ECON 216
Economy of Ghana II

Session 7 - Poverty and Inequality I: Definition and Measurement

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2014/2015 – 2016/2017

Session Overview

❑ This session explains the multidimensional nature of poverty as well as the various measures of poverty. The reduction of poverty has for years attracted the attention of governments and international donors, as well as researchers, yet there is no common consensus on guidelines for measuring and estimating poverty. The session also provides definition for income inequality and its measurements.

❑ The elimination of widespread poverty and increasing inequality is at the core of global development efforts.

❑ At the end of the session, the student will

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Session Overview

❑ Be able to identify and explain the different definitions of poverty used in the literature.

❑ Identify the various characteristics of poverty and be able to determine who can be term as poor.

❑ Analyse the weakness and strength of the various measurement of poverty.

❑ Understand the definition and measurements of income inequality.

❑ Identify strength and weakness of these measurements.

❑ Be able to explain the concept of poverty, equity, equality and inequality

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Session Outline

The key topics to be covered in the session are as follows:

❑ Topic One: Definition of Poverty

❑ Topic Two: Measurements of Poverty

❑ Topic Three: Definition of Inequality

❑ Topic Four: Measurements of Inequality

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Reading List

❑ Ghana. Statistical Service. (2014). *Poverty Profile in Ghana, 2005 - 2013*. Ghana Statistical Service.

❑ Ghana. Statistical Service. (2007). *Pattern and trends of poverty in Ghana, 1991-2006*. Ghana Statistical Service.

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Topic One

DEFINING POVERTY

How do we define poverty?

❑ Poverty is a multidimensional phenomena. Poverty is therefore difficult to operationalise.

❑ However, a basic definition of poverty is that: A person is poor if he/she lacks or has low level of the basic essentials of life, food, shelter and clothing.

❑ Thus, poverty refers to the lack of basic conditions necessary for dignified human living. This definition is based on the ability of persons to meet their basic needs.

❑ Other definitions of poverty are based on a capabilities approach

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How do we define poverty?

❑ Poverty in terms of the ability to live a life characterised by active participation in society and a sense of security.

❑ It has a political implications - governments are supposed to deal with it.

❑ It has social implications - poverty can be a source of shame and low status for individuals (Low self esteem).

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Absolute vs Relative Poverty

❑ Poverty can be viewed:

    ❑ Absolute or relative

    ❑ Objective or subjective

❑ Absolute poverty is based on a measurement of the absolute minimum a person requires for biological survival.

❑ Based on an absolute measure, the World Bank identifies:

❑ Extreme poverty as individuals living on less than **US$1.25** per day in PPP terms. Moderate poverty as living on **less than $1.90 a day**

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Absolute vs Relative Poverty

❑ Relative poverty is when people are compared to those in the same society as them, or to what others might reasonably be expected to afford.

❑ It can include lack of:

    ❑ Educational opportunity

    ❑ Material possessions

    ❑ Health care

    ❑ Good quality housing

    ❑ Civil Rights

    ❑ Social opportunity

❑Relative

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Topic Two

MEASUREMENTS OF POVERTY

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Measurements of Poverty

❑ In this session, we shall understand the ways poverty can be measured

❑ The measurements of poverty include:

- Headcount ratio

- The poverty gap

- The square poverty gap

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Headcount Ratio

➢ The headcount ratio (H) is the ratio of the population who are poor. H is dependent on knowing the poverty line, the level of income below which an individual is considered to be poor.

➢ This is the share of the population whose income or consumption is below the poverty line

➢ **H = q/n, where 0<=H=<1**

q = the number of people whose income falls below the poverty line, say 50

n = is the total number of people in the economy, say 100

H = 50/100 = ½

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➢ While H is easy to measure it does not tell us the **depth of poverty**, that is, the extent of poverty

➢ To be able to do this, we make a critical assumption that all household members enjoy the same level of well-being. This assumption may not hold in many situations.

The Poverty Gap

❑ The Poverty Gap addresses some of the challenges of the headcount ratio.

❑ This measures the total income necessary to raise everyone who is below the poverty line up to that line. The indicator measures the average income shortfall of all the poor as a proportion of the poverty line.

❑ It is the mean shortfall of the total population from the poverty line expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.

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The Poverty Gap

❑ The poverty gap is measured as

$$PG = \frac{1}{N}\sum_{1}^{N}[(Z - Y_i)/z], \text{ where}$$

❑ Y_i = income of the individual i.

❑ Z = the poverty line

❑ N = total number of people

➢ The sum of these poverty gaps gives the minimum cost of eliminating poverty, if transfers were perfectly targeted.

➢ The poverty line is the minimum income required to meet the basic requirements for biological survival.

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The Squared Poverty Gap

➤ The squared *poverty gap ("poverty severity") index* (P2) averages the squares of the poverty gaps relative to the poverty line. It is one of the Foster-Greer-Thorbecke (FGT) class of poverty measures that may be written as:

$$PG = \frac{1}{N} \sum_{1}^{N} [(Z - Y_i)/z]^{\alpha}$$

➤ where N is the size of the sample, z is the poverty line, $(Z - Y_i)$ is the poverty gap and α is a parameter; when α is larger the index puts more weight on the position of the poorest.

Topic Three

DEFINITION OF INEQUALITY

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What does Inequality mean?

❑ So far, we have understood the meaning and measurement of poverty. We will now look at the meaning and measurement of inequality.

❑ Economic Inequality refers to difference in how assets, wealth, or income are distributed among individuals and/or populations. It is also described as the gap between rich and poor.

❑ Income inequality is also referred to as wealth disparity, wealth and income differences, or the wealth gap.

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Why should we be concerned with Inequality?

❑There are three major reasons why economists are concerned with inequality

➢High income inequality leads to economic inefficiency

➢Extreme income disparities undermine social stability and solidarity.

➢Finally, extreme inequality is generally viewed as unfair. High inequality reduces social welfare

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Quintiles and Deciles

❑ The distribution of the incomes can be grouped into five called quintiles or into ten called deciles. This will assist in knowing what proportion of income is received by each group. In Table 1, the first column shows the 20 persons, col. 2 shows their incomes, col 3 shows incomes grouped into 5 cumulatively while the last shows incomes groups into 10 cumulatively.

❑ If incomes of 20 persons are grouped into 5, it means we group 4 people separately. If the 20 incomes are grouped into 10, it means we group 2 persons' incomes. From Table 1 the sum of the first 4 poorest persons make 5. This group is called the 5th quintile. The next sum 9 is the 4th quartile.

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Distribution of income

Individuals	Personal Income (money units)	Share of Total Income (%)	
		Quintiles	Deciles
1	0.8		
2	1.0		1.8
3	1.4		
4	1.8	5	3.2
5	1.9		
6	2.0		3.9
7	2.4		
8	2.7	9	5.1
9	2.8		
10	3.0		5.8
11	3.4		
12	3.8	13	7.2
13	4.2		
14	4.8		9.0
15	5.9		
16	7.1	22	13.0
17	10.5		
18	12.0		22.5
19	13.5		
20	15.0	51	28.5
Total (national income)	100.0	100	100.0

Note: Measure of inequality = ratio of top 20% to bottom 40% = 51/14 = 3.64.

Topic Four

MEASUREMENT OF INEQUALITY

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Measurement of Inequality

In the previous topic, we defined inequality and learnt how to use deciles and quintiles to measure income inequality.

In this topic, we will discuss other measures of inequality. The measures include

❑ Absolute Inequality
❑ Relative Inequality
❑ Lorenz Curve
❑ Gini Coefficient

Measurement of Inequality

❑ Relative inequality is the ratio of the bottom 40% of the population to the top 20%. This is a measure of the degree of inequality between the two extremes of the very poor and the very rich in society. From Table 1, this is (14/51) = 0.27

❑ If the top 20% is divided by the bottom 40%, we get 3.62 = 51/14. This is the same. The first ratio, 0.27 implies that every GHC 1 that a rich person in the first quintile gets, a poor person in the bottom 40% gets GHc 0.27.

❑ The second ratio, 3.62 implies that every GHc 1 a poor person in the bottom 40% gets, a rich person in the 1st quintile gets GHC 3.62. The two interpretations are equivalent.

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Measurement of Inequality

The absolute inequality measure compares the aggregate income of the lowest quintile with those in the highest quintile. Sometimes the income of the lowest 40% (4th and 5th quintiles) is compared with the highest quintile (1st quintile). From Table 1, the poorest 40% of the population have about 14% $(5 + 9)/100 * 100 = 14$ of the income of the 20 people.

Also the richest 20% of the population have about 51% $(51/100 *100=51)$ of the income of the 20 people.

These income comparisons of the poor and the rich give an idea on income inequality of the country.

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The Lorenz Curve

❑ The Lorenz Curve is the graphical measurement of inequality in an economy. This is shown in Fig. 1. The vertical axis measures the percentage of income while the horizontal measures the percentage of income recipients.

❑ From Gig. 1, as the Lorenz curve moves away from the diagonal perfect equality, the degree of inequality increases and vice versa. If the Lorenz curve coincides with the diagonal then there is perfect equality in the economy or every person has the same amount of income. In the situation where one person receives all the income with all the others receiving nothing, perfect inequality, the Lorenz curve coincides with the lower and right-hand borders of the diagram.

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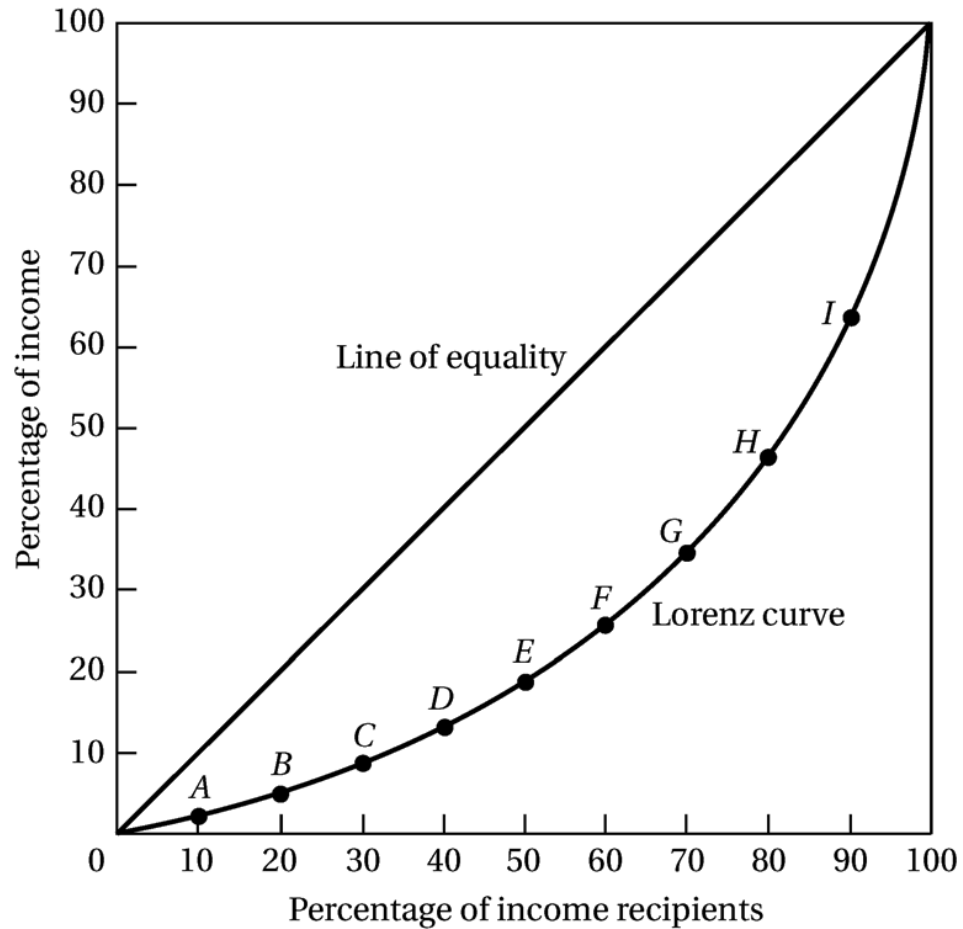
Measurement of Inequality

❑ Gini Coefficient

It is the quantitative measurement of income inequality. It is the ratio of the area between the diagonal and the Lorenz curve divided by the total area of the triangle in which the curve lies shown in Fig 2. In Fig 2, it is the area A divided by the triangle BCD. It varies from 0, perfect equality, to 1 perfect inequality. The higher the value of the Gini coefficient, the higher the curve sags away from the line of equality and the higher the level of inequality.

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Measurement of Inequality
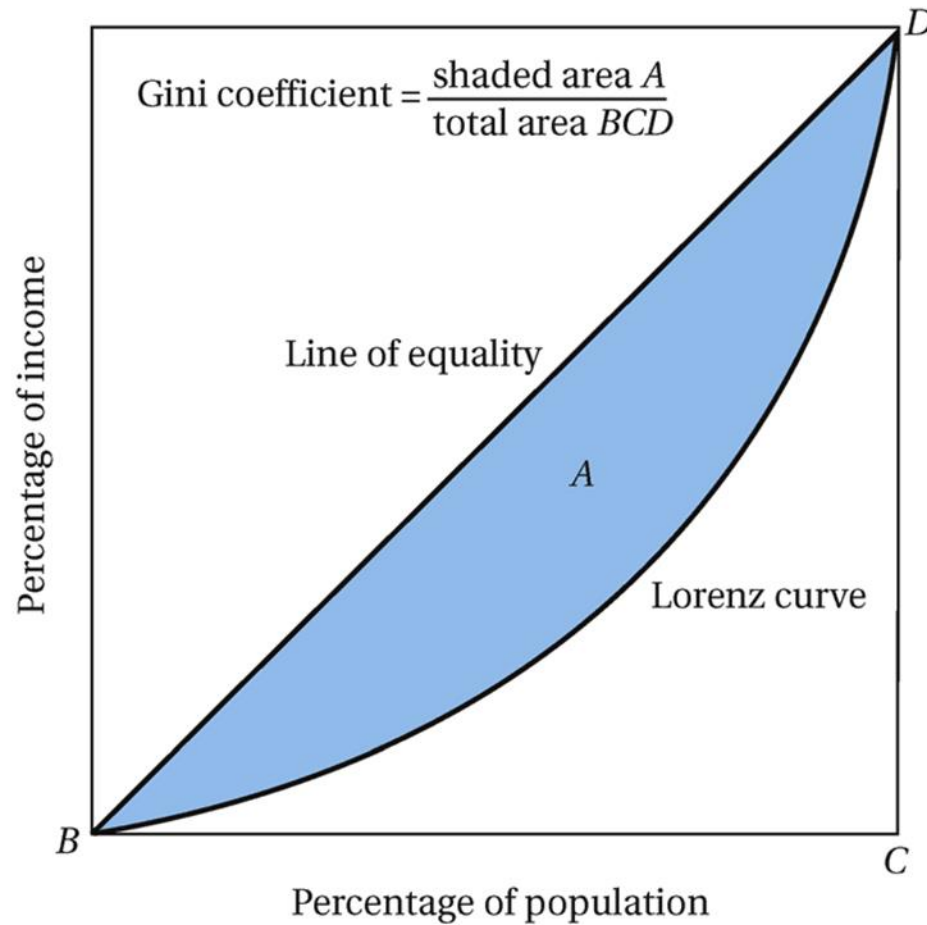
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