CHAPTER TWO: CONCEPTUALISING AND MEASURING HUMAN HEALTH

2.1 Introduction

The efficacy of economic growth process need be measured with respect to quality of human life which directly influences the quality of human capital. Significant role played by human capital in growth process is also well known. It is naive to state that health like education is an important pillar of human capital; health is indeed a basic capability that gives value to human life. Healthier person is more productive both in terms of attendance (being well enough to work) and acquiring skills levels (because ill health affects educational achievements adversely).

Health is fundamental to sustained economic growth. Experience suggests that healthier populations have lower mortality and higher labour productivity and are more inclined to invest in higher level of skills training for themselves and education for their children leading to higher permanent income. Thus, positive association between health and earning, two important attributes of every adult person cannot possibly be debated. The familiar way of enquiring about earning of an individual is made usually by asking ‘what is your income?’ However, in case of health, it is not conceptually correct to ask somebody ‘what is your health?’ We prefer to use ‘how’ instead of ‘what’ i.e. proper way to enquire about health is – ‘how is your health? Or how are you?’ The difference in the question obviously lies with the concepts and consequent units of measurement. Health and income of a person are somewhat similar in the sense that both are time domain variable; while income focuses on aggregate outcome of multivariate income / earning activities of an individual and earning is usually measured in monetary terms; health reflects the condition of physical and mental state of an individual. Health can thus be interpreted as a net outcome of multifaceted activities of human organs, and thus can be conceptualized as a flow variable.

Health is an important quality or state of any individual at a given time (period). However, the concept of health being healthy or the notion of health varies with individual. Health has been conceptualized both in negative or affirmative fashion. In other words, individual reacts differently when enquired about health. Explanation lies with individual’s perception
of health or if it can be regarded as self designed personal health norm, which varies; age, sex, education, occupation, social status etc are some of the important sources of variation. For example, many old persons want to be classified as healthy while clinical observation might not support. Such type of affirmative answer seems to be related with the individuals’ occupation or routine daily work. Ample evidence can be cited in support of variation in the concept (or perception) of being healthy among different ethnic groups and different social classes.

People mostly follow positive approach for signifying personal health condition or state of health (health status) though his or her health condition might not satisfy biomedical condition. In the stated sense, health may be viewed as time domain asset of an individual like level of formal educational qualification at any given time period. Absence of (serious) disease or disability is the prime criterion. Often it is extended to include nonexistence of illness symptom.

Traditionally, health has been viewed as freedom from disease. If one has no signs or symptoms of illness, he will be healthy or well. Blaxter (1990) defined health in negative ways: “Health is being free of symptoms of illness, …………. Health is not having a disease /disability, for example I have no medically diagnosed condition such as a broken leg or arthritis” (Blaxter, 1990, p.12).

According to negative approach, health is defined with reference to ailment or disease and physical disability. This negative approach (absence of disease or symptoms) originates from medical science or satisfies the medical norms. It is not unlikely that individuals may not be completely aware of biomedical state while reporting his/her health.

The positive approach directly refers to the state of ‘physical fitness’ with reference to normal work or duties. Individual’s attitude, regarding being healthy or well with reference to his work, is not entirely related to disease condition but emphasis is more on personal view of physical fitness.
The positive definition states that “Health is being physically fit, for example I am physically fit enough to play sport. Health is psychological and social well-being, for example I feel emotionally stable and able to cope with life” (Blaxter, 1990: p.12). Nevertheless the positive approach as well has close reference to medical aspect but manifestation of physical condition of an individual is the central argument. However, it may be stated that positive approach, if not explicitly, implicitly incorporated the view that health is not the end in itself.

The question regarding the contribution of health in the life process of an individual in living a satisfying life and contribution of health in economic growth and development may be raised. How can one keep himself healthy and the factors that intervene with individual health are inseparable issues. How one leads his life while inflicted with ailment or deformity is no less significant. Economists perhaps would be more interested to analyze and understand the interplay between health and other economic (!) variables – for example interconnection between health and productive process. As a matter of fact, dominant underpinning in economics prefers to regard - health of an individual is his or her capital asset. Interest however lies in the service of this health asset in all his activities i.e. leading a productive life.

Health being an important quality or state of any individual at a given time (period), participation of a person in the economic process apart from other factors depends on his or her health. It has long been understood that health influences the quality of human capital and thus labour productivity.

Changes in the outlook have resulted in continuous modification of the concept of health. The concept expanded its spectrum from concern for the individual to a global social goal of ‘Health for All’ as part of an effort to increasingly improve the quality of life of both the individuals and the communities. However, lack of an implementable definition of health cannot possibly be denied, thus quantitative measure of health could not be prescribed. Thus, changes in the concept of health is discussed in section I.
For any meaningful quantitative analysis, it is imperative to express health of a person in quantitative term – quantitative measure of health. It is expected that numerical measure of health would vary with the changes in concept and definition. Economists and other social scientists are relatively more interested in the measure of health at the community level or in other words human health of a country. Both at the individual and aggregate or country level, quantitative measure of health is referred as health status. Health status of an individual is not the micro counterpart of health status of his or her country or the measure and meaning of health in the aggregate level or in macro sense. Health or Health status of a country connotes something different from aggregation of health of all the citizen. However, from the country health status one might infer about health of an average citizen of the country and the variables, which have influence on health status. It seems worthy to identify various health influencing factors and concern for health both at the individual level and in the community or country level. **Section II** concentrates on measurement of health. **Section III** concludes the chapter.

**Section I: Concept of Health**

The journey for defining health started from early twentieth century. Following the Biomedical approach, health is conceptualized in negative fashion. Health is defined as absence of disease. The early Biomedical concept visualized health as a state of ‘freedom from disease’. In early twentieth century, ‘Germ theory of diseases’ i.e. diseases are caused by causative agents dominated the thought process of the medical profession. The scientific work of Pasteur, Koch, Lister and others contributed to the formulation of the theory that germ is the primary reason for destabilizing a person. Biomedical concept held the view that disease is caused due to damage of the human body by a causative agent. And health can be restored by repair of the damage. This concept, although initially accepted, was ultimately criticized because it ignored some vital aspects – for example overlooked mental illness. The roles of environmental, psychological and socio-cultural factors, which influence human health, are ignored. Biomedical concept can also be criticized because it “failed to provide a sound basis for solving any major health problems like mental illness... environmental hazards ......... ”(Bond, 1994: p. 7). Health is basically a multidimensional phenomenon and intricately related with quality of life. Economic growth and development process, for
the latter part health status in particular, are influenced by health gradients of the citizens, thus economics and other social sciences are now showing greater concern.

2.2 Biomedical Concept
With the understanding that health can be restored by repair of the damages caused by germ, biomedical approach has attached explicit weightage to curative aspect of health. Preventive aspect though researched but did not receive adequate attention in conceptualization of health and in consequence lagged proper attention as a measure of restoring and/or improving health scenarios of communities.

Lack of proper human knowledge- regarding the utility, role and power of preventive social measures that are presently regarded as better health measures-can be held responsible for such a lopsided view. However it would not be wise to ignore the emphasis attached to biomedical preventive measures. Immunization has a long history. Presently preventive measures - health awareness, food security and provision of drinking water etc are generally advocated to improve health situation. However, legacy still continues -relatively more weightage is attached to preventive biomedical measures like immunization. Relative importance of curative medical care facilities still persists in the society—in particular in developing countries.

2.3 Ecological Concept of Health: Role of Environmental Factor
Incompleteness of biomedical approach to conceptualize health and improving the health situation can readily be understood. Biomedical germ theory was thus modified to incorporate the environmental and ecological factors. The ecological concept is based on the central theme that both man and environment are imperfect and it was recognized that health depends on a flexible equilibrium between human beings and the environment in which they live. Disease is a product of breakdown of this equilibrium at individual level.

The interaction between human being and ecological and environmental factors was incorporated and the concept of health was modified to stress the nature and quality of adjustment process with environment. Both environmental and other preventive measures
came in the forefront and environmental adoption became an integral part in the ecological definition.

2.4 Psycho-social Factors: Importance and Incorporation

Social science research, highlighted the significant role of psycho-social factors – like cultural, economic, political and other related factors - on environmental adjustment process of an individual or human being. Thus mere absence of pain became insufficient; influences of various environmental and psychosocial factors on human health were incorporated in conceptualization of health. Conceptualization by incorporating only the environment factors and consequent definition is termed as ecological definition. Without due regards to psycho-social factors, ecological/environment adoption process might not be meaningful. Thus separate existence of psycho social concept of health may not be tenable. However, incorporation of psycho social factors added new dimensions to the concept of health – the notion of being well and normal functioning of an individual paved its way in the concept of health. The gradient started tilting towards other affirmative aspects of health and incorporated the view most silently that health is not the end in itself.

Biomedical parameters ‘will be surely central to the discussions on health’ but the questions what makes health valuable and its utility are of greater significance to social scientists.

The definition underwent modification to include normal functioning of individual- the concept of health was broadened to focus on optimal functioning. The health in some sense, was replaced or became synonymous with the sense of well being for normal or optimal functioning of individual. At the same time some ordering principle became more than imperative for better understanding of health. It may be said that it was no longer sufficient to understand health of a person in qualitative term but became imperative to quantify his degree of health. In other words, some measures or measuring principles of human health have to be evolved. Social scientists – economists in particular attach more significance to capability of an individual to cope with the environments he or she lives in. It is reasonable to state that the degree of well-being or health depends on type of adjustment between the human beings and the environment in which they live. Ample evidence exists to
support the view that better the human adaptation to environment, the higher the quality of life. Life expectancy, however, has experienced upward movement with medical intervention, for example immunization. Economists are obviously interested to attach more significance to interconnection between better utilization of human resources with favorable trend in expectancy of life. Health to them is an important gradient of human capital.

Ecological concept can also be classified as a negative approach since it “implies health as relative absence of pain and discomfort” but the novelty can readily be discovered. It is argued that continuous adaptation and adjustment to the environment is required to ensure optimal health and human function. The latter aspect found its place in more discrete fashion in the positive approach of health.

2.5 Negative to Positive Approach: A Mutative Change
The negative definition of health (and all its modified version) is concerned with absence of or freedom from disease but does not attach much attention to the usefulness of health in human life. The positive definition directly concerns with physically fitness to cope with life. Health in positive sense considers more than physical fitness by incorporating the view that health is not the end in itself.

According to positive concept, health “aims at obtaining perfect functioning of body and mind biologically, complete well-being of an individual psychologically, and optimal individual and collective achievement socially through adequate harnessing of, and appropriate adaptation to, existing physical, psycho-social, economic, political and other environmental forces.” (Rashid et al, 1992:p. 2).

Positive approach thus has not completely ignored the disease condition- most consciously considered in negative approach but paid proper attention to environmental and social factors including the personal psychological factors which are vital for a person to actively participate in life process. The positive approach as can be seen paved the way for
understanding the significant importance of preventive social measures to influence health condition of individual.

The positive approach directly refers to the state of complete ‘physical fitness’. Individual’s attitude, regarding being healthy or well is not entirely related to disease condition but emphasis is more on personal view of physical fitness to cope with normal work. Nevertheless the positive approach as well has close reference to medical aspect but manifestation of physical condition of an individual is the central argument. In other words, individual along with physical fitness considers some significant socioeconomic aspects (which is individualistic). To an individual, health is a required state of ‘psychological and social well-being’ in order to perform his normal duties.

World Health Organization –WHO- by adopting this positive concept of health has prescribed a universal definition of health - “Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease and infirmity.”(WHO, 1946). WHO definition is concerned with multifaceted view of health, with physical, mental, and social dimensions indicating that health extends beyond the structure and function of our body to include feelings, values, and reasoning.

WHO definition as can be seen has implicitly incorporated the view that one may be regarded healthy despite presence of some (minor) ailment or diseases – ‘health can exist in the presence of disease and infirmity’ (Payne and Hahn, 1995) but has almost ignored the vital issue that health is not the end in itself.

2.6 Holistic Approach

The question regarding the contribution of health in life process –contributing to the process of living has not been properly dealt in WHO concept. In other words it is necessary to directly address ‘necessity of health or influence of health in leading life.’ Incorporation of the interconnection between health and human life process is necessary but sufficiency roles beyond that. How one leads his life despite presence of some amount of ailment or deformity is the central issue in holistic approach. Thus unlike the morbidity approach
which focuses on illness aspects only, the central issue in holistic approach is how one could overcome his or her ailment to cope with normal (!) work.

The profound influence of intellectual and religious or spiritual factors on individual can not be denied. Perhaps it is not possible to deny that the differences in life style of persons having similar biomedical condition and enjoying similar environment can be attributed to variation of these qualitative factors. Holistic approach therefore aims to incorporate intellectual and religious or spiritual factors in conceptualization and defining health. It has been argued that without due consideration of these personal elements health cannot be meaningfully understood. Thus, according to Holistic concept, the well-being or health of a person is manifested in his life style. Health is the net outcome, in the sense that how physical, emotional, social, intellectual, and spiritual resources function jointly in mastering the developmental tasks necessary to enjoy a satisfying and productive life. It may be said that holistic approach attempts to judge the health of a person from the degree of his/her adoptability with the surroundings which is presumed to depend on, apart from other health ingredients, intellectual and spiritual factors.

The ability to overcome the ailment or disease condition has been given significant importance in the holistic net outcome approach by incorporating intellectual and spiritual dimension. As a matter of fact, this approach has made qualitative modification of WHO definition. While the WHO approach distinguishes, at least implicitly if not explicitly, the degree of ailment or intensity of sickness, holistic approach attempts to understand how a person with ‘serious physical illness can claim to be quite healthy’ (Payne and Hahn, 1995).

Susceptibility to diseases according to modified biomedical and universal WHO model depends on various social and individual factors. It would not be unwise to elongate the concept of complete well being to include partial well being in WHO concept as has already been stated as the degree of ailment. However emphasis is always on “good” health rather than “ill” health.
Prevailing concept of health is broad in the sense that together with physical and mental well-being, it includes social components and it can be resolved that it is not the prerogative of medicine to define health. This positive conception of health – ‘Complete social well-being’ – has fairly radical implications. (Witter et al, 2000: 14-15). We cannot avoid the questions - when one is not in that somewhat abstract absolute state of ‘Complete social well-being’ and how to elevate all to that state – or how to achieve health for all? Answer to the first query cannot avoid biomedical consideration of health because many of us still tend to believe the false notation that if we do not report sick by we must be healthy. Answering the second question is lot more difficult since keeping people healthy as has been understood depends on various factors. In what follows, for proper investigation we are to express the state of health of an individual or of a group of persons in quantitative term.

It is amply clear from the above discussion that health is basically a multidimensional phenomenon. Three identified dimension of health are physical, mental and social. Attempt has therefore been made to formulate multidimensional health index for measuring health (status) of individuals and community. Mostly physical dimension is considered in formulating health indices. It seems reasonable to state that these indices primarily focus on capability of a person.

Economists however radically differed in their approach by treating health (!) as a capital asset of an individual[^1], which provides services. The flow of services (recall that health is not an end in itself) from the stock of health capital is valued and may be attempted to measure.

[^1]: “a durable good, or type of capital, that provide services” (Santerre and Neun, 1996:21).

The flow of services produced from the stock of health “capital” are consumed continuously over an individual’s life time (Grossman, 1972a, 1972b).
Section II: Measuring Human Health

Human health is a multidimensional phenomenon. According to dominant positive concept, it is supposed to reflect the condition of physical and mental state of an individual. Health of an individual can be interpreted as net outcome of multifaceted activities of human organs. However, interest mostly lies in the (degree of) capability of a person to pursue normal work.

It is a formidable task to measure precisely health or the capability of a person at all given time. There seems to exist two different approaches in measuring health. Measures are absolutely purpose oriented.

Following the dominant positive concept of health, attempts have been made to formulate health index by combining capability or health related variables, and is referred as health status. Such an index enables overall comparisons between groups of individuals in different health condition. As pointed out earlier, economists radically differ with other approaches in conceptualizing human health as capital asset. Attempt has however been made to evaluate or measure the flow of services from this capital asset which obviously varies because of wear and tear of the health capital.

2.7 Health Status Index

The term health status has possibly originated from the plural health concept of WHO. It can be deployed to reflect the health condition of an individual and like ‘utility’ can be understood as an ordinal measure of health. An investigator might differentiate among different health conditions of an individual, however two observers can have different opinions as to whether a person is healthier than another. Health status, the conventional measure of health or well being of a person can be regarded as an elusive measure of health like the measure of love, beauty and happiness. WHO definition of health has not consciously treated the problem of interpersonal and inter-temporal comparison. However, it would not at all be exaggerating to state that comparison issue is latently present in broad WHO definition of health.
With the understanding that health is not the end in itself, we might interpret Health status of an individual as the degree to which a person is able to function physically, emotionally and socially, with or without help from the health care system. The ‘degree’ may differ for an individual over time. That it scales down when one is inflicted with physical and mental ailment cannot be denied. The concept also conspicuously focuses on the interpersonal difference in health – one individual with a well-functioning body can be healthier than another individual also with a well-functioning body.

Interpersonal and temporal differences of health condition can only be understood qualitatively, so long we are not able to prescribe some quantitative/numerical measure of health. Or in other words, it is essential to translate WHO definition in mathematical form. However, the differences in health situation can be readily related to certain well-identified characteristics expected in a healthy person.

The development of an acceptable health status index proved to be unexpectedly difficult. Numerous conceptual and technical barriers had to be faced, beginning with what constituted a definition of health. The controversy over what variables should be included in such an index and how to give appropriate weights to the ones that are included could not be resolved. A major concern is for, which proxy variables for health were going to be utilized in the final analysis, instead of direct measures of health status. Indeed, it was felt that the data really needed for the development of a health status index were simply not available (Srinivasan, 1998).

Economists regard health as a capital asset of an individual. Santerre and Neun (1996) define health as “a durable good, or type of capital, that provide services”(Santerre and Neun, 1996:21). The flow of services produced from the stock of health “capital” are consumed continuously over an individual’s life time (Grossman, 1972a, 1972b). Thus interest lies in flow of services. But the quality of services obviously differs over time and between
persons. It may not be unwise to attempt a measure of this flow of services (from the stock of health capital).

It seems reasonable to state that Health Status which focuses on capability of a person may also be utilized to provide an approximate measure of health capital, while it is treated as “a capital asset, subject to depreciation due to the passage of time (ageing) and to ‘wear and tear’.” Is it unwise to presume that the amount of service that can be generated from a given stock of health capital of an individual is not different (or marginally differs) from his capability.

Each person is endowed with a given stock of health at the beginning of a period such as year or at the time of birth. Over the period, the stock of health appreciates or depreciates with age and may be augmented by investments in medical services.

Death occurs when an individual’s stock of health falls below a critical minimum level. Measure of health at death can be easily read as zero. A dead man (health capital) can not render any services, thus valuation of health according to the flow of service is in harmony with viewing the individual health as a capital asset of the individual, (but unlike many other physical asset) ‘to be valued by the flow of services it produces.’

The initial stock of health, along with the rate of depreciation or appreciation as the case may be, varies from individual to individual and depends on a great many factors, some of which are uncontrollable. For example, a person has no control over the initial stock of health allocated at birth, and a child with a congenital heart problem begins life with a below average stock of health. However, we know that medical services may compensate for any deficiencies, at least to some degree. The rate at which health depreciates also depends on a large number of factors, such as the individual’s age, physical makeup, and lifestyle; environmental factors; and the amount of medical care consumed. For example, the rate at which health depreciates in a person diagnosed with high blood pressure is likely to depend on the amount of medical care consumed (is this person under a doctor’s care?),
environmental factors (does he or she have a stressful occupation?), and life style (does the person smoke or have a weight problem?). All of these factors interact to determine the person’s stock of health at any point of time, along with the pace at which it depreciates (Santerre and Neun, 1996: 21).

2.8 Multiattribute Health Status Index

Health of an individual is the manifestation of number of attributes. Setting some norms for the chosen characteristics, researchers have attempted to measure Health of a person or health status by formulating Health status index by considering one or different combination of these characters. Thus, some amount of subjective element cannot be ruled out even if biomedical norms are followed.

We can identify three broad characteristics – (i) physical, (ii) mental, and (iii) social characteristics in the universal (!) concept of WHO. However in our discussion on concept of health (section 1), two other major dimensions of health are also given prominence namely (iv) Intellectual and (v) Spiritual. Last two attributes are highly qualitative in nature but “………… the physical capability of the individual to perform certain acts (e.g. getting up or dressing); the social capabilities of the individual (i.e. how well he or she interacts with others); and how the individual feels” can be approximated.

As expected different research efforts have focused on individual capabilities, on the physical functioning of individuals’ bodies in relation to some norm and on a mixture of physical, mental, and social characteristics (Jacobs, 1991), to invent a measurement of health status, unfortunately there has not been any general agreement.

It seems worthy to discuss the Boyle and Torrance (1984) Health status index. They have considered mobility (M) and pain (P) for construction of index. Both the variables or attributes are measured by discrete 6 point scale from 0 to 5. Numerical value associated to different state of mobility and pain is described in the HSI table below.
While 0 in the pain scale indicates that a person is dead, the Mobility index value 0 is interpreted as the person may be alive but totally incapacitated. Or in other words, 0 in either scale means a person is incapable to function. Similarly, maximum value 5 means absolute absence of pain and highest attainable mobility of the person. Thus, a person having scored at the top level for both the variables will be at his best level of health condition or maximum level of health status. Value 4 is associated with normal mobility but for normal value of pain variable will be 3. However, one is able to identify various possible health condition of an individual.

Authors have formulated two types of Health status Index (HSI) - additive HSI=M+P and multiplicative Health Status Index (HSI) =MxP. Using the multiplicative formula, the healthiest individual would have an index value of 25, whereas HIS value for a dead individual would be 0 for both additive and multiplicative formula. Maximum value of index for additive formula is 10.

**Table 2.1: HSI: Health Status Index**

<table>
<thead>
<tr>
<th>Value</th>
<th>Pain</th>
<th>Mobility</th>
<th>Additive Health Index</th>
<th>Health Status</th>
<th>Multiplicative Health Index</th>
<th>Health Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Dead</td>
<td>Dead</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Excruciating pain</td>
<td>Fully incapacitated, but alive</td>
<td>2</td>
<td>Na</td>
<td>1</td>
<td>Na</td>
</tr>
<tr>
<td>2</td>
<td>Severe Pain</td>
<td>Severely incapacitated</td>
<td>4</td>
<td>Na</td>
<td>4</td>
<td>Na</td>
</tr>
<tr>
<td>3</td>
<td>Moderate Pain</td>
<td>Mildly incapacitated</td>
<td>6</td>
<td>Na</td>
<td>9</td>
<td>Na</td>
</tr>
<tr>
<td>4</td>
<td>Slight pain</td>
<td>Normal mobility</td>
<td>8</td>
<td>Na</td>
<td>16</td>
<td>Na</td>
</tr>
<tr>
<td>5</td>
<td>No pain</td>
<td>Able to leap tall buildings in a single bound</td>
<td>10</td>
<td>100</td>
<td>25</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: Na not possible to suggest
However, index value for most individuals would fall somewhere between these extremes. Maximum health index value of 100 may be assigned to person having optimal health and minimum 0 to a dead person without ambiguity for both the indices. One does not find any measurement and interpretation problem for the two extremities, but the intermediate health conditions and the index values cannot be easily matched.

2.9 Life Expectancy: A Measure of Personal & Community Health

Health of an individual is the resultant state of interaction of different organs. It would be worthy to recall that health like income is interpreted as a net outcome of multifaceted activities of human organs. It sounds logical to take life expectancy of a person at any given time as the net outcome of his present health condition. According to previous discussion, we begin to think about degree of health: ‘more healthy’ versus ‘less healthy’ i.e. optimal wellness to death.

Health or health status of a person may be regarded as the product of quantity of life measured by life-expectancy and quality of life measured by physical mobility, morbidity and ability to engage in normal function at a given time point. Life expectancy indicates expected length of life or how long he is going to survive given the present state of health - obviously is the outcome or net output of quality of health. It can be interpreted as a net output. Indeed, health of an individual has been attempted to measure as a production. Production or output is however highly related with morbidity and health care system that he or she undergoes.

Thus, one might consider life expectancy and morbidity at any given time to reflect the health status of an individual.

2.10 Health Status at Aggregated Level

A need has been felt for a single unified indicator of health status that could reflect in one number the relative health status of a particular population or geographical area. There was, in fact, a great deal of urgency attached to the development of such an indicator during the days of heavier government involvement in social programs. Derived from an attempt to develop social indicators, a health status index was considered important for a variety of
reasons. On one level, it was considered essential for determination of the state of the nation’s health. There had been no benchmarks for determining the nation’s health status, and no benchmark with which to guide government policy setting. On a more practical level, a health status index was felt to be essential for the prioritizing of healthcare initiatives and the allocation of government’s health care funds.

In developing countries, since the 1950’s, when health planning became a serious national concern, an index was desired as a basis for developing health plans and evaluation of their success’ (Srinivasan, 1998). The various attempts at developing such an index generally took one of two possible approaches. They either emphasized process variables or outcome variables. The former included such factors as frequency of physician visits, domiciliary visits by health workers, access to certain services and hospitalization rates. Outcome measures focused on such factors as mortality rates, morbidity levels and disability rates. Both approaches have their drawbacks, and the process orientation seems particularly crude in today’s environment given what we now know about the elasticity of demand for health services. Realistically, the health status indices that eventually emerged were based on those reasonable variables for which data were available (Srinivasan, 1998).

The average life expectancy of the persons of a country can be taken as a measure of health. Life expectancy at birth, or at a specified age, is the theoretical expectation of life length for the individual or the living population. The Life expectancy is more closed to reality since it is calculated from the recent available life tables. However, in most societies, life expectancy is underestimated, because mortality rate is expected to drop in future. This, however, is not a certainty. Experience in some Eastern European countries and Russia (due to economic difficulties) and some African countries (due to AIDS) has recorded unfavourable trend (Bhopal, 2002). In what follows a workable solution is found to estimate that which cannot be known.

Perhaps, measuring health at the societal level following the production approach can be readily conceived. Health status of the country is the net outcome of medicare system or the health care system of the society. Life expectancy of a person depends on his or her
suffering from diseases. Suffering, on the other hand, can be measured by morbidity. The morbidity is included or considered as a good measure of health status at micro or individual level. Morbidity at aggregate level is a measure of the amount of disease, injuries or ill health in a population. Morbidity is the most methodologically problematic of all possible health status indicators because, as a complex medico-sociological variable itself, its meaning is influenced by the same economic and normative factors that help shape health outcomes. Thus, for example, the higher morbidity recorded by women is probably more a reflection of gender norms dictating economic roles than any difference in the risk of disease. Men of working age appear to suffer lower rates of morbidity but higher rates of mortality, suggesting that the direct risk of disease itself is not perfectly correlated with the same factors that predispose people to see themselves as unhealthy or in need of medical advice or treatment.

Morbidity is a continuous and multidimensional variable, with both objective (information provided by third party, in particular physicians and nursing personnel) and subjective (information provided by the individual himself) components that make quantification difficult.

Nonetheless, attempts have been made to measure national morbidity rates. These measures fall into two main categories: “observed” or objective rates, based on clinical tests or medical examinations, and “self-perceived” or subjective rates, based on reports by individuals of how sick they are or feel.

The objective measures include, for example, antibody concentrations in infected individuals, analysis of functional capacity, and expert opinions of medical practitioners. These rates of morbidity respond to changes in the nature and extent of disease in a community---for example, malaria cases increase when mosquito populations thrive.

2.11 Morbidity and Mortality: Importance at Community Level
Subjective measures, based on interviews with patients, tend to respond not only to the underlying pathology, but also to changes in the perceptions and expectations of individuals.
As reported by Murry, Yang and Qiao (1992), this may explain why the United States records a higher rate of self-perceived morbidity than does India. Such an observation is anecdotal evidence that cross-sectional analyses using self-perceived measures of morbidity are likely to be unreliable, unless the subjects have very similar socio-economic and cultural characteristics.

Morbidity data gathered through questionnaires tend to suffer from major biases. People’s perception of illness varies with what they are used to and also with their medical knowledge. In places where medical care is widespread and good, people often have a higher perception of morbidity, even though they may be in much better general health. Receiving medical diagnosis and care tends to reduce actual morbidity, while at the same time increasing one’s understanding of illness (including knowledge of one’s ailments). In contrast, a population that has little experience of medical care and widespread health problems as a standard condition of existence can have a very low perception of being medically ill.

The morbidity information that is obtained from our own perceptions of illness and ailments is mediated through our positional understandings and interpretations. When a community has few health facilities and little general and medical education, the perception of ill health can be very limited, and knowledge of specific ailments may be particularly lacking. And yet the members of that community may have a good deal of illness in terms of more general medical criteria. When high mortality rates go with low perceptions of morbidity, the case for questioning the morbidity data is indeed strong. We may get a much better idea of people’s ability to avoid death and severe illness by looking at actual mortality information rather than from self-perception of ailments (Sen, 1995: 26-27).

Time series data provide a somewhat more reliable basis for analysis but still suffer from changes in expectations and other non-pathological determinants of illness (such as income and the like). One approach is to assume that sharp changes in morbidity rates stem from changes in the characteristics of underlying diseases and their treatments, but that slow changes reflect changing subjective criteria.
It is interesting to compare the objective and subjective measures of illness for certain conditions. For example, a survey conducted in Ghana (Belcher et al, 1976) found that while only 0.2 percent of individuals thought they had intestinal parasites, examinations revealed that fully 55 percent were infected. Similarly, while 0.8 percent of respondents considered themselves to be undernourished, objective measures found 32 percent to be so. At the same time, while 4.5 percent reported lower-back pain, only 1 in 15 of these cases were confirmed on an objective basis.

These figures do not necessarily suggest that individuals overestimate their health status or are hypochondriacs. Some medical conditions may be objectively measurable but have relatively limited effects on functional capacity or general wellness, at least in the short run. Also, if individuals have lived all their lives with a given disease (such as parasitic infections), subjectively they may feel reasonably well. Conversely, the report that 15 times as many people thought they had lower-back pain than actually did suggest that objective measures of morbidity may fail to capture relevant aspects of ill health (Jack, 1999:25-26).

Even when the morbidity data are not based on subjective assessments, but on the actual care of the ill, that again tends to reflect the availability of medical care (lower in Bihar than in Kerala in India). If a village acquires a hospital, more people are treated, and thus more statistics become available about how many people are ill and are being treated. But that must not be seen as an increase in morbidity itself (Sen, 1995:28).

When a baby is born from his or her mother’s womb, he or she may be inflicted. For this reason, infant and child mortality are important indicators of health status. Age – specific mortality is a measure of human durability, and within a population it reflects the distribution of human vitality, immune status, and nutritional welfare. More research is needed on the links between mortality and lifetime morbidity; therefore mortality will continue to be used, with good reason, as an indicator of population health status.
Section III: Conclusions

The two ways causation between economic growth and human development or quality of human life forces us to concentrate on human health. Health is an important ingredient of human capital. The concept of being healthy varies with individual. The concept expanded its spectrum from concern for the individual to global social goal of ‘Health for All’ as part of an effort to increasingly improve the quality of life of both the individual and the communities.

The journey of defining health started from early 20th century with excessive stress on curative aspect of Medicare facilities. Health has been understood as absence of diseases. The negative approach ignores the usefulness of health in human life. Mere absence of diseases is thought insufficient to understand health of an individual. Health in positive sense considers more than physical fitness by incorporating the view that health is not an end in itself. WHO by adopting this positive concept has prescribed a universal definition of health - “Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease and infirmity.” (WHO, 1946). WHO definition is concerned with a multifaceted view of health, with physical, mental, and social dimensions indicating that health extends beyond the structure and function of our body to include feelings, values, and reasoning. The ability to overcome the ailment or disease condition has been given significant importance in the holistic net outcome approach by incorporating intellectual and spiritual dimension. While the WHO approach distinguishes, at least implicitly if not explicitly, the degree of ailment or intensity of sickness, holistic approach attempts to understand how a person with illness can claim to be healthy.

According to dominant concept, health is a multidimensional phenomenon. Measuring health of an individual is a formidable task. Attempts have however been made to formulate health status of a country by combining some health related variables. The researchers mostly favour - life expectancy, mortality rates, and morbidity rates. A combination of these three may be considered as health status at the community level. From the community health status one might infer about health of an average member of the community.