. (Cambridge: MIT Press, 1978. Pp. 395. \$25.00.)
- MEDICAL CHOICE IN A MEXICAN VILLAGE.* By JAMES CLAY YOUNG. (New Brunswick, N.J.: Rutgers University Press, 1981. Pp. 233. \$19.50.)
- PODER, ESTRATIFICACION Y SALUD: ANALISIS DE LAS CONDICIONES SOCIALES Y ECONOMICAS DE LA ENFERMEDAD EN YUCATAN.* By EDUARDO L. MENENDEZ. (Mexico: Ediciones de la Casa Chata, 1981. Pp. 590.)
- THE HEALTH REVOLUTION IN CUBA.* By SERGIO DIAZ-BRIQUETS. (Austin: University of Texas Press, 1983. Pp. 227. \$19.95.)

Each of the five books reviewed here analyzes a health care system, but they provide five different disciplinary perspectives. While the substantive issues examined and the research methods employed are diverse—including economic, biomedical, anthropological, political, and historical approaches—the common question each author tries to answer is: what are the determinants of demand and supply for health services? Elke Meldau's analysis of the benefit incidence of health expenditures in Colombia is a public finance treatise. Leonardo Mata's book is a detailed epidemiological study of the effects of malnutrition and infectious disease during infancy on the subsequent bodily growth of children in a Guatemalan village. James Clay Young reports his findings from an anthropological field study in which he observed how the inhabitants of a Mexican village go about choosing different kinds of medical care. Eduardo Menéndez looks at social and political stratification as reflected in the medical care system in Yucatán. Sergio Díaz-Briquets traces the health revolution in Cuba from its beginnings at the turn of the century.

Altogether this body of research could usefully serve as core readings for an interdisciplinary seminar on health and development. None of the five studies is beyond comprehension for readers from another

academic discipline, although each includes more statistical detail than nonspecialists can absorb. What really strikes one after a comparative reading is that the *ceteris paribus* assumptions of any one author become another's most important variables. Because of the different methodological approaches, the findings of the five studies do not readily combine into a comprehensive overview of health care impact and its distribution. This situation casts some doubt on the authors' claims for the more general validity of the findings of their respective case studies.

By focusing on benefit incidence rather than on tax incidence, Elke Meldau claims her position among a new generation of public finance experts in *Benefit Incidence: Public Health Expenditures and Income Distribution, A Case Study of Colombia*. The incidence of any tax, aside from the more traditional concern with who actually bears its burden, reveals nothing about how its revenue is distributed. Hence comes the growing concern with benefit incidence. Tax revenues, in addition to providing public goods, are also intended to redistribute income from upper- to lower-level income strata in developing countries. But because the poor are not trusted to use transfer payments to satisfy their basic needs, they are provided with subsidized medical care, nutritional supplements, education, housing, water, and sanitation. The benefits accruing to the recipients of such services are generally calculated at their average cost. Meldau disagrees with this method of calculating the incidence of benefit. She argues that instead of using the so-called cost-of-service approach, the "willingness-to-pay" method in benefit calculations should be used.

The latter method estimates the incidence of benefits—for example, of public health care expenditures—in terms of individual rather than societal utility. According to Meldau's definition, "the utility of the health service to the consumer is the maximum sacrifice that he would be willing to make in order to obtain it" (p. 85). This proposition is questionable. Should the poor get less health care because they value it less? The poor value health services less in absolute terms than do higher-income segments of society because of their severe budget constraints. In relative terms, however, their direct medical expenses may represent higher proportions of their incomes than would be the case for the more affluent. This reason is the obvious one for subsidizing the cost of health services to the poor, given that the middle- and higher-income segments can more easily share the risk of illness through social and private insurance.

Another limitation of Meldau's willingness-to-pay approach is that it simplifies (understandably, but unrealistically) by assuming a homogeneous utility function. Yet public health services are used predominantly by mothers and children. The utility of public health services is thus likely to be higher for women of childbearing age than it is for men,

but the women's decision-making power over family income may not equal that of men. Moreover, differences in the geographical accessibility of public health services will cause their utilization cost to vary, at least in terms of time. Thus, it is misleading to assume that public health services have the same utility for all individuals at a given income level.

Meldau's empirical results must therefore be viewed with some skepticism. Her major conclusion is that the value of public health care benefits enjoyed by the poor is substantially lower when calculated by the willingness-to-pay approach than by the cost-of-service approach. A more credible, but also more troubling, finding is that when she compared benefit incidence with tax incidence, the net effect proved to be regressive. In other words, the poor may benefit disproportionately from public health services, but their benefit incidence remains less than their tax burden despite the nominal progressivity of the Colombian tax structure. "This suggests," Meldau concludes, "that it would take greater progressivity of the tax-transfer system to achieve the redistribution desired . . ." (p. 181).

Leonardo Mata reports on nine years of field work in a Guatemalan Indian village, conducted during the period 1963–71 under the auspices of the Institute of Nutrition of Central America and Panama (INCAP). He traces the interaction of disease and physical growth. The study required the intensive, continuous involvement of a dedicated interdisciplinary team of researchers and assistants in the daily lives of nearly all the village families. But the researchers also had to maintain their distance so as not to affect the normal flow of life. Mata thus remained an observer rather than becoming an agent of change; he limited his work to monitoring maternal and child weight, height, circumferences of limbs, nutritional intake, and disease vectors. (Perhaps it is easier for a natural scientist who is not a medical specialist to avoid trying to change the human condition observed.) Mata expresses humble appreciation of the Indians' way of life but is simultaneously scornful of their lack of basic hygiene and their ignorance of proper nutrition. Although the INCAP staff contributed primary health care services through the village health post, no attempt was made to improve personal and environmental health conditions through Mata's work. Mata does not address the ethical questions that this approach raises, particularly in a longitudinal study.

The villagers' diet consists predominantly of maize and sugar and includes only minor quantities of vitamins and proteins. Prevalent diseases are primarily those borne by vectors that could be environmentally controlled. Malnutrition, although not endemic, is evident. Mata attributes this malnutrition to ignorance of infant nutritional needs rather than to food scarcity. Inadequate nutrition lowers resistance to diarrheal and respiratory diseases, which in turn cause growth retarda-

tion. There appears to be an intergenerational transference of low weight and stature among some village families, while others are of sturdier physique and relatively healthier. Yet Mata discovered no significant social or economic differences that might explain such differences.

Mata's documentation of physical and clinical measurements and their changes over the study's duration is exhaustive. But the number of observations is so small as to limit their statistical manipulation. The boundaries of significance are sometimes stretched, particularly when the sample size and composition changes over the years of observations, or if multiple observations of illness pertain to the same individual. Close to one-third of the text consists of data tables and graphs, and much of the verbal exposition is descriptive interpretation of these data. There is undoubtedly a wealth of substantive detail here of great interest to the clinician, but others are likely to thumb through many chapters with respectful haste.

In the concluding chapter, the author concludes that "more than 40 percent of infants are of low birth weight and that four-fifths of them experience fetal growth retardation." Although "neonatal mortality by birth weight was that of advanced countries . . . , fetal maturity continues to influence postneonatal, infant, and preschool mortality . . ." (p. 321). Nutritional and infectious factors play an even more important part in growth retardation, Mata concludes. Infection is a major cause of malnutrition, whose origins in turn are the villagers' "low socioeconomic development, deficient education and environmental sanitation, and scarcity of economic resources" (p. 323). Mata ends his clinical analysis with an exhortation calling for the improvement of external economic conditions affecting Santa María Cauque, one that contradicts his initial observation that the village had remained relatively unaffected by outside events. It is not clear to what extent the village or the author's perception of it changed during his nine years of field research.

While Meldau assumes homogeneous utility, Mata finds a significant difference between a relatively healthy, physically stronger cohort and a physically weaker cohort with a higher incidence of disease in an otherwise homogeneous village population. One can infer that health services do not have the same utility for these two cohorts. Not until one reads James Clay Young's *Medical Choice in a Mexican Village* are the determinants of the utility of health services identified. Young lived and worked in a small Mexican Indian village for over a year. Using a technique he describes as cognitive ethnography, Young studied the medical beliefs of the villagers as well as the determinants of their choices in seeking medical treatment. The study included sixty-two households, which represented about 12 percent of the village population.

Anthropologists using this research approach, Young explains, generally assume that members of a given group confronted with similar

choices tend to make similar decisions. This assumption is the same as the economists' homogeneous utility assumption. Young's study can thus be viewed as a test of Meldau's assumption, although he studies a small village whereas Meldau generalizes for an entire income stratum of several million inhabitants. Young found that his respondents perceived illness at three different levels of severity, ranging from mild to severe. Mild illness was largely treated with home remedies. For moderate illness, villagers tended to seek medical care from either traditional healers or modern medical auxiliaries, their choice depending only on cost and local availability. For serious illness, villagers almost always made the necessary allocations of time and financial resources to seek treatment by a medical doctor in the nearest larger town. Whatever the degree of illness they perceived, families tended to seek the least costly form of treatment. Their "willingness-to-pay," in Meldau's terms, was very low. Is this an acceptable rationale for not providing more free health care to the small village population in developing countries?

Young provides no answer to this question. He does, however, dispel the notion that traditional beliefs inhibit rural dwellers from choosing modern medical treatment. The underutilization of modern medicine where available is due instead to constraints on family resources. Young's respondents lead traditional lives but "need little convincing of the effectiveness of modern medical treatment provided by a physician" (p. 172). Failures of modern medical treatment, however, as well as illnesses with a high likelihood of reinfection after treatment will cause villagers to revert to the use of traditional home remedies. Their reasoning is based on rational cost-effectiveness rather than on irrational folk beliefs.

Mata and Young both encountered complete ignorance in their respective villages about the environmental causes of prevalent illnesses. Mata was able to identify clinically the type of any illness and its causes, but Young relied entirely on self-reported symptoms in recording the nature and severity of any occurrence of illness. This approach suggests that the decision to seek medical care may be an inappropriate indication of the need for health services. According to Young's findings, providing more modern health care at lower cost and of easier access for villagers would result in higher utilization rates. But families' expressed need for health services would be a misleading guide for health policy that should instead direct resources toward environmental disease control and educating individuals on ways to improve their nutrition and personal hygiene.

None of the three studies reviewed so far analyzes the structure of health care supply. Meldau looked at aggregate benefit distribution, Mata at biological need, and Young at the determinants of demand for medical care. Eduardo Menéndez provides a supply-oriented analysis of

health care in *Poder, estratificación y salud: análisis de las condiciones sociales y económicas de la enfermedad en Yucatán*. He first outlines the economic evolution of Yucatán and its political manifestations and then describes changes in the state's health conditions. Menéndez detects a close interaction between health and development. Infant mortality has declined and the diseases of old age have become more prevalent as life expectancy has increased. But general living standards and environmental health conditions have not significantly increased for most of the Yucatán's population as economic production and political power have become more monolithic. The common diseases of poverty—intestinal and respiratory infections—remain the leading causes of illness.

Against this economic, political, and epidemiological background, Menéndez examines the distribution of medical care resources. While Meldau focused on demand by estimating the distribution of health care financing among income strata, Menéndez provides a supply-side perspective. He describes the geographical distribution of hospitals and medical doctors and finds them to be located predominantly in the urban areas where economic activity and political power are also concentrated. In the rural areas, curative care is provided primarily by traditional healers. Significant improvements in water supply and sanitation facilities have occurred, however. Yucatán has also been extensively covered by vertical health campaigns, such as environmental vector control and mass immunization, complemented by health education efforts. Menéndez reports that the state of Yucatán has one of the highest levels of medical care provision in Mexico, including both public health and social insurance coverage. It is on the maldistribution of these resources that Menéndez focuses in his concluding analysis. The political power structure controls the allocation of health care resources and the population is resigned to a passive role. The medical care system, he claims, is predominantly curative in its orientation. Although this conclusion may be valid, Yucatán appears to have made significant progress in environmental and preventive health care.

Menéndez directs his principal critique not at the economic, political, and medical systems he describes, but at the anthropological approach to the study of health and medicine. He would criticize Young's study, for example, as being devoid of any concern with systemic determinants of both the demand and the supply of health care. There is no shortage of systemic studies of the health sector in developing countries, however. They are necessary bases for planning purposes, but successful implementation of health care programs requires more of the kind of insight provided by Mata and Young.

The most interesting of the five books reviewed here may well be *The Health Revolution in Cuba* by Sergio Díaz-Briquets. Although its title may cause the reader to expect a detailed account of systemic change

since 1959, the book explores instead the history of health status improvement, beginning with the U.S. occupation of the island during 1898–1902. At the end of the Spanish-American War, life expectancy at birth for Cubans was thirty-three years. After four years of dramatic public health improvements and the virtual eradication of malaria, four to five years had been added to this index. Díaz-Briquets goes on to chronicle further increases in life expectancy through several periods, always relating them to changing economic and social conditions.

Following independence in 1902 (and a stipulation in the Platt amendment to provide for the continuing improvement in sanitary conditions), life expectancy increased another four to five years by 1919. Thereafter, mortality rates dropped rapidly, “influenced by improvements in socio-economic conditions operating with some time lag” (p. 127). Between 1919 and 1931, the gain in life expectancy was seven to eight years. Further gains were more moderate between 1931 and 1943 because they were inhibited by deteriorating economic conditions in what had become a heavily exploited one-crop economy with serious income inequalities. Health improvements during this era resulted primarily from medical advances—namely, antibiotics and pesticides—which became available for use in Cuba during this period.

From 1943 to 1958, economic conditions once again improved and life expectancy increased another eleven to twelve years, reaching about sixty-five years. The ensuing reorganization of the curative health care structure under Fidel Castro probably had less to do with another gain of eight to nine years in life expectancy than did nutritional and educational improvements for the mass of the Cuban population. In the early eighties, Cuba had reduced mortality to the level characteristic of advanced countries despite remaining economically underdeveloped. Díaz-Briquets argues strongly that in this particular case, the improvements achieved in health status have been due to exceptional emphasis on the environmental control of infectious diseases. Personal preventive health care through immunizations and to a lesser extent through improved nutrition have also been strongly contributory factors.

Díaz-Briquets’s brief analysis is the most readable among the five books. It offers a plausible interpretation of the interaction between health and developmental variables in the beguiling style of an erudite historian. Although rigorous tests of statistical significance are not provided, this deficiency is compensated by five explanatory appendices that deal convincingly with the even-more-troublesome issue of data quality. The author wisely warns in his preface that the question of “what brought about the health and mortality revolution is still subject to a great deal of conjecture.”

In comparison with the studies by Meldau, Mata, and Young, the works of Menéndez and Díaz-Briquets demonstrate the interaction of

health and other developmental variables. They remind the economist that appropriate health care in developing countries is largely a public good for which demand cannot readily be derived from estimates of its private utility. Mata and Young, in turn, offer valuable insights into the clinical and cultural determinants of individual needs and private demand for medical services. The significance of Meldau's work remains its rigorous analytical framework that helps clarify the distinction between tax and benefit incidence in the financing of a public good that is also a basic need.