HEALTH AND HEALTH ECONOMICS: A CONCEPTUAL FRAMEWORK

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I. CONCEPT OF HEALTH

Health is a multifaceted concept and thus it defies any precise definition. The narrow definition of health posits it as the absence of disease. The broad definition of health, however, does not rest merely on the absence of disease but the fulfillment of a whole range of personal, physiological, mental, social and even moral goals. World Health Organization's (WHO) constitution defines health as "*a state of complete physical, mental and social well being and not merely the absence of disease or infirmity*" (WHO, 1992). Although, this definition is a fine and inspiring concept and its pursuit guarantees health professionals unlimited opportunities for carry out work in future, it may not be of much practical relevance (Doll, 1992) and also it seems to work against its effective functioning (Saracci, 1997). Such a definition is too wide and not amenable for any meaningful economic analysis or for any resource allocation.

Necessarily, health has to be defined from a practical point of view and, therefore, it has been defined according to life expectancy, infant mortality, and crude death rate, etc (Reddy, 1992). In fact, it is studied as a function of medical care, income, education, age, sex, race, marital status, environmental pollution, and also certain personal behaviour like smoking habits, exercise, and the like. It is also used as an independent variable to explain labour force participation rates particularly at old age. Not only do retired persons frequently cite poor health as the reason for retirement, but also current workers, who report health limitations, are more likely to withdraw from work in future. Health status is often used to explain wages, productivity, school performance, fertility and the demand for medical care. The results are quite sensitive to the particular measures of health that are used but the direction of the effect generally confirms *a priori* preconditions (Fuchs, 1987).

Problems with the WHO Definition

The WHO definition of health is subjected to serious problems at the conceptual level that impair its guiding role in the wake of the conflict between health needs and resources, both nationally and internationally. In fact, a state of complete physical, mental and social well-being corresponds more closely to happiness than to health. The latter two terms designate distinct life experiences. Sigmund Freud experienced the same clearly after stopping smoking on health reasons. He confessed, "I learned that health was to be had at a certain cost … Thus, I am now better than I was, but not happier" (Saracci, 1997).

Not only health and happiness are distinct but also their relationship is neither fixed nor constant. Having suffered from a serious disease is likely to make one less happy, but not having the same does not necessarily amount to happiness. Common existential problems – involving emotions, passions, personal values, and questions on the meaning of life – can make one less happy or even overtly uncomfortable, but they may not be leading to health problems.

The distinction between health and happiness is relevant in terms of rights, in particular 'positive rights or entitlements', that may seek societal actions to ensure that rights materialize completely and effectively. Whereas it can be argued that health is a positive and universal right, at the same length, it may be difficult to construct an argument that happiness (though not its material and social preconditions) is a positive right as happiness cannot be delivered or imposed on a person by any societal action. Happiness is strictly subjective both as an achievement and as an appreciation (Saracci, 1997).

Consequences of the definition

Failing to distinguish health from happiness has four major consequences (Saracci, 1997).

Firstly, any disturbance to happiness may come to be seen as a health problem. This may make the purpose self-defeating as one brings in subjectivity, while the other is seen from certain objective criteria.

Secondly, because the quest for happiness is essentially boundless, the quest for health also becomes boundless. This legitimizes an unlimited demand for health services. Of course, some people may legitimately decide that they want to pursue happiness as well as health by medical means, as other people may do through music, religion, or love. For example, some people may wish to have their features surgically redesigned to suit some aesthetic ideals. But this preference represents a personal way to happiness rather than a universal right to health.

Thirdly, annexing happiness to health as a universal positive right introduces an underlying prescriptive view of happiness in society. This undervalues personal autonomy and could be established only in totalitarian regimes.

Finally, and more significantly, trying to guarantee the unattainable -happiness for every citizen - may inevitably subtract resources and jeopardize the chances of guaranteeing the attainable - justice and equity in health. The necessary and formidable task of reducing inequalities and achieving equity in health, an emerging issue in the reformulation of the WHO's programmes of action, becomes meaningless if it is not even clear what needs to be equitably distributed.

Towards a solution

With a view to remove the fundamental ambiguity that surrounds happiness and health, health may be construed as a condition of well being free of disease or infirmity and basic human rights. This description does not necessarily contradict the definition of health as per the WHO's constitution, rather it provides an intermediate concept linking the WHO's ideas to the health and disease as measurable by appropriate indicators like mortality, morbidity, and quality of life. By removing the ambiguity between health and happiness and emphasizing health as a basic human right, it provides a reference criterion against which one can gauge how far health programmes incorporate and meet the requirements of health equity (Saracci, 1997).

II. WHY DOES HEALTH MATTER?

For an individual, health has a double function. On the one hand, perfect health represents a value of its own, a target that needs to be reached as closely as possible. On the other hand, there are other aims in life as well e.g. good health gives good income in labour market (Zweifel and Breyer, 1997). World Development Report, 1993 explained good health as a crucial part of well-being. It further asserted that spending on health can also be justified on purely economic grounds. Improved health contributes to economic growth in four ways: it reduces production losses caused by worker illness; it permits the use of natural resources that had been totally or nearly inaccessible because of disease; it increases the enrollment of children in schools and makes them better able to learn; and it makes alternative uses of resources that would otherwise have to be spent on treatment (World Bank, 1993). A further elaboration may make the understanding better.

Gains in worker productivity

The most obvious sources of gain from healthier workers are savings of workdays, increased productivity, greater better-paying job opportunities, and longer working lives. A study on lepers in urban Tamilnadu estimated that the elimination of deformity with them would enhance the expected annual earnings of those with job by more than three times. The prevention of deformity in all of India's 645,000 lepers would have added an estimated $130 million to the country's GNP in 1985. This amount would be equivalent to 10 per cent of all the official development assistance received by India in 1985. Yet, leprosy accounted for only a small proportion of the country's disease burden, less than 1 per cent in 1990 (World Bank, 1993).

Improved utilization of natural resources

Some health investments raise the productivity of land. In Sri Lanka the near-eradication of malaria during 1947-77 is estimated to have raised national income by 9 per cent in 1977. Over the

period of three decades, the cumulative cost of such an initiative was $52 million as compared to the cumulative gain in national income of $7.6 billion, implying a spectacular benefit-cost ratio. Areas previously blighted by mosquitoes became attractive for settlement. Migrants moved in and output increased (World Bank, 1993).

Benefits to the next generation through education

Poor health and nutrition reduces the benefits of schooling primarily in three areas: enrollment, ability to learn, and participation by girls. Children who enjoy better health and nutrition during early childhood are better prepared for school and more likely to enroll. A study in Nepal has found that the probability of attending school is only 5 per cent for nutritionally stunted children as compared to 27 per cent for those at the norm (World Bank, 1993).

'Further, there is no denying the fact that schooling pays off in terms of higher incomes. Four years of primary education boosts farmers' annual productivity by 9 per cent, on an average, and workers who do better at school earn more. Studies in Ghana, Kenya, Pakistan, and Tanzania indicated that the workers who scored 10 per cent above the sample mean in various cognitive tests had a wage advantage ranging from 13 to 22 per cent. In Nepal, farmers with better mathematical skills were more likely to adopt new crops which were more profitable' (World Bank, 1993).

Reduced costs of medical care

The spending that reduces the incidence of disease can result in big savings in treatment costs. For some diseases, the expenditure pays for itself even when all the indirect benefits – such as higher labour productivity and reduced pain and suffering – are ignored. Polio is one such example. Estimation for the Americans made prior to the eradication of polio in the region showed that investing $220 million over 15 years to eliminate the disease would prevent 22,000 cases and save between $320 million and $1.3 billion (depending on the number of people treated) in annual treatment costs. The programme's net return, after discounting at even as much as 12 per cent a year, was estimated to be between $18 million and $480 million (World Bank, 1993).

III. ECONOMICS AND HEALTH ECONOMICS

Economics is the study of how people and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternative uses, to produce various commodities and distribute them for consumption, now or in the future, among various persons and groups in the society. It analyses the costs and benefits of improving patterns of allocation of resources (Samuelson, 1976). In the context of health as a commodity/service, such a definition treats economics as the study of scarcity and choice; of how to choose the best combination of resources to deliver in-patient care, for instance, or how best to allocate a given quantity of resources between alternative ways of improving health. The definition does not restrict economics to any one kind of human activity. Economics applies to all activities where scarcity and choice exist (Lee and Mills, 1983a). Health is no exception to that.

Over the last about three decades, treating health economics as an independent scientific discipline and providing specific treatment to the topics related to the economics of the health care sector have become more and more common. Currently, the field is so well established that it has appeared in the ordinary curriculum of most universities, and even if health economists are mainly to be found in the medical departments, the connections to economics proper are being strengthened, and the methodologies applied are getting refined.

Health economics is the study of how scarce resources are allocated among alternative uses for the care of sickness and the promotion, maintenance and improvement of health, including the study of how health care and health-related services, their costs and benefits, and health itself are distributed among individuals and groups in society. It can, broadly, be defined as 'the application of the theories, concepts and techniques of economics to the health sector' (Lee and Mills, 1983a). It is, thus, concerned with such matters as the allocation of resources between various health promoting activities, the quantity of resources used in health services delivery; the organization and funding of health service institutions, the efficiency with which resources are allocated and used for health purposes, and the effects of preventive, curative and rehabilitative health services on individuals and society (Lee and Mills, 1979).

As such, health economics has become a distinctive field of study, emphasizing in particular the application of economic theory to the practical problems of improving the use of resources to achieve the supply of effective and efficient health services (Shanmugasundaram, 1994). Economic aspects of relationship between health status and productivity, financial aspects of health care services, economic decision making in health and medical care institutions, planning of health development and such other related aspects are the major areas covered under health economics. Some salient features of health economics are health and medical care as economic goods, health as a private or a public good, measurement of health, stock of health, investment aspects of health, loss due to ill health, resource costs of different diseases, effects of health and medical care provision, planning of health and medical care, choice of technology in health care system, etc.

There are both positive and normative ways of looking at the problem in health economics. The normative issues relate to what should be, for example, what should be the appropriate budget allocation for HIV/AIDS control. The positive branch of health economics applies all modern micro economic theory in health care/medical care. Demand for health care that depends on the income of the individual, his/her taste, public and private supply of health care, etc is a subject matter in positive health economics.

The connection between the health status of the individual (or the population as a whole) and consumption of medical services builds the link between "economics of health" and "economics of health care". Health care refers to any type of services provided by professionals or paraprofessionals with an impact on health status. Health care system is a formal structure for a defined population, whose finance, management, scope and content is defined by laws and regulations. It provides for services to be delivered to people to contribute to their health…delivered in defined settings such as homes, educational institutions, workplaces, public places, communities, hospitals, clinics, et cetera.

IV. THE JUSTIFICATION OF HEALTH ECONOMICS

In order to understand the role of economics in relation to health care, we have to return to the basic structure of economic science and its functions. Economics is concerned with describing the interrelationship between different individuals and organizations related to production and consumption of goods and services. The main point of the study of these interrelationships is to explain how the institutional framework and the rules of behavior specified for the individuals and organizations influence the final outcome. Classical economic disciplines like price theory and welfare theory investigate the market mechanism. Industrial organization focuses at the consequences of imperfect competition for prices, welfare, and incomes. The theory of international trade investigates the workings of different rules for international commodity exchanges, gains from trade and the like.

At this level, it should come as no surprise that health economics may be viewed as the economic discipline which deals with the institutional frameworks for health care (consumption, provision, financing) and the interconnections between rules and institutions on the one side and the resulting health condition in the population on the other. There still remains a somewhat loose description of the field, and it seems difficult to get closer in a few words. It may be emphasized here that health economists do necessarily deal with cost-effectiveness analyses or benefit-cost ratio analysis of health management. However, that is not the only task of a health economist. Rather, cost-effectiveness is perhaps treated as the least important aspect of what a health economist can contribute.

In principle, economists are concerned with better choices and in particular making best use of existing resources and growth in the availability of resources. As economists started to work on problems in the health sector, the new discipline of health economics emerged. Economists in all sectors are concerned with the allocation of resources between competing demands (Samuelson and Nordhaus, 2000). Demands are assumed to be unlimited – there is no end to consumption needs. Resources (labour, raw materials, production equipments, land, etc), in contrast, are always scarce in supply. The scarcity of resources (not in the sense of 'rarity' but in the sense of resource availability *relative* to demand) becomes the fundamental problem to which economists attempt to address (McPake et al, 2002). Economists concerned with health also try to address the same specifically in the context of scarce health resources and the competing ends.

There are two ways in which society can make choices about the allocation of resources to production in the health sector and the distribution of services that are produced among those who want that. A society can leave these decisions to the *market* – letting demand and supply and prices determine resource allocation – or it can *plan*, usually by giving its government the task of collecting resources from the population, allocating those to define production activities and distributing the produced services among the population. The *plan-market dichotomy* has prevailed as a matter of concern in academics and otherwise throughout the last century. Health economics also falls under its ambit.

Health economics is becoming a subject of increasing significance particularly in the developing countries primarily because of (i) an economic climate where resources are extremely scare and decisions on priorities are crucial but difficult; (ii) a growing appreciation among health professionals and policy-makers that health economics and economists can help them formulate policies and make decisions; (iii) the increasing maturity of the sub-disciplines of health economics; and (iv) the growing of interest among economists and others in applying their economic skills to health issues (Lee and Mills, 1983a).

Currently, the task before economists is to elicit the valuations which may be useful to formulate health services policy. First, it might be in the form of demand studies, or by trying to discover what policy makers' preferences are. Second, there is a need to establish the true costs of delivering health care or to estimate all real costs like the use of patients' time, loss of output elsewhere in the system etc. Third, it is necessary to evaluate the relative costs and benefits of particular policy options. Fourth, the effects of certain economic variables like user charges, time and distance costs of accessibility, etc on the utilization of health services may be estimated. Fifth, planning and budgeting systems and possible changes therein in health care delivery system are to be made (Shanmugasundaram, 1994). Table 1 presents an overview of relevant health issues and consequent tasks of economists to address them.

The economics of health is by no means trivial but has a wider scope. The health care sector is not just another sector as agriculture, industry or financial services. Its output is somewhat elusive but it certainly goes beyond what can reasonably be measured in terms of money. It is primarily due to the fact that here the final output is individual health, or to be more specific, improvements in individual health conditions, the quantities which are not readily comparable between individuals and not measurable in terms of money. This special nature of the sector gives rise to many fundamental problems, which by themselves represent challenges to economic theory. There are several other peculiar difficulties that may arise in the application of economic concepts in the field of health. There is perhaps no satisfactory measure of health outputs or benefits to the society from health services expenditure and consequently, no criteria for assessing productivity or determining allocation of resources according to the principle of equality.

The task before a health economist is thus quite challenging and manifold. While aligning the basic principles of economics with health economics may bring in certain pertinent solutions to the problems that the sector is faced with, the subjectivity attached to the health services may demand alternative mechanisms. In any case, health economics may continue to gain its importance as health remains the single most significant requirement of human beings.

TABLE 1: THE RELEVANCE OF ECONOMICS TO THE HEALTH SECTOR

Some Health Policy Issues	Some Prior Questions	Relevant Corpus Of Economics
I. *Health and Economic Development* (health and health care as determinant and consequence of socioeconomic development)	1. What constitutes health and health improvement? 2. What are the determinants of health improvement? 3. How do health and health services affect production and the economy?	Identification and Measurement issues on health and illness/diseases; Basic needs measures; Macroeconomic models of economic development; Determinants of growth; Human capital theory; Investment and consumption elements of health expenditure; Household production functions for health; Ill-health and the productivity of labour
II. *Organization and delivery systems* (structure of health care and health related activities)	1. What are the economic characteristics of health care and health related activities? 2. What is the relevance of these characteristics for the pursuit of health through market and non-market mechanisms? 3. How do different health care systems handle their organization and distribution of decisions?	Welfare theory and market failure: rationality, consumer sovereignty, income and wealth issues, indivisibilities, externalities, public goods and merit goods
III. *Finance of the health sector* (income aspects of health care and health related activities)	1. What are the sources of health care financing? 2. What type and quantity of resources are being utilized to finance the health sector? 3. What do alternative financing methods achieve both in terms of yield and of incidence (burden)?	Social accounting systems and public finance: revenue generation and tax incidence; Self financing, insurance and pre-payment mechanism; Ability and willingness-to-pay concepts
IV. *Demand analysis* (the demand and the need for health and health services)	1. What determines the demand (or absence of demand) for specific health services, and for traditional healers, herbalists and practitioners? 2. What factors determine the provider response to an individual's demands for health care, including factors such as the availability of referral facilities? 3. How do health payment systems (e.g. charges, pre-payment methods) affect the demand for and utilization of health services?	Theories of household, individual and supplier induced behaviour: generation and interpretation of demand schedules, determinants of demand, price, income, and cross elasticities; Time costs
V. *Supply analysis* (Physical Resources and Costs)	1. What determines the cost behaviour of Organizations and health agencies? 2. How and why will costs vary with changes in the scale, location and type of medical and health services and facilities provided? 3. What mix of resources will produce specific services?	Production function and substitutability between inputs; Estimation of short run and long run cost curves, average and marginal costs, private and social costs; Determinants of hospital and health centres cost variation (case-mix quality factors); Economies of scale

VI. *Health manpower* (Human Resources: their availability, motivation and remuneration)	1. What determines the supply and distribution of each type of human resources? 2. How do forms of remuneration and other determinants of behaviour affect manpower recruitment, absenteeism, retention and geographical distribution? 3. What are the productivities of various types of health workers in relation to their training costs and rates of pay?	Labour markets and the demand for and supply of health workers; Marginal Productivity theory; Factors influencing supply elasticities: impact of income levels and financial incentives, leisure preferences, private practice, the brain drain.
VII. *Financial Management* (cost containment and cost efficiency)	1. How is the budget divided, who controls the budget, and how is that control exercised? 2. Can economics be affected in the procurement and distribution of resources? 3. What is an 'appropriate' technology?	Budgeting system and accountability (cost centres, cost units); Inventory management; Determinant of supply behaviour (local, national and multi-national); Shadow pricing and social opportunity costs
VIII. *Organizational behaviour* (individual and corporate objectives and motives underpinning behaviour of health agencies.	1. Who does make the resource allocation decisions to and within the health sector, and what are their objectives? 2. What is the feasibility of reconciling the conflicting goals, values and interests of the various groups and individuals involved in the health sector? 3. What types of controls or incentives (monetary or otherwise) can be introduced to encourage efficient behaviour?	Managerial and behaviourial theories of government, not-for-profit, profit and voluntary organizations; Notion of efficiency and the role of inducements (rewards and penalties)
IX. *Project evaluation* (desirability and implications of reducing, expanding, or redeploying existing services or introducing new activities	1. Does the service do any good or have any discernible effect on health? For whom? 2. What are the relative efficiencies (merits and demerits) of alternative health activities? 3. What are the distributional consequences of health activities (who incurs the costs and who receives the benefits?)	Managerial and behaviourial theories of and cost-effectiveness analyses; Notions of 'effectiveness' and the 'margin'; Size and incidence of costs and benefits
X. *Health policy, equity, and social justice* (providing the right services in the right places to the right people at the right time)	1. How best can resources be matched to the people's needs, mortality and morbidity patterns, demands and utilization? 2. What impact do different health care systems have upon eligibility, access, take-up and benefits received by target groups in the population? 3. What are the barriers, if any, to the provision of an equitable (fair) health services?	Optimum welfare criteria and the concept of the social welfare function; Inequalities in health care; Definition and measurement issues; Effects of socioeconomic variables and physical access to utilization pattern

Source: Lee and Mills, 1983b, pp.215-217.

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