Chapter – 2

HUMAN DEVELOPMENT: CONCEPT AND QUANTIFICATION

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When I was arguing that helping a one-meal family to become a two-meal family, enabling a woman without a change of clothing to afford to buy a second piece of clothing, is a development miracle, I was ridiculed. That is no development, I was reminded sternly. Development is growth of the economy, they said; growth will bring everything.

- Muhammad Yunus

2.1 Introduction

The term ‘development’ has been a topic of special interest to economists and social and political thinkers throughout the twentieth century and particularly since World War II. The immediate post-war period was marked by significant deviations in economic theory and policy (Waelbroeck, 1998). The liberation of a large number of countries in Asia, Africa and Latin America from imperialist regimes during the immediate post-war period, had added attraction to it as most of these countries were suffering from a host of socio-economic problems like poverty, illiteracy, open and disguised unemployment, astoundingly high rates of morbidity and mortality, and stagnant and profoundly primary dominated production sectors. Although, at any point of time in history, there has been much agreement regarding the meaning and desirability of ‘development’, opinions differed significantly when questions about the pattern of development and the policies required for its achievement are addressed. One could find similar

1 Founder, Grameen Bank, Bangladesh
2 Waelbroeck in his review article on the Handbook of Development Economics presents a brief, yet clear summary of major developments in the field of Development Economics over the last 50 years.
disagreement when addresses the question of quantification of development. During the last fifty years period and particularly since the beginning of 1960s, a number of alternative indices have been introduced as measures of development progress. Meanwhile, the concept of development itself has been undergone significant changes—from a mere process for achieving rapid economic growth to the ultimate goal of all human efforts, including economic growth. In other words, it has been evolved from mere economic development to comprehensive human development. The purpose of this chapter is to get a snapshot view of this evolution and the major alternatives suggested for the measurement of development, together with suggestions for improvements, if any.

2.2 Evolution of the Concept and Quantification of Development Progress

Although, Development Economics as a branch of Economic Science is of recent origin, the concept of economic development is as old as the parent science itself. As early as in 1676, Sir William Petty\(^3\) has started a discussion on the broad elements of the development problem with emphasis on the quantification aspect, clearly a century before the publication of *The Wealth of Nations*. However, as Sen (1988) points out, in the early contributions to Economics, it is almost impossible to separate Development Economics from the rest of Economics as so much of Economics was in fact concerned with the problem of development. *An Enquiry into the Nature and Causes of the wealth of Nations* was an enquiry into

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\(^3\) William Petty in his book *Political Arithmetick*, discussed several broad aspects of development and measurement of national income. The book written around 1676 was published only in 1691 and the text could be found in C. H. Hull, ed. (1899), *The Economic Writings of Sir William Petty*, Cambridge University Press, Cambridge.
the basic issues of Development Economics also\(^4\). However, Development Economics as a distinguished branch of Economics is of relatively recent origin as mentioned at the beginning of this chapter.

In the initial phase of Development Economics, development (or rather, economic development) has been viewed as a problem of poor countries alone\(^5\). In fact, the emergence of this branch of Economics has divided the world into two notorious segments—the developed countries and the underdeveloped (presently known as ‘developing’) countries. Achieving rapid economic growth, which means pushing the real per capita income to the maximum possible extent, has been regarded as the principal goal of both categories of countries. This, however, would not be easier for the so-called underdeveloped countries as they lack the finance, technology, infrastructure and attitude to achieve rapid material progress. Therefore, a structural transformation has been prescribed for them as a compulsory course of medicine to overcome these bottlenecks in achieving rapid economic growth. This process of structural transformation has been termed as economic development. Thus, development has been regarded as a process or means for achieving the well-cherished end of self-sustaining economic growth.

Notwithstanding the wide popularity of the above approach, it suffers from several conceptual and practical problems. On the first place, it can be argued that the classification of countries into ‘developed’ and ‘developing’ is rather arbitrary. This is particularly true when we draw the demarcation line on the basis of the

\(^4\) Sen, 1988: 10

\(^5\) We need not have to go too far in the past to cite examples for this. For instance, according to Lewis (1984: 1), Development Economics deals with “the structure and behaviour of economies where output per head is less than 1980 USS 2,000”. 
level of per capita income as done by Arthur Lewis⁶. To be more precise, with a GDP per capita of PPP$ 15073 in 2000 Equatorial Guinea could be regarded as a much developed country than Sri Lanka with a modest GDP per capita of PPP$ 3530, if one follows this line of classification. But when we compare the achievements of these two countries in such important areas of human welfare as public health (life expectancy was 72.1 years in Sri Lanka and 51 years in Equatorial Guinea) and education (adult literacy rate was 91.6% in Sri Lanka and 83.2% in Equatorial Guinea)⁷ the conclusion may be quite different. Moreover, when we use the term ‘developed country’, it gives an impression that the structural transformation of the country under reference is already completed, its socio-economic structure is perfect and there is no scope for further structural improvements there. This, however, is not the reality as structural transformation is a continuous and endless process in the dynamic world.

The most remarkable short-fall of the above mentioned approach is the treatment of economic growth—defined as the persistent rise in real per capita income—as the ultimate goal of all human effort. This has been the result of the strong conviction that the growth of GDP will automatically lead to a proportionate improvement in human welfare. This, however, has been a relatively recent trend. Improvement in human well-being had been accepted as their principal objective, even by ancient civilisations and primitive societies. Even the ancient scripts such as Kautilya’s Arthasastra can be seen as a treatise of human welfare as it specifies standards for governance that can ensure the well-being of the masses. Earlier philosophers like Aristotle had emphasised that

⁶ Ibid., for instance.
⁷ Data from Human Development Report 2002, UNDP.
human actions can be judged only on the basis of their success in promoting
human happiness. During all these periods, income and wealth were considered as
the most important means to enhance human welfare. However, during the
twentieth century, especially since the emergence of Development Economics as a
leading branch of Economics, there had been an increasing tendency to treat the
growth of income and improvement in welfare as identical things. Consequently,
human beings, without whom economic growth is meaningless have been
relegated to the background and income growth, which is not a sufficient
condition (but, of course a necessary one) for welfare improvement, has been
promoted as the ultimate goal of all human effort. Interestingly, not withstanding
the divergence in definitions of economic development and economic growth, real
GDP per capita has been indiscriminately used for the quantification of both.

This misconception in Development Economics has been strengthened and
gone a step further with the introduction and wide-spread acceptance of the human
capital formation and the human resource development as important instruments
for achieving rapid growth of GDP per capita. The theories of human capital
formation and human resource development view human beings primarily as
means rather than as ends. They are concerned only with the supply side—with
human beings as instruments for furthering commodity production (UNDP, 1990:
11). They advocate for increased investments in the fields of education, training,
public health and the like, so that the human productive capacity can be enhanced.
The emphasis on human resource development has, no doubt, improved the
overall quality of life in many countries. But the improvement in the quality of
human life was not intended to, but was only a by-product of the attempts to
enhance human productive capacity for attaining the ultimate objective of rapid economic growth. It is just like giving better feed and care to a dairy cow. The intention is not to improve the cow’s welfare, but to boost its milk output.

Thus, the conventional growth paradigm has been severely criticised for its misplaced emphasis on economic growth. In fact, it failed to recognise the fact that without human beings economic growth is meaningless. And this is what prompted Mahbub ul Haq (1996: 3) to remark, “the most difficult thing in life is to discover the obvious”.

Earlier development economists of the twentieth century, irrespective of their affiliations to pro-market or pro-leftist ideologies, had a strong conviction that rapid growth of per capita output is the necessary and almost the sufficient condition for improvement in human well-being. Hence, when there aroused the question of quantification of development progress, the real GDP per capita with one to one correspondence to human well-being, has been widely accepted as the measuring rod. This was not because, the limitations of this measure as indicator of improvement in human welfare were not known. In fact, they were known even to the most ardent advocates of it. But they believed that the first and the foremost responsibility of the economy is to accelerate production and ultimately the benefits of growth will trickle down to all individuals and groups in the society, although its distribution may be uneven.

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8 See for instance, Lewis, 1944 and 1955, Baran, 1957, etc.
9 For instance, although it was known that distributional inequality in income has adverse effects on the overall welfare of the society, Lewis (1955) argued, “first it should be noted that our subject matter is growth and not distribution”.
However, there has been growing discontent towards the manner in which the problem of development has been addressed, particularly against the use of income as the sole indicator of development progress. The income approach was attacked on several grounds, in addition to the ones we have already stated.

First, by counting only monetary transactions as economic activity, the GDP omits much of what people value and serve their basic needs. For example, non-monetised activities like services of housewives, production for self-consumption by households, community volunteer work etc., augment well-being level, but seldom enter the GDP calculations.

Second, it counts all monetary transactions as additions to total well-being. But, in reality, many monetary expenses incurred by people are defensive in nature. That is, they are incurred for preventing erosions from the existing level of welfare. Medical costs, insurance charges, expenditures on police and defence etc., are examples of such defensive expenses and GDP treats them all positive contributions to human well-being. Similarly, the GDP considers crimes, accidents, divorces and many other forms of social breakdown as economic gains rather than welfare losses.

Third, it ignores the environmental costs of economic activity and takes no account of the depletion of natural resources used up in production. Quite often, it treats environmental degradation associated with production as a double benefit—first being the output produced and second, the income generated when environment quality restoration measures are undertaken.

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10 For a brilliant treatment of the origin, development and drawbacks of the GDP approach, see Cobb, Halstead and Rowe (1995) and Cobb, Goodman and Wackernagel (1999).
Fourth, the GDP value adjusted for population size being an average, often conceals great distributional disparities. For example, a country where all individuals enjoy exactly equal income (perfectly equal distribution) may have the same GDP per capita as that of another country where the entire income goes to just one person and all others get no income at all (perfectly unequal distribution). Therefore, judging the quality of life of the population on the basis of per capita income alone would be quite misleading.

Further, the GDP approach is based on an implicit assumption that all societies have perfect ability to convert their incomes to the corresponding level of human well-being and hence higher income undoubtedly means higher level of well-being. Nonetheless, this is far away from reality, as we have already seen in the example cited in page 19.

By itself the GDP tells very little. Simply a measure of total output (the dollar value of finished goods and services), it assumes that everything produced is by definition ‘goods’. It does not distinguish between costs and benefits, between productive and destructive activities, or between sustainable and unsustainable ones. The nation's central measure of well being works like a calculating machine that adds but cannot subtract. It treats everything that happens in the market as a gain for humanity, while ignoring everything that happens outside the realm of monetized exchange, regardless of the importance to well-being.¹¹

It was Kuznets¹², the originator of the present system of national accounts and the GDP, who started an early discussion on the need for improvising the measures used for the quantification of development progress, followed by the United Nations (1954). The concept of social development slowly came up with economic development and in 1962, the Economic and Social Council of the

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¹² See Kuznets (1953)
United Nations (ECOSOC) recommended the integration of the two. Many attempts in this direction have been taken place since the beginning of 1960s, particularly in two lines. On the one side, efforts were made to make GDP values more susceptible for international comparisons. Distribution sensitive and purchasing power adjusted GDP per capita were developed as a result. Although, they facilitated better international comparisons, they were not free from most of the aforementioned defects of the income approach.13

On the other hand, many researchers have devoted their time and energy for the development of supplementary measures to GDP per capita. In fact, they were faced with two important problems. First, development being a comprehensive and multidimensional phenomenon, it cannot be captured with single, isolated and one-dimensional indicators. Therefore, a system of indicators, capable of capturing the various attributes of development must be evolved. Second, although it is desirable to use a good number of indicators, they must be compacted into a single composite index, so that it becomes easily understandable and comparable. This, however, requires the quantification of a variety of economic and social indicators, many of them are qualitative and not amenable to direct measurement, and development of an appropriate system of weighting and averaging.

The social indicators project, initiated by the National Aeronautic and Space Administration (NASA) of USA during the mid-1960s to detect and

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13 For instance, Sen (1992, 127-8), citing Kerala’s high achievement in health standards with relatively low income, argues, “Distributional corrections do not seem to eliminate adequately the deficiency of the income approach to explain the high capability levels in Kerala to escape premature mortality. The deficiency of the income approach is not adequately remedied by supplementing the average income figures by considerations of inequality of incomes and commodity holdings.”
anticipate the side effects of the space program on the American society, was
generally considered as the first systematic attempt in the latter approach.
Raymond Bauer, the director of the project, defined social indicators as "statistics,
statistical series, and all other forms of evidence that enable us to assess where we
stand and are going with respect to our values and goals" (Bauer 1966). Of
course, there were several predecessors in the modern social indicators research,
like the well-known report on "Recent Social Trends in the United States" by W.F.
Ogburn published in 1933 and the work of Jan Drenowski and an expert
commission of the United Nations in the 1950s, in so far as they tried to improve
the measurement of the level of living by identifying components of welfare and
by constructing respective indicators.\(^\text{14}\) Although the social indicators movement
started in the US, immediately it spread out to other countries and international
organizations and gathered much momentum in the 1970s. The efforts of the
OECD and the ECOSOC need special mention here. Some other commendable
attempts during the 1960s and early 70s to develop multi-indicator indices of
development progress were those of Hagen (1962) using eleven indicators and
UNRISD Study Group using eighteen indicators (Mc Granahan and others, 1972).
But the most significant contribution in this regard has been the introduction of the
Physical Quality of Life Index (PQLI) by Morris D. Morris (1977). Morris, with
his PQLI computed from just three non-income indicators—life expectancy at age
one, infant mortality and adult literacy—has demonstrated that the quality of
human life need not be in one-to-one correspondence with the level of income\(^\text{15}\).

\(^{14}\) See ‘Social Indicators and Social Reporting: The International Experience’ by Heinz-Herbert Noll,
<http://www.ccsd.ca/noll1.html>

\(^{15}\) See, for instance, Morris, 1979 and 1996
Although, the PQLI is an improvement over GDP per capita and other composite indices of the early period, it suffers from some serious limitations. It tries to capture the entire spectrum of socio-economic development with indicators of health and knowledge alone. But, the indicators used by Morris are relatively insensitive to improvements in the quality of human life beyond certain moderate levels. Further, health and knowledge are just two of the wide variety of choices that have to be opened to human beings for maintaining a high quality of life. At this point, we may observe some similarity between the Physical Quality of Life Index and the ‘basic needs’ approach\(^\text{16}\). The basic needs approach which gathered momentum during the 1970s and 80s, is well-rooted in the social justice principle and argued that the primary objective of economic development is the provision of necessary commodities for the satisfaction of the basic needs of the entire population of the country. Deprivation of a section of population in fulfilling their basic needs must be viewed as a shortfall in development progress, to that extent. Although the argument is logically and ethically sound, it would not be able to assess the development performance of a country, beyond the point where she fulfils the pre-defined set of basic needs of her citizens.

The search for better indicators and more reliable indices continued and a number of alternative measures were developed during the 1980s and the 90s. Quite many of them were modifications of the PQLI like the Basic Well-being Index (BWI)\(^\text{17}\). Two important departures from this pattern are the Human Development Index (HDI) introduced by the United Nations Development

\(^{16}\) See Van der Lijn, 1996: 5, for instance.

\(^{17}\) The BWI uses just one more indicator, the gross secondary school enrolment, in addition to the three indicators used by the PQLI. See Van der Lijn, 1996 for details.
Programme (UNDP) and the Genuine Progress Indicator (GPI) promoted by a San Francisco based organisation called Redefining Progress.

For a tyro, from the outset, the GPI may appear to be a close associate of the GDP. By its very definition itself, the GPI is an adjusted GDP value. Further, just like the GDP, the GPI also is an absolute measure, expressed in monetary terms, where as most other development indices like the PQLI and the HDI are relative measures. Nevertheless, the resemblance ends there. Although expressed in monetary terms, the GPI is generally viewed as an outcome of the social indicators movement. The computation of GPI starts with the same consumption data that the GDP is based on, but revised them in a number of ways. They are adjusted for some factors (such as income distribution), added certain others (such as the value of housework and community voluntary work), and subtracted yet others (such as pollution costs, defensive expenditures and the like). The result is a balance sheet for the nation that starts to distinguish between the costs and benefits of ‘growth’. 18

Despite the fact that the GPI has close links with the social indicators movement, it differs from indices like the PQLI in a significant way. It remains in the domain of what Sen refers to as ‘commodity welfare’ where as the latter measures what he terms as ‘capability welfare’. 19 Commodity welfare is anterior to capability welfare. Hence, like the GDP, the GPI can be regarded as one of the factors influencing well-being, but not well-being itself. But, no doubt, the GPI is

19 See Sen, 1985 for a detailed discussion on commodities, capabilities, functioning and well-being.
a more reliable measure of commodity welfare than the GDP as it is less exaggerated and cost adjusted.

2.3 The Human Development Approach

2.3.1 Meaning

The publication of the first Human Development Report in 1990 by the UNDP marked the beginning of a new approach to the definition and quantification of development. The term ‘economic development’, which was replaced by ‘socio-economic development’ during the 1960s, has ultimately transformed into ‘human development’. This, however, was not a mere transformation in terminology. To quote Mahbub ul Haq, the originator of the Human Development Reports,

The human dimension of development is not just another addition to the development dialogue. It is an entirely new perspective, a revolutionary way to recast our conventional approach to development. With this transition in thinking, human civilisation and democracy may reach yet another milestone. Rather than the residual of development, human beings could finally become its principal object and subject—not a forgotten economic abstraction, but a living, operational reality, not helpless victims or slaves of the very process of development they have unleashed, but its masters.\(^{20}\)

He adds

The basic purpose of development is to enlarge people’s choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure

\(^{20}\) Haq, 1996, 11-2
hours, political and cultural freedoms and a sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives.\(^{21}\)

Thus, human development has been defined as the ‘process of widening people’s choices and the level of their achieved well-being’\(^{22}\). The conceptual basis of this approach is due to Sen (1985, 1987), who emphatically argued that mere opulence or command over commodities cannot be considered as well-being. Income, commodities (“basic” or otherwise), and wealth do of course have instrumental importance but they do not constitute a direct measure of the living standard itself. Hence the motivation to focus directly on what the people succeed in being and doing in terms of their capabilities to live long, to avoid mortality during infancy and childhood, to escape preventable morbidity, to avoid illiteracy, to be free from hunger and malnourishment, and to enjoy personal liberty and freedom. Enhancing the capabilities of people to function in these elementary ways is what lies in the core of human development.\(^{23}\) To be terse, human development is the process of expanding human capabilities (such as health and knowledge) on the one side and monitoring how people make use of their acquired capabilities (for work or leisure).\(^ {24}\) In other words, it is the manifestation of Sen’s (1985, 1987) notions of ‘capabilities’ and ‘functioning’.

This human centred approach to development progress is not an entirely new invention. It is, in fact, a rediscovery of an ancient idea (at least as old as the works of Aristotle), nurtured by a host of socio-economic thinkers (like Emmanuel

\(^{21}\) Haq, 14
\(^{22}\) UNDP, 1990, 10
\(^{23}\) Anand and Sen, 1994, 2
\(^{24}\) UNDP, 10
Kant, William Petty, Gregory King, Adam Smith and Karl Marx, to mention a few) over the centuries, until it was obscured by the preponderance of the growth doctrine during the twentieth century.\textsuperscript{25} It took Sen to revive the human centred approach to development with a succession of brilliant economic and philosophical writings and the UNDP Human Development Report Team, under the leadership of Haq, to initiate a systematic and successful attempt to quantify and popularise it.

The advocates of the human development paradigm argue that it encompasses the advantages of all the antecedent development paradigms such as the growth, the human resource development, the human welfare and the basic needs approaches, in addition to the several others of its own.\textsuperscript{26} The GDP growth, although necessary, is not sufficient for human development as human progress is lacking in many societies despite the rapid growth of per capita income. The human resource development or human capital formation approach looks at human beings primarily as means rather than as ends. Contrary to this, the human welfare approaches view human beings more as the beneficiaries of the development process than as the participants in it. The basic needs approach focuses on the provision of the bundle of basic commodities that deprived population groups need rather than on the issue of human choices.\textsuperscript{27}

\subsection*{2.3.2 Measurement}

One fundamental problem frequently confronting development economists is the problem of quantification of development progress. Human development,

\textsuperscript{25} See UNDP, 9 and Haq, 13
\textsuperscript{26} Paul Streeten, for instance, argues that human development is six times blessed. See Streeten’s ‘Foreword’ to Haq, 1996, for details
\textsuperscript{27} UNDP, 11
being a qualitative concept, is not amenable to direct measurement. This necessitates indirect measurement using proxy variables or indicators. Among the numerous choices open to human beings, the advocates of the human development paradigm have upheld three—to lead a long and healthy life, to acquire knowledge and to have access to resources needed for a decent standard of living—as the most essential and fundamental ones. If these three are not available, many other choices remain inaccessible.\textsuperscript{28} So, it was decided to construct a composite index with suitable indicators for these three choices, for the time being, and it has been named as the Human Development Index (HDI). Life expectancy at birth has been selected as proxy variable for longevity, adult literacy rate and combined primary, secondary and tertiary level school enrolment rate as the indicators for educational attainment\textsuperscript{29} and the real GDP per capita in Purchasing Power Parity Dollars (PPP$) as the indicator for command over resources. Individual indices for these indicators have been constructed separately and by averaging them, the HDI has been arrived at.\textsuperscript{30}

As mentioned earlier, the HDI is an index of achievement. The performance of a country in any individual dimension of human development is indexed by expressing the actual achievement of the country in that indicator as a ratio of the maximum achievement possible. For this, minimum and maximum

\textsuperscript{28} UNDP, 10

\textsuperscript{29} Educational attainment was originally measured only with the adult literacy rate. But the HDR 1991 broadened this measure to incorporate mean years of schooling also. So the educational attainment index became a composite of adult literacy (two-thirds weight) and mean years of schooling (one-third weight). From HDR 1995, mean years of schooling has been replaced with gross primary, secondary and tertiary enrolment rate, with the same weighing scheme.

\textsuperscript{30} For technical details of computation of the HDI, see Appendix I.
values (the ‘goalposts’, to use the HDR terminology) are set for each indicator.\footnote{Initially the UNDP has used yearly varying ‘goalposts’. However, these moving goalposts made it impossible to make comparisons over time. Therefore, from HDR 1994 onwards, they are using fixed ‘goalposts’.} The difference between the actual indicator value and the minimum or maximum value\footnote{In the case of indicators (like literacy, life expectancy and income) where larger values are considered desirable to smaller values, the difference between the actual value and the minimum value indicates the achievement. On the other hand, minimisation of the value of the indicator is considered as advantageous (as in the case of illiteracy, mortality, and morbidity), the difference between the maximum value and the actual value indicates the achievement.} (depending on the nature of the indicator) set for that indicator is the actual performance of the country with respect to that indicator. The difference between the maximum and minimum goalposts gives the maximum possible performance. The values of indices obtained lie between zero and one, where zero indicates no achievement at all (or complete deprivation) and one indicates cent percent achievement, in that dimension of human development. The HDI being the average of the dimensional indices, it also has the same property.

The HDI, as envisaged by the UNDP is an evolutionary measure. Although its basic framework remains the same, there have been many changes in its internal structure, since its introduction in 1990.

2.3.3 Limitations

Within a very short span of time since its inception in 1990, the HDI (and the HDRs, of course) have got wide popularity. Yet, even to its very originators and admirers, it is not a perfect measure of human well-being. In fact, the HDI as a measure of human development has several handicaps. These handicaps belong to three main categories: (1) the methodology of indexing, (2) the selection of indicators, and (3) the application of HDI in interpreting development performance.
2.3.3.1 Issues of Indexing

To begin with, the HDI is “inescapably a crude index”\textsuperscript{33}. It is just one number—a simple average—with which we are trying to capture the multifarious dimensions of human development. The attempt to use an aggregate number (a \textit{scalar}) for a bunch of numbers representing individual circumstances (a \textit{vector}), inevitably involves the loss of some valuable information. Further, simple averaging overlooks the actual distribution pattern of the bunch of numbers and concentrates just on their mean value.\textsuperscript{34} To this matter, the HDI has the same level of vulgarity as GNP, although it is not as blind to social aspects of human lives as GNP is. Two problems can be identified in connection with the procedure of simple averaging. Firstly, from the HDI value of a country, it is impossible to get an idea about the distribution pattern of achievements in basic human development dimensions among different regions, social groups or even between sexes. Further, the HDI can conceal great imbalances in the performance of a country in the constituent indicators of human development. For instance, the HDI value of a country with 20\% achievement in education, 50\% achievement in health and 80\% achievement in standard of living is the same as that of another country with 50\% achievement in all the three. Of course, it is unnecessary to say that the deprivation in education cannot be compensated by the achievement in standard of living. These two problems surface from the system of weighting adopted in the computation of HDI. The UNDP methodology assigns equal weights to the three


\textsuperscript{34} Anand and Sen 1994: 2.
dimensions of human development.\textsuperscript{35} This arbitrary scheme of weighting has raised many eyebrows, even among the admirers of the human development paradigm. Both the UNDP and enthusiastic researchers have examined alternative weighting schemes, but no tangible solution has been found. This, of course, has given a practical justification to the UNDP methodology. In fact, HDR 1991\textsuperscript{36} makes a short review of alternative weighting schemes to conclude that the unitary weighting system is at least as good as any other. Through the multivariate technique of Principal Component Analysis, Biswas and Caliendo (2002) have provided further empirical support to this conclusion.

Nevertheless, the HDI is based on an implicit system of weighting. The income sub-index, used as the proxy of the standard of living dimension of human development, is obtained by severe discounting of the actual per capita GDP.\textsuperscript{37} The logic behind this has been put forward by the UNDP as follows.

Income enters into the HDI as a surrogate for all the dimensions of human development not reflected in a long and healthy life and in knowledge—in a nutshell, it is a proxy for a decent standard of living. The basic approach in the treatment of income has been driven by the fact that achieving a respectable level

\textsuperscript{35} A word of caution is in order here. First, it must be noted that the knowledge sub-index of the HDI itself is a weighted index. (See foot note 29). Second and more important, the treatment of real GDP per capita for the computation of the standard of living sub-index significantly reduces its weight in HDI. The standard of living sub-index is computed from a progressively discounted GDP per capita value. The exact method of discounting has changed several times since 1990. Currently the logarithm of real GDP per capita at PPP$ is used for computing the standard of living sub-index. The treatment of income in the HDI has attracted severe criticism from many authors. For instance, Emes and Hahn, 2001: 11 argue that the UNDP’s adjustment of income might be reasonable, if the income thus adjusted is used as a proxy for attainments in health and education, thereby making the latter two as redundant in HDI [italics author’s]. For a fine analysis of the treatment of the income component in the computation of the HDIs, see Anand and Sen, 2000.

\textsuperscript{36} UNDP, 1991: 88

\textsuperscript{37} For a detailed (and of course, a bit mathematical) discussion on the income component of the HDI, see Anand and Sen, 2000.
of human development does not require unlimited income. To reflect this, income has always been discounted in calculating the HDI.\textsuperscript{38}

Since 1990, the UNDP has been experimenting with slightly different discounting techniques. The current method is a system of progressive discounting, which discounts incomes at all levels, but higher incomes are more rigorously discounted. But, as in the case of the system of weighting, the selection of the method of discounting also has been arbitrary and many authors have upheld it as a major criticism of the UNDP methodology. Emes and Hahn (2001), for instance, on the basis of their study using HDR 2001 data, have shown that the UNDP method of computing the income sub-index of HDI using the logarithms of incomes have more adverse effect on the HDI ranks of rich countries than many other discounting techniques. According to them,

They [the UNDP] sharply discount high GDP per capita on the assumption that increases in income beyond a certain GDP per capita provide limited benefits to citizens of countries that are relatively well off. The adjustment that the United Nations makes to GDP per capita might be reasonable if they were using it as a proxy for health and education. .......... However, the United Nations describes GDP per capita as a proxy for the dimensions of human development not reflected in health and knowledge indicators.\textsuperscript{39} (Words in parentheses added by the Author)

The UNDP study mentioned above\textsuperscript{40} concludes with a note of relief that there is high degree of positive correlation (above 0.99) between the HDI ranks of nations obtained using the UNDP method of income discounting and some alternative discounting methods they have tried. However, the discounting of income has significant influence on the HDI values. It, in fact, affects the

\textsuperscript{38} UNDP, 1999: 159
\textsuperscript{39} Emes and Hahn, 2001: 11
\textsuperscript{40} UNDP, 1991: 89
classification of countries into high, medium and low human development categories on the basis of the HDI values. Table – 2.1 below shows some results of a computation by the Author in this regard, using HDR 2000 data. The HDIs of all the 174 countries have shown a decline when the income indices are computed with undiscounted incomes. Of the forty-six countries in the high human

devolution category, just twelve are able to remain in there when unadjusted income indices are used. All the rest are moved to the medium human development category. Similarly, as many as twenty-nine countries in the medium human development category are moved to the low human development group. More interestingly, as per HDR 2000, the lowest GDP per capita in the high human development category is PPP$ 7619. But, it increased to PPP$ 20659

<table>
<thead>
<tr>
<th>Human Development Category</th>
<th>Number of Countries</th>
<th>Lowest GDP/c in the Category (PPPS)</th>
<th>Highest GDP/c in the Category (PPPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>As per HDR</td>
<td>Author’s Computation</td>
<td>As per HDR</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>High (HDI&gt;0.799)</td>
<td>46</td>
<td>12</td>
<td>7619</td>
</tr>
<tr>
<td>Medium (0.499&lt;HDI&lt;0.8)</td>
<td>93</td>
<td>98</td>
<td>980</td>
</tr>
<tr>
<td>Low (HDI&lt;0.5)</td>
<td>35</td>
<td>64</td>
<td>--</td>
</tr>
<tr>
<td>TOTAL</td>
<td>174</td>
<td>174</td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in columns 2, 4 and 6 of this table are taken from Human Development Report 2000. Values in columns 3, 5 and 7 are the result of a computation of the HDIs by the Author with unadjusted GDP/c values. The computation is carried out with HDR 2000 data.
when unadjusted GDP per capita is used. A similar pattern, although not as pronounced as that in the high human development category, is observed in the medium development category also. Similarly, the highest incomes in the medium and low development categories also have shown a significant increase when unadjusted income indices are used.

The above results point to the fact that the income component not only gets relatively lower weight in the HDI, but also its marginal weight diminishes as the level of income increases.

2.3.3.2 Selection of Indicators

Capturing the human development progress of a society in terms of a comprehensive and universally acceptable set of indicators is no simple a task. As we have already seen in page 31, the HDR people themselves have stated that the list of choices, which are needed for sound human development, is almost endless and they are attempting only to measure the most basic choices only. Therefore, they circumscribed themselves to just four indicators. For them,

The lack of data imposes some limits on this, and more indicators could perhaps be added as the information becomes available. But more indicators would not necessarily be better. Some might overlap with existing indicators: infant mortality, for example, is already reflected in life expectancy. And adding more variables could confuse the picture and detract from the main trends.41

One important criticism against the HDI is, of course, based on the selection of indicators. For instance, authors like Morris (1996: 1, 37) argue that the HDI suffers from the same defects of GDP/c due to the use of the latter as a component of the former and the PQLI, which is based on non-income indicators gives more

41 Reproduced from HDR 1994 by Moez Doraid, 1997
reliable picture of the state of human well-being. Van der Lijn (1996: 4) has considered GDP/c as just one cause of capability welfare and hence renounced it in his computation of HDI\textsuperscript{S}—an index based on the social indicator components of the HDI. Emes and Hahn argue that the selection of indicators and the arbitrary adjustment of GDP/c make HDI a poor index for international comparisons. They formulated the Index of Human Progress (IHP), which is based on 10 indicators.\textsuperscript{42} This, however, has not been a very successful attempt as they were able to compute the IHP for 20% less countries than the UNDP computed HDIs, owing to the non-availability of data on some indicators they have selected. Further, there has been considerable overlapping among the indicators selected. The health sub-index, for instance, is computed with four indicators—life expectancy, IMR, U5MR and AMR. But IMR, U5MR and AMR are three major components of life expectancy itself. Ghosh (2000) suggested the Human Quality of Life Index (HQLI) with seven indicators, as an alternative to the HDI and the PQLI. The HQLI uses seven indicators—literacy rate, population per doctor, life expectancy, infant mortality, GDP/c, inflation rate and population per telephone. Although, indicators like population per doctor and population per telephone could be viewed as improvements, the inflation rate is a redundant variable as the HDI uses real GDP/c. Considering the criticism that the HDI fails to bring out the disparity in human development among nations belonging to the same income group,

\textsuperscript{42} Emes and Hahn, 14-5. They have countered the UNDP’s argument that larger number of indicators create confusion, on grounds of better comparability and less vulnerability to unreliable data. They added one more dimension—technology—to the three dimensions of human development considered by the UNDP in the HDI. They used four indicators for health, two for education, three for technology and one—unadjusted GDP/c—for all other aspects of human development.
especially at higher levels of income, there is a need to improve the HDI by incorporating indicators that are more sensitive.

Recognising the facts that human development is a multifaceted concept and the HDI they have developed to quantify it is rather a measure of basic capabilities only, the UNDP has introduced a number of specialised indices to supplement the HDI. The prominent among them are the Human Poverty Index (HPI), the Human Freedom Index (HFI), and the Technology Achievement Index (TAI). Among them, the HPI is an index of human development deprivation, where as the HDI is an index of human development achievement. Although it is quite inconvenient, the use of such supplementary indices with the HDI may be the only currently available solution to the weakness of the latter as an index of development progress based on a severely limited set of indicators.

2.3.3.3 Interpreting Development Performance in terms of HDI

Since its introduction in 1990, the HDI is the most coveted yardstick of development progress and currently its use is almost become a fashion in socio-economic analyses and discourses. However, interpreting development performance in terms of HDI may lead to wrong conclusions unless it is done with a proper understanding of the imperfections of the HDI as a measure of human development. All the methodological issues discussed above have their say on the inferences drawn. Firstly, the HDI being a distribution independent average, realistic comparisons may be difficult or even impossible. The UNDP has suggested two ways to get out of this conundrum—to construct distribution sensitive HDIs and to compute disaggregated HDIs. As per HDR 1991 “the HDI

43 See the 1st Paragraph under ‘Issues of Indexing’ (Page 33) for details.
has the advantage that two of its three basic variables—life expectancy and educational attainment—are naturally distributed much less unequally than is income, the third variable”. Therefore, while constructing the distribution sensitive HDI, GDP/c alone is adjusted for distributional inequalities. To reflect inequalities in achievement in basic capabilities between men and women, HDR 1995 introduced the Gender-related Development Index (GDI).

The GDI is simply the HDI discounted, or adjusted downwards, for gender inequality. ……… The methodology used to construct the GDI could be used to assess inequalities not only between men and women, but also between other groups such as rich and poor, young and old, etc. It could be expanded to highlight inequalities not only between two groups, but also among ethnic groups, regions, etc. (Doraid, 1997)

HDR 1995 introduced another distribution sensitive index—the Gender Empowerment Measure (GEM)—as a supplement to the GDI. It is a disparity-adjusted measure of political and economic participation and decision making by men and women.

Disaggregated HDIs are used to get a better idea about the disparities in human development among various population groups that may be defined relative to geographical or administrative regions, urban-rural residence, gender, and ethnicity, within a country. Disaggregated HDIs are arrived at by using the data for the HDI components pertaining to each of the groups into which the HDI is disaggregated, treating each group as if it were a separate country.

Yet another problem that may arise when interpreting development progress in terms of HDI relates to the classification of countries into low, medium
and high human development categories, on the basis their HDI values. As per the UNDP criterion, a country with HDI value 0.799 falls in the medium human development category, while another one with HDI value 0.8 (just 0.13% difference) belongs to the high human development class. For instance, as per HDR 2000, Estonia (HDI = 0.801) is a high human development country where as Saint Kitts and Nevis (HDI = 0.798) is only in the medium human development group. The difference in their HDIs is just 0.13%, and the latter has better life expectancy and GDP/c scores than the former.45

2.4 Improving Human Development Measurement: Some Suggestions

A quality ceases to be a quality if it is amenable to direct measurement. Human development being a qualitative phenomenon, its quantification tends to be indirect and subjective. Moreover, as it is a concept that overlaps the entire spectrum of human life—economic, political, social, cultural, environmental and psychological, for instance—any new dimension or indicator relating to these areas can be added to the gamut of indicators used for the measurement of human development. This, in fact, can be viewed as strength as well as weakness of the human development paradigm. It is strength as it gives flexibility and adaptability to the measurement of development progress, according to the circumstances of the subject nation or society. It is a weakness because it adds non-uniformity and arbitrariness to the quantification of development. This, however, is an unavoidable feature of the indices of human development as measures of quality of life (QOL) in comparison with the utilitarian instrument of GDP/c. In the words of Clifford Cobb,

45 Based on data from HDR 2000: 157
In crude terms, utilitarianism is limited to “having” (possessions and experiences) whereas the human development idea includes “having,” but also encompasses “doing” (accomplishments and craftsmanship) and “being” (character or psychological health). Because of its narrow scope, utilitarianism can come up with precise answers to policy questions. The broader scope of non-utilitarian thought offers only fuzzy, but nuanced answers. The “having, being, doing” set explains why there can be no common measuring rod for determining QOL in a world of pluralistic values.46

Therefore, in pursuance of improving the measurement of human development, the author has a few suggestions. They belong to two main categories: suggestions for improving existing indices of human development and suggestions for developing new supplementary indices of human development.

2.4.1 Suggestions for Improving Existing Indices

Although an improvement over the utilitarian approach, the human development approach still has some of its weaknesses, particularly on the evaluation side. McGillivray (1992) presents a case that the HDI is no better than income, as a measure of human well-being. One way to make the HDI more reliable is to use a more objective indicator to represent the command over resources, in place of the arbitrarily adjusted GDP/c. No doubt, it should be in monetary terms, as it has to represent a variety of choices, which constitute the over-all standard of living of the people. At the same time, it should be free from the problems of the income measure we have discussed elsewhere in this Chapter.

The search for such an indicator, precipitated just one—the Genuine Progress Indicator (GPI). To begin with, the GPI is expressed in monetary terms. It makes adjustments for inequalities in income distribution. Hence, no further

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46 Cobb, 2000: 13
distribution adjustments are required. The GPI includes all production, which positively contribute to human well-being, whether market oriented or not. At the same time, it excludes all transactions, which are either defensive or involving welfare costs. The GPI also reflects sustainability by treating resources depletion and environmental degradation as costs. To certain extend, it makes adjustments for social and personal distress, by considering family breakdowns, legal and medical expenses, crimes and loss of leisure as costs. Thus, the GPI seems to be a better indicator of all dimensions of human development, not represented by knowledge and health components. Any improvement in its value can be viewed as a net gain and needs no arbitrary adjustment. Therefore, it may be more appropriate, if Purchasing Power Parity adjusted GPI per capita is used in place of GDP/c, for the computation of the standard of living sub-index of the HDI.

Table-2.2 gives the results of an attempt to use the GPI/c for the computation of the HDI with US data for 1998 and 2000. The HDI\textsuperscript{GPI} values obtained are 26 to 28 percent lower than the corresponding HDI\textsuperscript{HDR} values. This, however, is mainly because the GPI/c sub-index is computed with the same “goal posts” (PPP$100 minimum and PPP$40000 maximum) fixed for GDP/c sub-index, without applying the logarithmic discounting, while the GPI/c value is significantly lower than the GDP/c. Of course, it is not a major problem, as it is possible to revise the goalposts, if we want to use GPI/c in the computation of HDI.

The real problem associated with the use of GPI/c in the computation of HDI is the non-availability of data. So far, no official estimates of GPI are available, though many national agencies are watching developments in this
area. Indeed, the estimation of GPI is more difficult than that of GDP, as the former involves valuation of non-marketed items and subjective phenomena. Considering the facts that the human development approach itself involves subjective elements and the attempts to quantify them greatly helped to improve the quality of the statistical databases throughout the world, problems relating to GPI accounting also would be surmountable.

### Table – 2.2: Effect of Computing the Income Sub-Index with the GPI, on the HDI Values of USA

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP/c (PPP$)</th>
<th>GDP/c (US$)</th>
<th>GPI/c (US$)</th>
<th>Purchasing Power Adjusted GPI/c*</th>
<th>HDI\text{\textsuperscript{HDR}}</th>
<th>HDI\text{\textsuperscript{GPI}}</th>
<th>Variation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
</tr>
<tr>
<td>1998</td>
<td>29,605</td>
<td>27939\textsuperscript{a}</td>
<td>6549\textsuperscript{a}</td>
<td>6940</td>
<td>0.929</td>
<td>0.669</td>
<td>28</td>
</tr>
<tr>
<td>2000</td>
<td>34,142</td>
<td>33497\textsuperscript{b}</td>
<td>9550\textsuperscript{b}</td>
<td>9734</td>
<td>0.939</td>
<td>0.697</td>
<td>26</td>
</tr>
</tbody>
</table>

Notes:
* (5) = \frac{(2)\times(4)}{(3)}
\textsuperscript{a} In 1992 $
\textsuperscript{b} In 1996 $

The HDI\text{\textsuperscript{HDR}} is computed with the logarithmically discounted GDP/c where as, the HDI\text{\textsuperscript{GPI}} is computed with undiscounted GPI/c.

Sources:
Col. (2) and (6) – 1998 values from HDR 2000 and 2000 values from HDR 2002
Col. (3) and (4) – 1998 and 2000 values from Cobb, et al. (1999) and (2001) respectively

A people with profoundly good performance in the three basic dimensions of human development, at the same time, may suffer from welfare losses due to a host of individual and social distresses such as family breakdowns, suicides, morbidity, crimes, environmental degradation, accidents and natural and man-made disasters. Interestingly, many of these are consequences of economic growth. Unless we make adjustments for them, we would be left with inflated

HDI figures. Although the UNDP has started publishing data relating to some of these distress variables in their recent HDRs, distress indicators are yet to show up in the HDI. The use of GPI/c in place of GDP/c would be a solution, but for the time being, it is only a dream. Another way is to use distress as an additional dimension of the HDI. This, however, needs further research, and must be incorporated into the HDI only with utmost care.

Yet another aspect that needs improvement is the Technology Achievement Index (TAI), introduced by the UNDP in HDR 2001. According to UNDP, the TAI is “a composite index designed to capture the performance of countries in creating and diffusing technology and in building a human skills base”\textsuperscript{48}. However, the indicators selected for the construction of the TAI\textsuperscript{49} raise the doubt that the UNDP is going back to the ‘growth tradition’ that it has discarded in 1990. For instance, the dimension of technology creation is captured by the number of patents granted to residents (per million people) and by receipts of royalties and license fees from abroad (US$ per 1,000 people). It completely ignores the creation of domestic (appropriate) technologies for the improvement of human development. Moreover, if the traditional technology of one country is misappropriated and patented by someone in a foreign country, it would be treated as the technological advancement of the latter country. The message is that the TAI needs revision, though the author has no concrete suggestions about its composition.

\textsuperscript{48} UNDP, 2001: 246

\textsuperscript{49} Ibid, for the technical details of TAI
2.4.2 Supplementary Indices of Human Development: The Child Development Index

An important limitation of indices like HDI and GDI is that they ignore one significant component of the population—the children. Child Development is of paramount importance to any society not only because it is the most vital means of future development of the society, but also because it is an end in itself. But the average individual depicted by the above indices is an adult. Halis Akder (1994) has pointed out the adult bias of the HDI. In his words,

If we approximate now the human development of each individual by the national average given in the HDR and try to approximate the human development profile we have to be aware that this average individual is with respect to education above sixteen years of age, with respect to mean years of schooling above twenty five; its life expectation is given at birth, it has an average income allocated independent of age, but if it earns this income, it must be an adult. An adjusted HDI for children has not been attempted yet.

To bridge this vital gap in the measurement of human development, the author proposes the construction of the Child Development Index (CDI) to supplement the other indices of Human Development.\(^{50}\) The CDI is conceived as a measure of the human development of the population in the 0-14 age group. It is a non-weighted index computed with a set of five indicators, which are capable of determining and influencing the choices open to children. The indicators are under-five mortality rate (U5MR), proportion of severely and moderately under-

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\(^{50}\) There is a severe shortage of measures dealing with the overall human development of children in general socio-economic setting. The existing indices of child development are those concerned with the physiological and psychological development of children. One exception is the UNICEF’s Child Risk Measure (CRM), a weighted average of five major risks to the normal development of children in the present day world. The indicators are U5MR, percentage of under weight children, non-enrolment rate of primary school age children, UNICEF security rating (as a measure of risk of wars and conflicts on children), and HIV/AIDS prevalence rate for 15 to 49 (reproductive) age group. Of these, the last two indicators have given much lower weight than the other three. The UNICEF itself admits that the CRM is just an unfinished idea, put forward with a view to initiate discussions and research for developing improved measures of children’s welfare. See UNICEF, 1999 for details.
weight children below five years of age (U5UW), the proportion of children in their second year of age (12-23 months) who are not fully vaccinated (NVR), the net school non-enrolment rate of children in the age group 6-14 years (NNER), and the child labour rate (CLR). The under-five mortality rate (U5MR) is preferred to infant mortality rate (IMR) as an indicator of CDI for several reasons. First, U5MR is a wider concept, as IMR is only a component of it. Second, U5MR is more stable and has a better correlation with the overall development and well-being of the population. Children in the 12 to 23 months age group are considered to be fully vaccinated, if they have received BCG, Measles and three doses of DPT and Polio vaccines. We use the net school non-enrolment rate instead of net school enrolment rate, as the proxy variable of knowledge component to keep it in line with the other four indicators. Now all the five indicators in our list are deprivation indicators and hence a higher value of any of them means poorer Child Development and vice versa.

It may be interesting to note that unlike the indicators of HDI, the indicators we have selected for the CDI have no direct bearing on the resources required for maintaining a decent standard of living. The fact is that the income component is not compatible with Child Development, as we conceive it. Rather we consider child labour—the process by which children could earn income—as a negative variable as far as Child Development is concerned. However, lower values of all the above five indicators (that is, better Child Development) have a strong positive correlation with higher family incomes.

The CDI is computed using the same methodology employed in the computation of UNDP’s HDI. We begin with the computation of individual
indices for all the five indicators. For this the goalposts—minimum and maximum values—have to be fixed for each indicator. The index of indicator $i$ for country $j$ is computed as

$$I_{ij} = \frac{X_{i(\text{Max})} - X_{ij}}{X_{i(\text{Max})} - X_{i(\text{Min})}}$$

Where, $X_{i(\text{Max})}$ is the maximum value and $X_{i(\text{Min})}$ is the minimum value fixed for indicator $i$ and $X_{ij}$ is the value of indicator $i$ for country $j$.\(^{51}\) A simple average of the five individual indices is then calculated to obtain the CDI.

$$\text{CDI}_j = \frac{1}{5} \left( \sum_{i=1}^{5} I_{ij} \right)$$

The minimum and maximum values of all indicators, except U5MR, are taken as 0 and 100 respectively, as all of them are expressed as percentages of the relevant population. There is perfect development when their values become zero. U5MR, however, is usually expressed as a value with denominator 1000 and converting it into percentage form will bias the results thus obtained. Therefore, it is decided to fix the minimum value for U5MR as zero itself—the most desirable value—and the maximum value is taken as 400.\(^{52}\) The selection of the maximum value of U5MR may be somewhat arbitrary, yet it can serve as a good basis for international comparisons.

\(^{51}\) It is possible to compute the individual indices as achievement indices or deprivation indices. As all the five in our list are indicators of deprivation, maximum value – actual value gives achievement and actual value – minimum value gives deprivation of the country in the particular indicator under consideration. Using the former difference as numerator of the formula gives an achievement index and using the latter difference gives a deprivation index. A deprivation index can be converted into the corresponding achievement index using the relation Achievement Index $(i) = 1 – \text{Deprivation Index (i)}$.

\(^{52}\) The selection of the maximum value is based on historical data. The original intention was to use the highest U5MR value in the world in 1970 as the maximum. As per HDR 2000, the highest U5MR was 391 (Mali). Later, for the sake of convenience, this has been rounded to 400. It seems to be a reasonable selection, however, that even in 1998, the highest U5MR was as high as 316 (Sierra Leone).
The results of a computation of the CDI for 24 Indian States for 1991 by the author, using *India: National Human Development Report 2001* data, are given in Table – 2.3 below. Some States and Union Territories are excluded due to the non-availability of data on some indicators. The study revealed that there is high degree of correlation (0.9) between the HDI ranks and the CDI ranks. However, the relative performance of some States in the human development front and the child development front shows significant variation. Nagaland, for instance, went eight ranks down in CDI, whereas Tamil Nadu climbed six ranks up, in relation to their respective HDI ranks. A close examination of Table – 2.3 reveals that Nagaland’s relatively poor performance in child development is mainly attributable to deplorably low achievements in the fields of child vaccination, school enrolment and reduction of child labour. Tamil Nadu’s performance, on the other hand, in these areas is significantly better. This example clearly shows the strength and usefulness of CDI, as a complementary index of human development. The HDI provides a landscape picture of human development of a society, where as complementary indices like GDI, GEM, HPI and CDI give close-up views, and together they can help understanding the human development achievements and problems of the society. The CDI is particularly useful due to its prospective nature—it deals with the human development of the future citizens.

However, the Child Development Index is not even a child at present; it is just an infant. An important weakness of the CDI is the undue influence of the child labour sub-index on it. Even in highly under developed societies, the proportion of child labour is much below 100%. As we can observe from Table – 2.3, the CDI being a simple average, the unduly high value of the child labour sub-
index have a great influence on it. This problem can be solved by computing the CDI as a weighted index, with attaching a lower weight to the CLR sub-index. The weighting, of course will be arbitrary. Therefore, a more reasonable method would be to revise the maximum value fixed for the computation of the CLR sub-index from 100% to an empirically observed maximum value. These aspects of the CDI, together with other aspects like the selection of indicators and the availability of data, need further considerations and modifications.

This Chapter concludes with a note of caution. Within a very short span of time, the human development approach has attained wide popularity and it is still on the up trend. The unfortunate thing is that many people confuse the HDI as the same as human development itself. In fact, they are redoing the same mistake that many people had committed earlier by considering GDP growth as improvement in human well-being. Human development is much more complex than the HDI. The latter is just an instrument for measuring a few general aspects of the former. Even with all the supplementary measures we have discussed elsewhere in this Chapter, the measurement of human development can only be improved; it cannot be perfected.
<table>
<thead>
<tr>
<th>States/UTs</th>
<th>U5MR</th>
<th>U4UW</th>
<th>NVR</th>
<th>NNER</th>
<th>CLR</th>
<th>CDI</th>
<th>HDI</th>
<th>HDI Rank - CDI Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goa</td>
<td>0.820</td>
<td>0.650</td>
<td>5</td>
<td>0.749</td>
<td>1</td>
<td>0.840</td>
<td>2</td>
<td>0.980</td>
</tr>
<tr>
<td>Kerala</td>
<td>0.850</td>
<td>0.715</td>
<td>2</td>
<td>0.544</td>
<td>8</td>
<td>0.912</td>
<td>1</td>
<td>0.994</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>0.833</td>
<td>0.518</td>
<td>13</td>
<td>0.649</td>
<td>2</td>
<td>0.774</td>
<td>3</td>
<td>0.952</td>
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<td>Delhi</td>
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<td>0.584</td>
<td>8</td>
<td>0.578</td>
<td>6</td>
<td>0.735</td>
<td>5</td>
<td>0.987</td>
</tr>
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<td>1</td>
<td>0.564</td>
<td>7</td>
<td>0.633</td>
<td>8</td>
<td>0.906</td>
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<td>0.763</td>
<td>0.530</td>
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<td>0.622</td>
<td>10</td>
<td>0.974</td>
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<td>0.770</td>
<td>0.541</td>
<td>11</td>
<td>0.619</td>
<td>5</td>
<td>0.659</td>
<td>7</td>
<td>0.970</td>
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<td>0.458</td>
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<td>0.641</td>
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<td>0.691</td>
<td>6</td>
<td>0.943</td>
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<td>0.699</td>
<td>4</td>
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<td>16</td>
<td>0.481</td>
<td>15</td>
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<td>Gujarat</td>
<td>0.748</td>
<td>0.149</td>
<td>16</td>
<td>0.498</td>
<td>11</td>
<td>0.623</td>
<td>9</td>
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<td>Karnataka</td>
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<td>0.457</td>
<td>20</td>
<td>0.522</td>
<td>10</td>
<td>0.619</td>
<td>11</td>
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<td>Andhra Pradesh</td>
<td>0.833</td>
<td>0.509</td>
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Notes: (1) Instead of U5UW, U4UW is used, as data relating to the latter only was available. (2) A positive value for HDI Rank - CDI Rank means that the State’s performance in CDI is better than her performance in HDI, in comparison with other States and vice-versa if the value is negative.

Source: All the values required for the computation are from India: National Human Development Report 2001, Planning Commission, Government of India.