Module: Broad Indicators of Economic Development: Gender Empowerment Measure, Human Development Index, PQLI, Basic Needs Approach, Human Poverty Index, Gender Development Index,

1. Gender Empowerment Measure

Gender Empowerment Measure (GEM) is a measure of inequality between men and women in a country. It combines inequality in three areas: political participation and decision-making, economic participation and decision-making and power over economic resources. It is one of the five indicators used in the Annual Human Development Report by the United Nations Development Program.

GEM was designed to measure "whether women and men are able to actively participate in economic and political life and participate in decision-making." GEM focuses more on what people are actually able to do than on how people feel or fare in grand scheme of things. GEM is considered a valuable policy instrument because it allows for certain dimensions that were previously difficult to compare between countries to come to international comparisons.

2. Human Development Index

The Human Development Index (HDI) was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country. The index (HDI) is a summary measure of average achievement in key dimensions of human

development: a long and healthy life, being knowledgeable and have a decent standard of living.

The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita. Therefore, HDI is calculated as a composite index of life expectancy, education, and per capita income indicators. It was developed by Pakistani economist Mahbub ul Haq and was introduced by the United Nations Development Programme (UNDP) in its first Human Development Report (HDR) published in 1990. Value of HDI ranges from 0 to 1.

In its 2010 Human Development Report, the UNDP began using a new method of calculating the HDI. The following three indices are used:

a) <u>Life Expectancy Index (LEI)</u> $= \frac{Actual\ value - Minimum\ Value}{Maximum\ Value - Minimum\ Value} = \frac{LE-20}{85-20}$

LEI is 1 when Life expectancy at birth is 85 and 0 when Life expectancy at birth is 20.

LE = Life Expectancy at birth. Maximum value of LE is 85 and minimum value is 20. For example, if the actual value of the LE is 65 years, then **the value of LEI is** $\frac{65-20}{85-20} = 0.69$.

b) Education Index (EI) = $\frac{MYSI+EYSI}{2}$

i) Mean Years of Schooling Index (MYSI) = $\frac{MYS}{15}$

Fifteen is the projected maximum of this indicator for 2025.

MYS: Mean years of schooling (i.e. years that a person aged 25 or older has spent in formal education)

For example, **if MYS = 7 then MYSI= $\frac{7}{15} = 0.47$**

ii) Expected Years of Schooling Index (EYSI) = $\frac{EYS}{18}$

Eighteen is equivalent to achieving a master's degree in most countries.

EYS: Expected years of schooling (i.e. total expected years of schooling for children under 18 years of age). It is the number of years a child of school entrance age can expect to spend in a given level of education.

For example, **if EYS = 5 then EYSI= $\frac{5}{15} = 0.33$**

Therefore, **the value of Education Index (EI) =$\frac{0.47+0.33}{2} = 0.4$**

c) Income Index (II) = $\frac{\ln(GNIpc)-\ln(100)}{\ln(75000)-\ln(100)}$

GNIpc: Gross National Income at purchasing power parity per capita.

II is 1 when GNI per capita is $75,000 and 0 when GNI per capita is $100.

If **GNIpc = $10,000**, **then Income Index (II)=$\frac{\ln(10000)-\ln(100)}{\ln(75000)-\ln(100)} = \frac{9.21-4.61}{11.22-4.61} = 0.70$**

Finally, the HDI is the geometric mean of the previous three normalized indices: HDI = $\sqrt[3]{LEI * EI * II}$.

Therefore, the value of HDI is = $\sqrt[3]{0.69 * 0.4 * 0.70} = 0.064$

3. Physical Quality of Life Index (PQLI)

The Physical Quality of Life Index (PQLI) is an attempt to measure the quality of life or well-being of a country. PQLI is considered as a measurement of quality of life in a quantitative way. The level of physical quality of life determines the level of economic development. If any country's physical quality of life is higher than that of the other country, then that country is considered as more developed. It was developed by M.D. Morris in 1979. He constructed a composite PQLI relating to 23 developing countries for a comparative study. He combined three component indicators of infant mortality, life expectancy at age one and basic literacy at age 15 to measure performance in meeting the most basic needs of the people. The PQLI shows improvement in the quality of life when people enjoy the fruits of economic progress with increase in life expectancy (LE), fall in infant mortality rate (IMR) and rise in basic literacy rate (BLR).

Each indicator of the three components is placed on a scale of zero to 100 where zero represents an absolutely defined worst performance and 100 represents an absolutely defined best performance. The PQLI index is calculated by averaging the three

indicators giving equal weight to each and the index is also scaled from 0 to 100.

Calculation of PQLI on the basis of three indices in the following manner:

a) **Infant Mortality Rate Index (IMRI)** $= \frac{Maximum\ Value - Actual\ Value}{Maximum\ Value - Minimu\ Value} = \frac{229 - Actual\ Value}{229-9} = \frac{229 - Actual\ Value}{220}$

Infant mortality rate is defined as the number of babies died per 1000 new babies born. Maximum and minimum values of Infant Mortality Rate are 229 and 9 respectively.

b) **Life Expectancy Index (LEI)** $= \frac{Actual\ Life\ Expectancy - Minimum\ Value}{Maximum\ Value - Minimu\ Value} = \frac{Actual\ Life\ Expectancy - 38}{77-38} = \frac{Actual\ Life\ Expectancy - 38}{39}$

Maximum and minimum values of Life Expectancy are 77 years and 38 years respectively.

c) **Basic Literacy Index (BLI)** $= \frac{Actual\ Literacy - Minimum\ Value}{Maximum\ Value - Minimum\ Value} = \frac{Actual\ Literacy - 0}{100-0} = \frac{Actual\ Literacy - 0}{100}$

Maximum and minimum values of Basic Literacy Rate are 100% and 0% respectively.

Therefore, the value PQLI is $= \frac{IMRI + LEI + BLI}{3}$

If IMR = 70, LEI = 65 years and BLI = 65%

Then, **IMRI** $= \frac{229 - 70}{229-9} = \frac{159}{220} = 0.72$

$$\textbf{LEI}=\frac{65-38}{39}=\frac{27}{39}=0.69$$

$$\textbf{and BLI}=\frac{65-0}{100-0}=0.65$$

$$\textbf{Therefore, PQLI}=\frac{IMRI+LEI+BLI}{3}=\frac{0.72+0.69+0.65}{3}=0.69$$

4. Basic Needs Approach

The basic needs approach is one of the major approaches to the measurement of absolute poverty in developing countries. It attempts to define the absolute minimum resources necessary for long-term physical well-being, usually in terms of consumption goods. The poverty line is then defined as the amount of income required to satisfy those needs. The 'basic needs' approach was introduced by the International Labour Organization's World Employment Conference in 1976.

Satisfaction of basic human needs is considered as the overriding objective of national and international development policy. The basic needs approach to development was endorsed by governments and workers' and employers' organizations from all over the world. It influenced the programmes and policies of major multilateral and bilateral development agencies.

A traditional list of immediate "basic needs" is food (including water), shelter and clothing. Many modern lists emphasize the minimum level of consumption of 'basic needs' of not

just food, water, clothing and shelter, but also sanitation, education, healthcare, and internet. Different agencies use different lists.

5. Human Poverty Index

The Human Poverty Index (HPI) was first introduced into the Human Development Report by the United Nations Development Programme (UNDP) in 1997. The index brings together the different features of deprivation in the quality of life to arrive at an aggregate judgement on the extent of poverty in a community. The HPI looks at deprivations in the three basic dimensions captured in the Human Development Index: a long healthy life (longevity), knowledge and a decent standard of living. The first deprivation (longevity) is measured by the probability of not surviving past the age of 40. Knowledge or exclusion from it is measured by adult illiteracy rate. Decent standard of living or lack of essential services relates to deprivation with regard to the percentage of the population not using an improved water source and the percentage of children underweight for their age.

HPI as a composite index measuring deprivation in the above mentioned three basic dimensions is calculated as follows:

$$HPI - 1 = [1/3(P_1^3 + P_2^3 + P_3^3)]^{1/3}$$

P_1: Probability at birth not surviving to age 40.

P_2: Adult illiteracy rate

P_3: Arithmetic average of 3 characteristics:

(i) The percentage of the population without access to safe water.

(ii) The percentage of population without access to health services.

(iii) The percentage of malnourished children under five.

6. Gender Development Index (GDI)

Gender Development Index measures gender disparities in three basic dimensions of human development. Three basic dimensions are health, knowledge and living standards. Health is measured by female and male life expectancy at birth. The second indicator knowledge is measured by female and male expected years of schooling for children. It is also measured by female and male mean years of schooling for adults aged 25 years or more. Living standard are measured by estimated income earned by male and female. The index was introduced in 1995 in Human Development Report.

The GDI is the ratio of the HDIs calculated separately for females and males using the same methodology as in the Human Development Index (HDI). It is a direct measure of gender gap showing the female HDI as a percentage of the male HDI.

The GDI shows how much women are lagging behind their male counterparts and how much women need to catch up within each dimension of human development. It is useful for understanding the

real gender gap in human development achievements and is informative to design policy tools to close the gap.