

Review of Measurement of Poverty and Human Development, Vulnerability to Chronic and Intertemporal Poverty

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Abstract: This study reviews the already existing literature related to Poverty and Human Development and provides a compiled framework where the concepts and methods of measurement of Poverty and Human Development is discussed. Poverty as a multidimensional aspect is explored and discussed in a systematic manner. It is important to understand the basic concepts and functioning of Poverty and Development in order to assist the policy makers to formulate appropriate policies for mitigating the problems associated with it.

Keywords: Chronic Poverty, Intertemporal Poverty, Vulnerability

1. Introduction:

Poverty is such a concept which has its relevance since time immemorial in majority of countries. The measurement of poverty has been a topic of debate since a long time now. Seminal contributions by economists like Sen (1976), Watts (1968), Clark, Hemming and Ulph (1981), Chakravarty (1983) and Foster, Greer and Thorbecke (1984) have contributed enormously in developing different measures of poverty. The choice of different poverty definitions and approaches to measure poverty determines who is considered poor and also identifies the development of the poverty-reduction efforts (Caizhen, 2010; Haveman and Wolff, 2005; Scheidel, 2013). In this study, the varied concepts associated with Poverty and Human Development will be reviewed in a systematic manner to pave a direction for future scope of research.

2. Concepts and Methods:

2.1 Intertemporal Poverty:

Intertemporal poverty or an individual's lifetime poverty is considered as the aggregate poverty of an individual over 't' time periods. Suppose two individuals are poor at some points of given number of time periods. Both the individuals are poor at different periods of time. In some time periods, the first person may be considered better than the second person while at the other time periods he is considered poorer. However, there is no clear distinction as to which individual is poorer overall when poverty is aggregated over time. Here, the individual who is interrupted by relatively affluent periods are considered as being able to manage more easily than compared to those who experience consecutive periods of poverty. Thus an individual's inter temporal

poverty is determined by their static level of poverty at any time period and the poverty level of their permanent life time consumption. A more precise definition of intertemporal poverty was given by *Foster (1993)*. According to *Foster (2007)*, inter temporal poverty is a measure of chronic and transient poverty. He put forwarded the concept of poverty duration cut off line which is defined as the minimum proportion of time periods a person must be in order to be deemed as chronically poor. Individuals who are in poverty for a proportion of periods that is less than this particular threshold are considered transiently poor (*Dutta et al., 2010*). The Same individual in his lifetime can be both chronically as well as transiently poor. Thus, intertemporal poverty is the summation of chronic poverty and transient poverty. Chronic poverty is basically seen as a situation in which one's dynamic experience of poverty is particularly severe and transient poverty is viewed as a situation in which one is subject to poverty at certain times in one's life but the episodes are either relatively mild or largely mitigated by preceding periods of relative affluence.

There are certain characteristics of intertemporal poverty measurement. Firstly, the order in which poor episodes occur is of vital importance. Poverty in early life is more detrimental than poverty in later life. This is because those individuals who experience poverty in their early life have less ability to mitigate instances of poverty when it occurs in later time periods. Secondly, deprivation caused by a period of poverty can be mitigated using resources accumulated in preceding phases of non – poverty. Thirdly, if only one time period the individual is poor in his lifetime, then intertemporal poverty measure equal to individual snapshot poverty measure. Lastly, if in every period, an individual is non – poor, then the individual's inter temporal poverty is zero.

Societal intertemporal poverty is a concept that has acquired prominence in the recent time period. And it is this index that is used by policy makers and researchers to frame policies and to evaluate the existing level of poverty prevailing in the country. Societal intertemporal poverty can be defined as the simple average of inter temporal poverty measure. This index is used to rank overall inter temporal poverty in different societies. There are several other measures of poverty that are proposed by eminent economists which are still undergoing heated debates and discussions.

2.2 Chronic Poverty:

Chronic poverty is the poverty that has spread for a longer period of time, often their entire life and this type of poverty is generally passed on to their children. The striking feature of this type of poverty is its extended duration (*Hulme and Shepherd, 2003*). Here, people who remain poor for a greater duration of their life span and who may pass on their poverty to the subsequent generations are considered under this type of poverty. People suffering from Chronic Poverty experience multi-dimensional deprivation such as hunger, under nutrition, illiteracy, lack of access to basic services, social isolation and not to mention the worst, exploitation. The long duration of chronic poverty shows that it has been structurally underpinned by social, economical

and political factors. This concept also applies to nations in which the majority of people have been persistently poor for many years (UNCTAD, 2002). Yaqub (2003) argues that chronic relative poverty that is always being in the bottom quintile of a nation's income distribution may be difficult to escape from than chronic absolute poverty. People suffering from Chronic Poverty experience multi-dimensional deprivation such as hunger, under nutrition, illiteracy, lack of access to basic services. The Chronic Poverty and Research Centre (CPRC) is an international partnership of universities, research institutes and NGO's established to provide research and policy guidance on the reduction of Chronic poverty. The researchers are mainly from Bangladesh, South Africa, India, Sri Lanka, Uganda and UK. The research undertaken by CPRC focuses on poverty as a multidimensional concept and not merely related to Income. CPRC suggests that millions of people will remain in chronic poverty if effective policies, specific to the matter are not undertaken. Mere opportunities are not enough for the chronic poor to escape poverty. A targeted support, social assistance and social protection along with some political actions are needed to mitigate the problem of chronic poverty. Some of the economic causes that lead to chronic poverty may be low productivity, lack of adequate capital formation, lack of appropriate skill development and technical know-how, Poor economic policies, economic shocks and deteriorating terms of trade.

2.3. Vulnerability:

Vulnerability is a concept that goes hand in hand with poverty. Several researchers have identified the importance of studying vulnerability along with poverty to understand the underlying implications of poverty that ranges from an individual to the societal level. According to the World Development Report (2000), poverty is the "unacceptable deprivation in well being." This deprivation in well being arises from the inability to fulfill basic functions, such as deprivation in the space of basic amenities like food, clothing and shelter. Poverty is an ex-post measure of a household's well-being or lack of well-being. It reflects a current state of deprivation of resources or capabilities to satisfy the current needs. Whereas, vulnerability, may be broadly considered as an ex-ante measure of well-being, that doesn't reflect much about how well off a household currently is but what is the future prospects of the same. The distinguishing factor of the two is the presence of 'risk' (probability distribution of other events) and the fact that the future is uncertain (Alwang and Siegel, 2000; Chaudhuri, 2003). The International Strategy for Disaster Reduction (ISDR) defines vulnerability as "the set of conditions and processes resulting from physical, social, economic, and environmental factors, which increase the susceptibility of a community to the impact of hazards" (ISDR, 2004). Risk is compounded with the exposure of households -- which is determined by other factors such as their geographical location, assets, and consumption and production behaviour. Vulnerability and insecurity are dynamic in nature. They are concerned with the anticipation of possible changes between now and the future. Insecurity is exposure to the risk of future events, some of them damageable to the person's well-being. Vulnerability is the possibility of suffering a decline in well-being, in particular a fall underneath some minimum benchmark or poverty threshold. This

decline is brought about by shocks against which protection is either costly or near impossible. It is important to measure vulnerability for monitoring the 'well being' of the poor. The prime methods of measuring vulnerability to poverty are to view vulnerability as (a) uninsured exposure to risk (b) expected poverty and/or (c) low expected utility (Gunther & Harttgen, 2006). The most widely used method to measure vulnerability is considering the movements of individuals in and out of poverty over a period of time in comparison to the effect on these individuals of "chronic" or long term poverty. Permanent or chronic poverty can be measured by poverty under a constant standard of living given by some average long-term trend in living standards.

2.4. Measurement of Poverty:

Poverty is "pronounced deprivation in well-being". In other words it is a social phenomenon in which a section of the society is unable to fulfill even the basic necessities of life. When a considerable segment of a society is unable to make ends meet and continues to dwell at a bare subsistence level then that society is attributed with a curse of mass poverty. The popularized and widely accepted definition of poverty, in India, tends to lay stress on the minimum level of living instead of a reasonable level of living. Two types of standards are common in the existing literature; the absolute and the relative. But there is subjective poverty too which measures the poverty.

2.4.1. Absolute Poverty:

Absolute poverty reflects the value of the resources needed to maintain a minimum level of welfare. Absolute poverty, extreme poverty or abject poverty refers to a condition where an individual does not have the subsistence level of income required to meet the minimum requirements for one or more basic necessities over an extended period of time. Some of the main causes of absolute poverty are Population Explosion, Natural disasters, Socio-Economic conflicts and Debt.

2.4.2. Relative Poverty:

Relative poverty refers to the standard that is defined in terms of the society in which an individual dwells and therefore differs country to country and also over time. The concept of relative poverty is that in developing nations such as the United Kingdom, the minimum standard of living is high and below which no individual around the globe should fall. These standards should rise if and as the country becomes richer or more developed. Classification of people through the relative poverty lines in the society are categorized under two categories; one that consists of the most deprived or disadvantaged, they are termed as the poor and the rest section that are well-off. Some of the main causes of relative poverty include, Unemployment, Lack of access to affordable services, Inequalities within the labor markets, Poor Education and Health facilities.

2.4.3. Subjective Poverty

Subjective poverty lines are based on the self-opinion i.e., opinion confined by individuals on their own selves in relation to the society as a whole. According to this concept, it is assumed that “each individual is the best judge of their own situation”. The popular subjective poverty lines are termed as the Kapteyn and Leyden lines. These lines set up the poverty threshold through the responses provided by households to certain questions carried out in the household surveys, from which subjective information is gathered.

2.5. Human Poverty Index:

Another method of measuring poverty is the Human Poverty Index. The Human Poverty Index (HPI) , developed by the United Nations (UN) served as an indication of the standard of living of a country. To go with it, the Human Development Index (HDI) and was first reported as a component of the Human Development Report in the year 1997. It was considered as a better reflection of the magnitude of deprivation in the developed nations as compared to the Human Development Index. In the year 2010, it was replaced by the UN's Multidimensional Poverty Index. The HPI focuses on the deprivation in the three pivotal factors of human race that has already been reflected in the HDI; these are longevity, knowledge and standard of living.

Formulae for calculating Human Poverty Index are :-

For developing countries,

$$HPI = \left[\frac{1}{3} (P_1^\alpha + P_2^\alpha + P_3^\alpha) \right]^{\frac{1}{\alpha}}$$

P_1 : Probability at birth of not surviving to age 40(times 10)

P_2 : Adult Literacy rate

P_3 : Unweighted average of population without sustainable access to an improved water source and children under weight for age

For selected high-income OECD countries,

$$HPI-2 = \left[\frac{1}{4} (P_1^\alpha + P_2^\alpha + P_3^\alpha + P_4^\alpha) \right]^{\frac{1}{\alpha}}$$

P_1 : Probability at birth of not surviving to age 60 (times 100)

P_2 : Adults lacking functional literacy skills

P_3 : Population below income poverty line (50% of median adjusted household disposable income

P_4 : Rate of long-term unemployment (lasting 12 months or more)

2.6. Measurement of Human Development:

The Human Development Report, since its launch in 1990, has defined human development as the process of enlarging people’s choices. To lead a healthy life, to be educated and to enjoy a decent standard of living are being stressed upon. The additional choices include political freedom, the human rights and various forms of self respect. These are among the essential choices for human development and the absence of these may hamper several other opportunities. The HDR, 1997 has defined Human Development as, “....a process of widening people’s choices as well as raising the level of well being achieved.” According to Mahbub ul Haq, “the defining difference between the economic growth and the human development schools is that the first focuses exclusively on the expansion of only one choice – income - while the second embraces the enlargement of all human choices – whether economic, social, cultural or political.” He emphasized on the use of income and said that its use by a society is just as important as income generation per se. Wealth accumulation may not be mandatory for fulfilling various human choices. In fact, there are many choices that do not require wealth at all. As for example, a society does not have to be rich to afford democracy, its free of cost. Again, a family does not have to be rich or wealthy in order to respect the human rights of each other. Also, a nation does not have to be opulent to understand gender equality. The basic values and the social and cultural customs can be maintained irrespective of income level. It is hence, the ‘use of wealth’ and not wealth that decides human development.

2.6.1 Measurement of Human Development Index (HDI)

According to the 2010 Human Development Report, HDI combines the following three indices:

2.6.1.1. **Life expectancy index:** The life expectancy at birth component is calculated using a minimum value of 20 years and maximum value of 83.57 years. This is the observed maximum value of the indicators from the countries in the time series, 1980–2012.

$$LEI = LE - 20 / 83.57 - 20$$

2.6.1.2. **Education index:** The education component of the HDI is measured by mean of years of schooling for adults aged 25 years and expected years of schooling for children of school entering age.

$$\text{Education Index (EI)} = \sqrt{\frac{MYSI \cdot EYSI}{0.951}}$$

$$\text{Mean Years of Schooling Index (MYSI)} = \text{MYS} / 13.2$$

$$\text{Expected Years of Schooling Index (EYSI)} = \text{EYS} / 20.6$$

2.6.1.3. **Income index:** The income component is calculated by using a minimum income of \$100 (PPP) and a maximum is \$87,478 (PPP).

$$\text{Income Index (II)} = \frac{\ln(\text{GNIpc}) - \ln(100)}{\ln(87,478) - \ln(100)}$$

GNIpc- Gross national income at purchasing power parity

HDI is a geometric mean of the above three indices:

$$\text{HDI} = \sqrt[3]{LEI \cdot EI \cdot II}$$

2.6.2. Inequality Adjusted Human Development Index (IHDI):

The 2010 Report introduced the Inequality-adjusted HDI (IHDI) to take into consideration the distributional dimensions of human development. The indicators used for the three dimensions of the HD that are income, education and health are adjusted for the inequalities present in fulfillment of the same, person to person (Suryanarayana et al., 2016). Basically, the working of this index is, when there is perfect equality the IHDI is equal to the HDI and when inequality rises, the IHDI falls short than the HDI. The IHDI is the actual level of human development which takes into account inequality, while the HDI can be viewed just as an index of the potential human development that could be achieved in absence of inequality.

3. Way Forward:

The present study was an attempt to review the measurement of Poverty and Human Development along with exploring the concepts of vulnerability to chronic and intertemporal Poverty. There is a plethora of studies related to Poverty and several authors have analyzed it in multitude ways. This study however, is in itself was an exploratory study related to varied concepts of Poverty and Development. It is important to understand the basic concepts and functioning of Poverty and Development to assist the policy makers and researchers to formulate appropriate policies for mitigating the problems associated with it. Over the time, there are several measures of poverty and development that has been put forwarded by several economists and is widely debated as to which method is appropriate. While a single method may not universal for accessing these two important phenomenon, subjecting to the diverse attributes of all the nations, yet in the current scenario HDI and Poverty line concepts are widely used and accepted around the globe. In a country like India, where majority of people are considered to be living below the poverty line yet have access to basic amenities seems to contradict the idea of poverty line. This and several other queries related to poverty still remain unanswered in the existing literature.

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