

Equity and Efficiency in Health Status and Health Services Utilization: A Household Perspective*

ISMAIL SIRAGELDIN and FRANCOIS DIOP

I. INTRODUCTION TO THE ISSUES

The objective of this paper could be phrased as follows: What are the health consequences of changes in public fiscal and income policies? This is an important question, especially in times where programmes of macroeconomic structural adjustments are being implemented in many developing countries. The health consequences of these policies continue to be debated. Some argue that the main victims are mainly the poor and the vulnerable [cf. Cornia *et al.* (1987) and (1988)]. Others maintain that the longer term benefits will more than compensate for short-term losses and that the real test is to compare with the consequences of not making the adjustments. The conceptual and empirical foundation of the debate seems to be less than satisfactory, however.

It is our view that to understand the health consequences of such policies a careful examination of three issues are required: (a) the existing pattern of disease; (b) the initial distributional structure (equity pattern) of public policies; and (c) the behavioural response of households in allocating resources towards health-promoting activities given (a) and (b).

Our approach is necessarily context specific. It is in line with Streeten's (1988) conclusion that "... the most important general lesson that emerged was that there are no general lessons, and that each case has to be treated separately and on its merits". Our purpose is to provide an overall general framework that serves as a guide to examine specific cases. For more detailed theoretical analysis, see Diop (1990), and for an empirical application, see Diop and Sirageldin (1990).

The Evolution of the Epidemiological Transition

Historical epidemiological transitions were mainly controlled by changes of age structure in the population which were conditioned by the environmental setting, including rural-urban differences, and by the rate and type of social and

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Ismail Sirageldin and Francois Diop are affiliated with The Johns Hopkins University, USA.

economic development. The relative importance of types of diseases and its causes followed more or less a time sequence closely associated with the phases of the demographic transition, where the rate of population growth and its age structure were largely determined by the magnitude and rapidity of the mortality declines and by the delay in responsiveness of birth rates [cf. Gray (1988)].

As the demographic transition takes place with a large and sustained decline in fertility, in association with changes in socio-economic circumstances, and with wide adoption of new habits, e.g., smoking, consumption of high fat diets, stress and sedentary life styles, a post-epidemiological transition of disease takes hold, in which society moves towards an age of degenerative and man-made disease. As illustrated in Table 1, the absolute level and the relative importance of a new set of disease, labelled as the disease of the affluent, such as circulatory, cancers, vascular of CNS and mental disorder increases [cf. Omran (1971, 1982); Jamison and Mosley (1990), Tables 1.4, 1.5, and references cited therein]. This change in the pattern of disease, perceived as sequential in nature, provided the health profession with a blueprint for health planning, identifying priorities and allocating resources over time which could be mobilized to deal with major health problems in succession. The international public health community, during the past two decades, for example, has focused its attention primarily on the communicable childhood diseases in less developed countries [cf. Jamison and Mosley (1990), p. 1]; also

Table 1

Percent of Deaths by Cause, Developed and Industrialized Countries, Circa 1985

Cause of Death	Developing Countries	Industrial Countries
1. Infectious and Parasitic Diseases	45.	4.6
2. Maternal Causes	1.3	0.05
3. Perinatal Causes	8.4	0.9
4. Cancers	6.6	20.8
5. Chronic Obstructive Pulmonary Disease	6.1	3.5
6. Circulatory (and Certain Degenerative)	17.1	53.7
7. External Causes	6.3	7.0
8. Other and Unknown	9.2	13.
Total Percentage	100	100
Total Cases	37,900,000	11,045,000

Source: Based on Jamison and Mosley (1990).

Sirageldin *et al.* (1989), is an illustrative example of such emphasis.

Emerging New Patterns

The present experience of developing countries, however, has seemed to produce more complex and diverse patterns than that anticipated by the stylistic epidemiological transition. The complexity of this emerging pattern is a reflection of (a) diversity in the causes of diseases, (b) its associated risk factors, and (c) the style and sustainability of the public and private intervention strategies. Furthermore, the disease pattern is confounded by its interaction with significant changes in population dynamics [cf. Sirageldin and Mosley (1988)]. This emerging pattern has four main characteristics:

- (a) Both pre- and post-epidemiological types of disease coexist. As [Foege and Henderson (1986), p. 321], quoted in [Jamison and Mosley (1990), p. 14] have observed, developing countries "... will not have the luxury of dealing with two kinds of problems sequentially. For the remainder of this century they will be dealing with both simultaneously;"
- (b) Many types of diseases in these new patterns imply different risk factors and different target groups which accordingly require separate sets of inputs, expertise, technologies and strategies. Thus, a non-selective intervention becomes more costly. In addition, financial constraints and reduced economic policy options, due to the economic recession of the 1980s and the adoption of "structural adjustment" policies have resulted in a reduced government budget for health and other related social sectors. Hence priorities for disease control and health objectives in general need to be reconsidered and innovative cost-saving strategies need to be developed. One such avenue has been through cost recovery schemes to shift away from public subsidies to health services;
- (c) Priorities for disease control strategies are difficult to develop because of a lack of adequate criterion for ranking. In a comprehensive review of the types of diseases, related diseases, policy instruments and the cost-effectiveness (CE) of interventions (based on discounted healthy life years (DHLV)), Jamison and Mosley (1990) attempted to develop a criteria for disease control priorities. What is evident from their comprehensive review, aside from a lack of adequate data, is a remarkable diversity in the range of estimates and complexities of relating cost to effects within a consistent framework across diseases and environments of any given intervention process. Their recommendation for setting national priorities is guarded: "National health priorities can only evolve

from a critical analysis of the local epidemiological, administrative, economic, and political context" (p. 35); and

- (d) Another important characteristic is the emergence of significant diversity in health outcomes and within socio-economic groups, regions and countries. Table 2 illustrates the degree of variation in infant mortality rates (IMR), low birth weight and maternal mortality among countries of the

Table 2

Health Indicators for 16 Arab Countries and 6 Other Countries

		IMR		Babies with Low Birth Weight	Maternal Mortality
		1965	1988	1985%	per 100,000
33	Yemen DR	147	118	13	NA
36	Sudan	160	106	15	607
45	Yemen Arab Rep	197	128	9	NA
48	Egypt	172	83	7	500
52	Morocco	145	71	9	327
64	Tunisia	145	48	7	1000
					(Rural Only)
67	Jordan	114	43	7	NA
69	Syria Arab Rep	114	46	9	280
78	Lebanon	56	NA	NA	NA
81	Algeria	154	72	9	129
92	Oman	194	38	14	NA
93	Libya	138	80	5	NA
95	Iraq	119	68	9	NA
97	Saudi Arabia	148	69	6	52
107	Kuwait	64	15	7	18
111	UAE	108	25	NA	NA
21	China	90	31	6	44
23	Pakistan	149	107	25	600
34	Indonesia	128	68	14	800
89	Korea Rep of	62	24	9	34
117	Sweden	13	6	4	4
120	Japan	18	5	5	15

Source: World Bank (1990) *World Development Report*. Washington, D. C.: Oxford University Press.

Note: Numbers in first column are rank by level of GNP in 1988.

Arab region. Although all countries experienced significant declines in infant mortality, differentials increased. For example, IMR varied from less than 30 to over 100 in 1988. More details are provided in UNICEF (1989). Within a country, differentials are equally large [cf. DHS results presented in *Studies in Family Planning* Vol. 19 (1987) and Vol. 20 (1988)]. National and international policy-makers may have to allocate resources not only according to "efficiency", as implied above, but also stress on the issue of "equity".

Purpose

It is this last issue of differentials in health service utilization and health outcomes that is the focus of the present paper. The purpose is to examine the equity criteria which could guide health policy-makers to minimize such differentials. Our primary focus is on the household; how are household decisions for health maintenance influenced by household status or status of various individuals in the household, its immediate environment and by elements of public policy? How are such decisions translated into health outcomes for various members of the household?

We start introducing the paper by assuming the presence of a household demand for health services utilization. We then examine the social and political forces that influence the relative level of such demand, and attempt to differentiate those related to efficiency and those implying equity considerations in health production. As will be apparent from the discussion below, issues of equity and efficiency in health service utilization are interrelated and this may cause confusing policy interpretations. Indeed, the question of equity could be misleading if defined in terms of the household's access to health services. Thus, the question that arises from this discussion is: As governments withdraw or change the pattern of their social support and commitments, how can the support for health care finance be replaced, and who are the losers?

II. ON THE DETERMINANTS OF THE DEMAND FOR HEALTH SERVICES UTILIZATION

The Demand for Health Services and the Demand for Health

We start with the basic notion that an individual's health is limited to the individual's capacity to combat disease. We further assume that this capacity can be maintained by health-promoting activities, such as the utilization of health services, and other health-influencing behaviour. These activities are valued for their effect on health rather than for themselves. Abstracting for the moment from intra-household allocative dynamics we assume that the stock of each household

member's health has a value in itself for it augments her/his family welfare. This assumption will be relaxed later. Meanwhile, the household demand for health services, and other behaviours affecting health, are typically derived from the demand for health. As, with other commodities produced within the family, the level of child health that the family can attain is constrained by the financial as well as nonfinancial resources of the family and its economic environment. This treatment follows a growing tradition in economics [Cropper (1977); Grossman (1972, 1972a); Muirinen (1982); Muirinen *et al.* (1985); DaVanzo and Gertler (1990); Diop (1990); Diop and Sirageldin (1990) and Diop *et al.* (1990)].

A household member is assumed to be innately endowed with an initial stock of health at birth, which is partially determined by inherited biological characteristics. Given the random distribution of biological characteristics in a cohort of births, it is assumed that the level of this initial stock of health bears little on the variability of health status between socio-economic groups and their changes over time.

The initial stock of health of the individual member in the household is positively affected by involvement in health-promoting activities. Simultaneously, due to poor environmental conditions and exposure to diseases prevalent in their community, the individual's capacity to combat disease deteriorates.

In the case of children, health-promoting activities in addition to others, include prenatal, perinatal and post-natal care, immunization, modern and traditional medical goods and services for curative purposes, and feeding practices. Typically, a family combines market and/or nonmarket goods and services with its members' time in these activities to promote and maintain the health of its children. The combination of inputs used in this production process will depend not only on relative prices of health-related goods and services including family members' time, but also on the information that these members have regarding the efficacy of these inputs. Knowledge of health-related technologies is assumed to be acquired cumulatively through direct experiences with these technologies and/or exposure to health education programmes. But, most of all, it will take the form of stocks of habits which result from past behaviours, or traditional practices transmitted between generations within families or larger networks (village or ethnic group for instance). Thus, health-promoting activities may not only respond to current price configurations and family income, but expectations regarding the quality of health-related inputs based on outcomes of past behaviours, may be locked into patterns of health-promoting activities, for some period of time, among specific socio-economic groups.

In summary, the change of a child, a mother or other household member's health status, over some period of time, can be viewed as the outcome of two opposite effects:

$$\left[\begin{array}{c} \text{Change of Individual} \\ \text{Health Over Time} \end{array} \right] = \left[\begin{array}{c} \text{Outcome of Health-} \\ \text{Promoting Activities} \end{array} \right] - \left[\begin{array}{c} \text{Deterioration of} \\ \text{Individual Health} \end{array} \right]$$

Inequalities in Health Services Utilization Depends on the Supply of Other Health-related Goods

Changes over time of a household member's health in a given socio-economic group will depend on the household's interaction with health-promoting behaviour, changes in the supply of health-related goods, and the servicing of its residential area. At a given point in time, inequalities in household members' health, i.e., socio-economic differentials in household health, are a result of the cumulative effects of health-promoting activities and the deterioration of household members' health which varies due to their socio-economic environment.

To continue our illustration of how inequalities in child health develop between socio-economic groups, we examine the changes societies undergo during economic crises and structural adjustments. We will borrow some concepts from investment theory. It must be noted that the analysis is similar conceptually for other household members as we describe for children. First, when we consider children as durable goods, the relevant price concept in the demand for child health is the *user-cost* of health. In any period, the user-cost of child health, i.e., the shadow price of health, results from the interaction of the effective costs of health-promoting activities and the deterioration of child health. Secondly, as long as the marginal benefits (MB) of increasing the stock of child health outweigh the effective marginal costs (MC) of increasing that stock, parents will engage in activities to promote child health. In addition, as the costs of health-promoting activities increase (such as food price increases) and/or child health further deteriorates, the level of child health that families can achieve falls. These notions are illustrated in Figure 1.

The MB curve indicates the results of investing in child health. The slope of the MB curve is based on the assumption that as the child gets healthier, the marginal benefit received from increasing her/his level of health gets smaller. The constant slope of the MC curve is based on the simplifying assumption that increases in the costs of child health-promoting activities are independent of the level of child health stock. Increases in health-related inputs' prices, or declines in the quality of these inputs, or the worsening of the child's community environmental conditions shift the MC curve upward; whereas, changes in the opposite directions shift it downwards. Increases in family wealth, for example, shift the MB curve upward, and vice versa. The relative position of the MB and MC curves summarizes the environment of the family. H^* indicates the level of child health the household can achieve given this environment.

Let us assume we have two types of families, Type I and Type II, both of which have similar characteristics except that Type I families reside in an adequately serviced area while Type II families do not. For children of Type II families, exposure to environmental contamination is higher, i.e., the price of child health that these families face is higher than prices faced by Type I families: $P \times D'' > P \times D'$ (see Figure 2). The implication derived is that Type II families will thus achieve a lower level of child health than families of Type I *other things being equal*. Hence, if both these families are being taxed at similar rates, whereas the publicly provided environmental conditions of the Type I family is better off, then society is implicitly subsidizing the promotion of Type I families' child health and not the health of Type II families.

The same results hold when families face variable private prices for using modern medical services. Given the direct effects of exposure to diseases on the deterioration of child health, the shifts in the MC curve are more responsive to cross-sectional or dynamic variation in environmental conditions than to changes in the prices of health-related goods. Furthermore, as a result of the synergistic effects of multiple infections on child health [Mosley and Chen (1984)], exposure to poorer environmental conditions inflate the effective marginal costs for using modern medical services, therefore generating disproportionately larger (upward) shifts in the MC curve. Within the urban setting, variable densities and servicing of residential areas may result in large child health differentials even in a context of relatively equal access to medical services.

Urban food and housing subsidies operate similarly toward generating inequalities in child health. In the case of food subsidies, the shifts in the MC curve, however, will vary typically from one socio-economic group to the other, depending on the share of food purchased in the market and the proportion of total family expenditure allotted towards food. For a more detailed analysis and empirical testing of these propositions, including the effects of family wealth on child health, [see Diop (1990) and Diop and Sirageldin (1990)].

Determinants of Differentials in Health Service Utilization

The previous discussion implies that the household demand for health services is derived from its demand for health. The demand for health services will depend on its productivity (marginal product) in health production, the quality and price of such services and the prices and availability of other complements and substitutes in the input of health services. For example, Habicht *et al.* (1988) found that mother's milk has a greater effect in promoting child survival in areas where water and sewage facilities are poor. Figure 3 illustrates these propositions. For a given level of other inputs and price P_1 of health services, the household

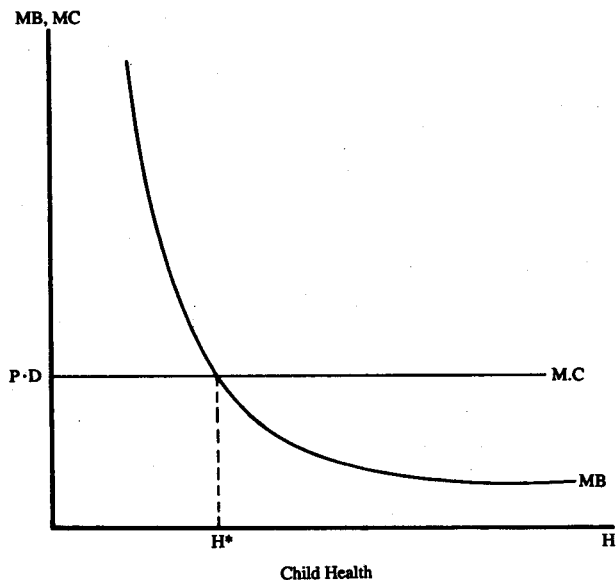


Fig. 1. Determination of the Level of Child Health Achievable Given an Economic Environment

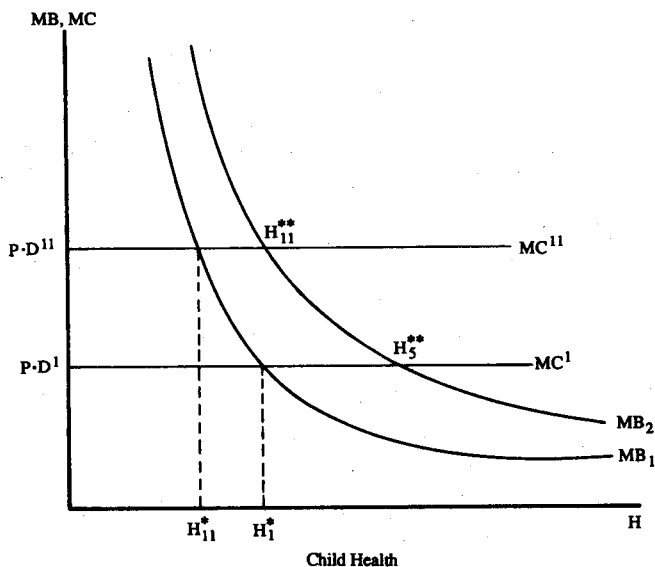


Fig. 2. Differences in Child Health Between Two Socioeconomic Groups Facing Variable Exposure to Disease.

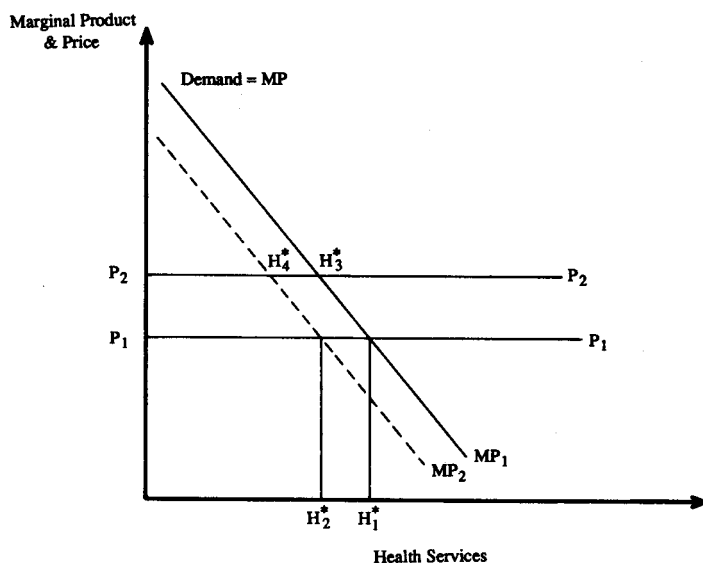


Fig. 3. Determinants of the Level of Health Services Utilization.

utilization of health services will be H_1 . Two examples below illustrate the movement of the health productivity curves. In the case where other inputs are not available or are unequally subsidized between households, for example, lack of adequate water and sanitation facilities would cause a downward shift from MP_1 to MP_2 in health services resulting in a fall in the household's utilization of health services to level (H_2^*). In the case where a cost-recovery scheme is imposed, the effective price of health services would shift from P_1 to P_2 , and thus the health service utilization for this household would further reduce to an underprivileged level (H_4^*).

The above analyses thus indicate that determinants of differentials in health status and in health service utilization can be examined on three interrelated levels:

- (a) Community and regional differentials;
- (b) Inter-household differentials; and
- (c) Intra-household differentials.

In each of these cases differences in utilization could be the result of inefficiency or inequity, both of which have inter- and intra-household implications. Lack of efficiency implies that a reallocation of resources will produce better health outcomes within the same household budget constraints. Inequity implies that effective prices

of health inputs and of health-related factors faced by the household are benefiting some households more than others, mainly a result of basic environmental characteristics and/or unequal patterns of public health facilities and social subsidies. A change in such patterns should have uncompensated change in the distribution of health benefits to society.

III. EQUITY VERSUS EFFICIENCY IN HEALTH SERVICES UTILIZATION

Community and Household Levels

The previous discussion implies that inequalities in health and differences in health services utilization are related to efficiency and equity considerations.

Three major reasons usually account for the relevance of these considerations in the developing countries. Firstly, modern medical goods and services are relatively recent in many parts of the less developed countries. Even though mostly provided as collective goods, their uneven spatial distribution within and between countries implies variable private costs to families engaging in health-promoting activities. Furthermore, the availability of traditional alternatives, which can be viewed as substitutes to modern inputs in health investment, implies that utilization patterns will be determined not only by relative prices, but also by the expectations that families have about the relative efficacy of these alternative inputs. Secondly, the subsidization of health-related goods, other than medical services, are common policy in the context of most developing countries. Staple foods, which constitute a large share of the food basket of urban families, have been subsidized for a long time. Thirdly, infectious diseases are highly prevalent, such that the environmental conditions of respective communities become an important proximate determinant of child health. The general pattern is that unequal access to modern medical services is paralleled by unequal access to adequately serviced residential areas.

In the framework presented herein, and in the present context of economic turmoil that prevailed during the 1980s, it is possible to examine more critically the implications of macroeconomic adjustment on household health. Such policies influence household health through four mechanisms, namely, impact on (1) family income, (2) prices, primarily of health-related goods, (3) quantity and quality of modern medical goods and services, and (4) community environmental conditions. The impact of adjustment policies on household's health status will depend on the household's access to public services and the level of subsidies they receive prior to and during the adjustment process.

Although it is not possible to discuss the impact of the whole array of adjustment policies on household health, we will focus on specific policy elements including (i) instruments aimed at restricting real-income, and (ii) components

curtailing public health expenditures.

Policy packages aimed at restricting real income may affect child, maternal and other family members' health through family income and prices. The magnitude of this impact will depend on the elasticity of the demand for health-related goods. Typically, it will vary from one socio-economic group to another.

These policies include wage control and curtailing consumer subsidies to reduce domestic absorption. At the outset, let us note that the effects of these policies on the capacity of families to maintain or improve the health of their members during an adjustment period will depend on family engagement in the market economy and on the extent of family borrowing constraints. The mechanism is complex, however. In essence, the health consequences of structural adjustment could be examined through its direct effect on income and prices and its indirect effect on the structure of the health delivery system.

First, an example of the direct effect is the case of curtailing food and housing subsidies and controlling wages. In such a case the outcome of health-promoting activities will eventually be affected through not only the quantity but also the quality of food available to the household. In the context where families are engaged in the modern labour market and a large share of food consumed by them is purchased from the market, the health of children among poor families will be disproportionately adversely affected by such a policy. However, in settings where large proportions of families are entirely or partially self-employed in subsistence agriculture, food price and wage changes may not affect the health of children among the poorest sectors of society, that is the rural poor, since their purchase of food is minimal. Therefore, the effect of such a policy will be felt greatly by the poor and middle income urban families. The argument here implies that families with a large share of their consumption expenditures composed of subsidized health-related goods are more likely to be seriously affected than other groups of families.

Policy packages that significantly reduce public health expenditures, however, will affect child health through either the quantity and quality of medical goods or of environmental sanitation. Reduction of public health expenditures at the central or local levels may affect both the sanitation of residential areas, and the quantity and quality of modern medical goods and services. Reductions and irregularities of environmental sanitation in communities and non-extensions and/or lack of maintenance of water supply systems are likely to result in environmental contamination. The likely consequences are an increase in the incidence of childhood infectious diseases. This may occur mostly within nonstructured urban residential areas. Indeed, villages which were not serviced prior to the adjustment period, will not find a change in the intensity of environmental contamination. Their

conditions were poor even prior to adjustments.

Secondly, in the case of indirect effects, public health expenditures are biased towards curative services. Thus, curtailing public expenditures on health essentially delays the extension of preventive programmes. Furthermore, in the context of declining public expenditures on health, drugs and supplies are likely to be affected more than the wages of medical personnel; therefore, impairing the quantity and quality of medical services provided by the public sector. Hence, curtailing public health expenditures may result in an increasing demand for medical services which cannot be met by a health system locked into a drug-intensive medical technology. Accordingly, among socio-economic groups interacting in modern medical services, a significant cut in government health outlay will be expected to dramatically affect child and maternal health.

In a typical low income agricultural-based country, macroeconomic adjustment policies will primarily affect, in the short run, the health of children and women in the urban areas, especially those with real income dependent on income and fiscal policies. In the long run, however, such policies will delay child health improvements in the rural areas as well. Many rural communities which had mildly benefited from public subsidies, will have no effect on child or maternal health during adjustment periods. Maternal health could be adversely affected if intra-household resources were not favourably reallocated towards women.

In summary, the patterns of public expenditures in many developing countries reflect unequal spatial distribution of medical facilities, environmental sanitation, housing and food subsidies, and are important determinants of health inequalities in the developing countries. Family financial as well as nonfinancial resources should explain an additional component of child health variability. The third source of inequality and inefficiency is reflected in the intra-household allocation of resources.

Individual Intra-household Level

Intra-household allocation of resources is an underdeveloped part of household analysis, especially in analyzing the demand for health. There is, however, a growing literature which seems to take two extreme positions. In one position, families or households are assumed to have a common utility enforced by an arbitrary decision-maker where the welfare status of each individual within the household is determined by an arbitrary rule. Some empirical studies attempted to examine whether the allocation rule is based on efficiency criteria [cf. Rosenzweig and Schultz (1982)]. On the other extreme, the household is seen to be composed of individuals with different preferences, interests and power. Household members, such as husband, wife or other adults, are in a continuous "bargaining process",

each attempting to gain ground. [The literature is growing. A representative contribution includes Folbre (1984); Rosenzweig and Schultz (1982); McElroy and Horney (1981); Senauer *et al.* (1988); Lloyd *et al.* (1979); Zhao (1991) and references cited therein.]

The focus of this new development is mainly on the determinants of women's status within and outside the household. The role of women in enhancing their own as well as their children's health status is seen as a consequence of improved women's socio-economic status. It seems, however, that in many instances the status of women is not well defined. It is often defined as women's ability to improve their children's health. This is unfortunate since improving women's status should be considered as a basic human right, whose achievement should not be conditional on statistical verification of women's role in household production of health! [For a review of the concept of women's status, see Zhao (1991).]

On the other hand, when focusing on the health status of households in the context of structural adjustments, it is essential to understand how intra-household allocation of resources are related to the effect of the adjustment process on the inter-household distribution of income and the demand for health. The latter effects set limits on any intra-household allocative mechanism whether or not based on a bargaining process.

It is intriguing, however, to observe how the various branches of the social sciences have moved in recent years towards an "individualistic" market-oriented approach to provide solutions to a broad range of social issues, even where social values, including that of the last citadel, the family unit, were important determinants of behaviour. Further research is required to understand the role of family values in the dynamics of family decisions and especially their role in the enhancement of women's status within and outside the household. For example, in a Nash-type bargaining model, the threat point may be equally based on social factors and not only on women's market wages as usually modelled [cf. Zhao (1991), for an empirical application of an expanded bargaining framework].

CONCLUSIONS

In this paper we attempted to conceptualize some issues related to equity and efficiency in health status and health service utilization. Using the household production of health as a general framework, both the demand for health and the demand for health services depend on the structure of government fiscal and distribution policies. The demand for health services will depend not only on its own price but also on the prices of other complementary inputs available to the household, such as nutrition and environmental sanitation. These related inputs are main-

ly subsidized and in most instances largely, if not exclusively, provided by the government. Such subsidies, however, are not equally distributed. The health benefit (the marginal value product) from the use of health services for those with lower subsidy on other health-related inputs should be lower. Accordingly, a low demand for health (income effect) and a low utilization of health services by such households may simply imply a rational decision reflecting a perceived low productivity of these inputs.

It is evident that in order to examine the effect of public policies on health status, e.g., structural adjustment or cost recovery schemes, the measure of household income should incorporate the effect of public subsidies. The traditional income groups may not be sufficient to examine household response to change in the economic environment. In an empirical test for the case of the Ivory Coast, Diop (1990) illustrated that the rural poor and the urban poor were not affected by structural adjustments. It was the middle class urban families who were hurt the most.

REFERENCES

- Cornia, Giovanni Andrea, Richard Jolly and Frances Stewart (eds) (1987) *Adjustment with a Human Face*. (Volume I) Oxford: Clarendon Press.
- Cornia, Giovanni Andrea, Richard Jolly and Frances Stewart (eds) (1988) *Adjustment with a Human Face*. (Volume II) Oxford: Clarendon Press.
- Cropper, M. L. (1977) Health, Investment in Health, and Occupational Choice. *Journal of Political Economy* 85 : 1273–1294.
- DaVanzo, Julie, and Paul Gertler (1990) *Household Production of Health: A Microeconomic Perspective on Health Transitions*. A Rand Note N-3014-RC, Santa Monica, California.
- Diop, Francois Pathé (1990) *Economic Determinants of Child Health and the Utilization of Health Services in Sub-Sahara Africa: The Case of Ivory Coast*. Unpublished Ph.D. Thesis. Baltimore: The Johns Hopkins University.
- Diop, Francois P., and Ismail Sirageldin (1990) Economic Crisis and Child Survival: Who Benefits from Adjustment with a Human Face. Baltimore: The Johns Hopkins University. (Mimeographed.)
- Diop, Francois, Kenneth Hill and Ismail Sirageldin (1990) *Economic Crisis, Structural Adjustment and Health in Africa*. Washington, D. C.: The World Bank. (World Bank Report.)
- Foege, W. H., and D. A. Henderson (1986) Management Priorities in Primary Health Care. In J. A. Walsh and K. S. Warren (eds) *Strategies for Primary Health Care*. Chicago and London: University of Chicago Press. 313–321.
- Folbre, Nancy R. (1984) Market Opportunities, Genetic Endowments, and

- Intrafamily Resource Distribution. *American Economic Review* 75 : 518–520.
- Gray, Ronald H. (1988) Fundamentals of the Epidemiologic and Demographic Transitions. In Ismail Sirageldin and Alan Sorkin (eds) *Research in Human Capital and Development* (Vol. 5). Public Health and Development. Greenwich, CT: JAI Press, Inc. 25–42.
- Grossman, Michael (1972) On the Concept of Health Capital and the Demand for Health. *Journal of Political Economy* 80 : 223–255.
- Grossman, Michael (1972a) *The Demand for Health: A Theoretical and Empirical Investigation*. New York: Columbia University Press. (NBER Occasional Paper No. 119.)
- Habicht, Jean-Pierre, Julie DaVanzo, and William P. Butz (1988) Mother's Milk and Sewage: Their Interactive Effects on Infant Mortality. *Pediatrics* 81 : 3 456–461.
- Jamison, Dean T., and W. Henry Mosley (eds) (1990) *Selecting Disease Control Priorities in Developing Countries*. Washington, D. C.: The World Bank.
- Lloyd, Cynthia B., Emily S. Andrews, and Curtis L. Gilroy (eds) (1979) *Women in the Labour Market*. New York: Columbia University Press.
- McElroy, Marjorie, and Mary Jean Horney (1981) Nash-Bargained Household Decisions: Toward a Generalization of the Theory of Demand. *International Economic Review* 22 : 333–349.
- Mosley, W. Henry, and Lincoln C. Chen (1984) An Analytical Framework for the Study of Child Survival in Developing Countries. *Population and Development Review* 10 (Supp): 25–45.
- Muurinen, J. M. (1982) Demand for Health: A Generalised Grossman Model. *Journal of Health Economics* 1 : 5–28.
- Muurinen, J. M., and J. Le Grand (1985) The Economic Analysis of Inequalities in Health. *Social Science and Medicine* 20 : 10 1029–1035.
- Omran, A. R. (1971) The Epidemiological Transition: A Theory of the Epidemiology of Population Change. *Milbank Memorial Fund Quarterly* 49 : 509–538.
- Omran, A. R. (1982) Epidemiologic Transition. In J. Ross (ed) *International Encyclopedia of Population* (Vol. 1). New York: The Free Press, MacMillan Publishing Company. 172–183.
- Rosenzweig, Mark R., and T. Paul Schultz (1982) Market Opportunities, Genetic Endowments and the Intrafamily Resource Distribution: Child Survival in Rural India. *American Economic Review* 72 : 803–815.
- Senauer, Benjamin, Marito Garcia, and Elizabeth Jacinto (1988) Determinants of the Intrahousehold Allocation of Food in the Rural Philippines. *American Journal of Agricultural Economics* 70 : 1 170–180.

- Sirageldin, Ismail, and W. Henry Mosley (1988) Health Services and Population Planning Programmes: A Review of Interrelations. In Ismail Sirageldin and Alan Sorkin (eds) *Research in Human Capital and Development* (Vol. 5). Public Health and Development. Greenwich, CT: JAI Press, Inc. 3-23.
- Sirageldin, Ismail *et al.* (eds) (1989) *Towards More Efficacy in Child Survival Strategies: Understanding the Social Constraints and Responsibilities*. Baltimore: The Johns Hopkins University.
- Streeten, Paul (1988) *Beyond Adjustment: The Asian Experience*. Washington, D. C.: International Monetary Fund.
- UNICEF (1989) Middle East and North Africa Region, UNICEF Goals and Strategies for the 1990s, Selected Indicators. Representatives Meeting, Amman, Jordan, 4-5 September.
- Zhao, Xiyan (1991) *Demographic Change and Economic Status of Women in Rural China*. Unpublished Ph.D. Thesis. Baltimore: The Johns Hopkins University.

Comments on
"Equity and Efficiency in Health Status and Health
Services Utilization: A Household Perspective"

This lecture provides a valuable perspective by including the effect on the distribution among households and within households of improvements in health arising from programmes and policy that affect health, including the provision of health services, but also policies affecting education, nutrition, supplies, and sanitary facilities.

I must confess that although my Ph.D. is in economics, and I once taught several courses in economics, my work in demography has led me away from economic theory, and to some degree alienated me from applications of the theory of economic choice to demographic behaviour. I remember when Becker's theory of fertility decision, based on the quality as well the quantity of children, was first presented at an NBER conference in about 1960. His discussant, Duesenberry, said "no-one is in this room, including Becker, feels that he has a choice between two children who go to college, and three who do not".

I am uneasy with the model showing the level of health chosen by equating marginal benefits of health with the marginal cost. I do not understand the units along with the axis. How is one more unit of health defined? It seems to me that even an ordinal rating of health is hard to achieve. It is not easy to decide whether Professor Sirageldin is healthier than Professor Diop.

Much of the improvement in health that has been achieved is the result of new medical and public health technology. Preston illustrates this point by showing that the difference in life expectancy from 1930 to 1960 at the same per capita income is much greater than the difference at either date at two different per capita incomes.

This fact, raises a dilemma in health policy when an innovation, such as oral dehydration therapy (or ORT) occurs. ORT involves giving a victim of diarrhea a substantial amount of a special liquid that is well absorbed by a diarrheal patient. The intermediate cause of death from diarrhea is dehydration; an effective treatment is intravenous injection of fluid; in ORT the fluid is supplied to the body orally, using a solution of salts that will ensure absorption even in a diarrheal patient. ORT prevents death by treating symptoms of dehydration, without curing the disease, unless the patient is treated repeatedly after each episode of diarrhea. However, death is postponed rather than prevented. Thus it requires understanding and persistence on the part of the parents of an affected child to make effective use

of ORT. As a consequence ORT is especially beneficial to the educated family, and increases the inter-family differential in health. In my view, this fact is not an argument against introducing ORT; within reasonable cost limits it is worthwhile saving many infants, even though health differentials are increased. The inequality inherent in this feature of ORT does argue, however, for the design of a programme that teaches even the uneducated how to administer OPT.

Ansley J. Coale

Princeton University,
USA.

Comments on
"Equity and Efficiency in Health Status and Health
Services Utilization: A Household Perspective"

It is a pleasure to be a discussant of a paper by Professor Ismail Sirageldin, particularly so because it deals with the extremely important and topical issue of equity and efficacy in household utilization of health facilities. Professor Sirageldin's and his co-author Francois Diop's motivation for writing this paper arises from data presented in Table 2 where infant mortality rates for several Arab Countries are compared for the 1960s and the 1980s and they find that despite falls in mortality considerable divergence across countries persists in the latter period.

Though I greatly enjoyed reading the paper which brings up some very interesting points, it does not (in my opinion) do full justice to the very complex issues of Equity and Efficacy of Health Services Utilization nor does it provide us with an answer to the question of why regional, residential, socio-economic differentials persist even after health transitions have been achieved (as is the case of most of the Arab States).

One reason for this shortcoming may be due to the complexity of the issues being discussed. But here I am concerned because I find that the paper is trying to forcibly fit a simple static model to processes that the authors themselves describe as dynamic and interrelated with many other factors which are then completely omitted from the model.

My comments are in no way meant to minimize the usefulness of introducing some structure and for drawing on economic tools to explain inequities in health and health care utilization but are just an attempt to point out ways in which the paper could better incorporate some of the complexities present in this issue.

The paper is based on the concept of "health status" of a household and the model used to explain differences in health status is based on the concepts of 'marginal' betterment and 'prices' of health-related goods. But is the health status of a household a measurable variable? At a time when we are made increasingly aware that even the health of a single individual is hard to measure (definitions vary from "no illness episode in the last week" to a very broad concept of total well-being), should we be trying to measure the health of a household assuming it to be a sum of the health "stock" of all its household members? In my opinion a more concrete measure of household health status in the form of morbidity, mortality rates or anthropometric measures of individuals may be more desirable.

It would be very useful if the paper were to qualify the concept of price of health-related goods. Is price of such goods just a measure of the cost of consultation of a doctor, hospitalization, medicines, or also the costs of transport which in the case of many rural communities is a major component of health costs? Should it, in fact, even involve the costs of preventive care such as a good and nutritious diet, exercise, etc.?

Similarly, when utilizing the concept of marginal productivity of health, which depicts the increment in health status to be accrued with additional health inputs, a range of factors are covered each one as Important a Determinant of Health (for example, the availability of potable water, sanitation services, sewerage or individual factors such as maternal education, better spacing etc. etc.). Whereas the model focuses on how society may be implicitly subsidizing health care of certain families it should also incorporate the fact that societies also tend to subsidize services closely related to health such as Education, Communication Links, Energy, Water *very usually for the same set of people* (such as urban elites). So the model should allow for a whole package of factors which lead to better health for a particular community instead of assuming quite unrealistically that a single factor such as health services will be subsidized in isolation. The whole process is quite synergistic: it is easier to set up schools and health centres where there is water available and where there are good roads and telephone links etc.

I would like to throw up a question for discussion which Professor Sirageldin and a co-author raised in their book on Research in Human Capital and Development. It is the question of what is the role of Development in Improving Health? Since public expenditures vary greatly across countries – for example in 1977 Tanzania spent 38 percent more while Pakistan spent 77 percent *Less than Might be Expected Based on Norm Expenditures*, it is critical to ask to what extent is human capital created and how is the health status of a community influenced by the level of public expenditure on health.

Answers to this question and to related ones like why Pakistan's IMR remains so high when per capita incomes have risen significantly? Does development necessarily lead to declines in mortality and to a diminution of differentials in mortality? Are increased public health expenditure and enhanced public subsidies to health a necessary precondition for improvement in the health of the community?

It seems to me that these are important issues for research before we embark on any serious study of equity and efficiency in health care utilization in less developed countries. An important underlying assumption of the arguments presented in the paper is that health subsidies *do* contribute to differentials in mortality. In Pakistan it cannot be denied that the urban sector is better subsidized in health care and there is a concentration of health services in the cities (Professor Sirageldin

presents this in the form of a shift downwards on the curve whereby marginal cost of health care in urban areas are lower than in rural areas). However, there are many other confounding issues in the calculus of health choices, for instance, data from the National Health Survey of 1982 show that even where there is a government facility within a mile's radius, the level of utilization is only 30–40 percent. Quality of public services available are very important and the strong psychological value attached to one form of health care over another is critical. Many poor persons prefer to pay a higher fee and consult a private doctor or, more likely a quack, even when a government facility (which would be cheaper) is located nearby. Also, many persons resort to *fakirs* and *hakims* in which they have faith rather than experimenting with modern medicine even if it is heavily subsidized. Here the authors mention the importance of past experiences of the household/community and that I feel is yet another dimension which ought to be incorporated in their model.

One of the major aims of the paper was to investigate reasons for socio-economic and regional differentials in mortality in the PAPCHILD countries and, in particular, to see whether the impact of recent structural adjustment policies exacerbate these differences. If structural adjustment does lead to a reduction in the government budget on health and social sectors (as it seems to be the case in many societies) then there will be a reduction in public subsidies in health and an increase in user costs etc. The health of the community will suffer. But if urban areas (which are already oversubsidized) suffer more (as it is argued in the paper because of greater self-sufficiency in food items in rural areas) then the effect may lead to greater equity.

However, the case of countries like Pakistan is perhaps more grave as public expenditure on the social sectors is already extremely low and a further decrease in public subsidies will erode even further the very modest advances made in the health sector – leave alone the question of whether differentials in health care utilization will rise! It is not a question here of who will fill the gap of withdrawing health care financing but a case of even greater dependence on private care in the cities and a bigger deficiency in the services available in rural areas where No Health Care may be the option.

Last but not least, is the question of intra-household allocations and inequities in health care. Though the authors do tackle this issue in the end of their paper I would just like to add that it has become increasingly apparent that the health needs of particular groups such as children under five, women in reproductive ages and the elderly are particularly marked. Historically noted trends in differential allocations in health care and nutrition (as also in related 'goods' such as education and information) have been used to explain the higher female mortality.

ty found in South Asia and some North African countries. Recent research may be pointing towards the greater importance of social factors over economic factors in the study of determinants of individual mortality. It may be useful to study whether differences in the mortality of individuals within groups may not be greater than across the groups to which they belong. The results of such studies might radically change the conclusion derived in this paper which is that patterns of public expenditures in the PAPCHILD region mainly reflect the unequal spatial distribution of medical and other facilities.

Zeba A. Sathar

Pakistan Institute of
Development Economics,
Islamabad.