

Suggested Solution to Assignment 6

1. Suppose an economy consists of 10 persons with ranked income as [1, 2, 3, 4, 5, 6, 7, 8, 9, 10] and the poverty line is \$3.5

i. HC = number of people living under poverty line = 3

$$\text{Average income} = (1+2+3+4+5+6+7+8+9+10)/10 = 5.5$$

Hence

$$\text{HCR} = \text{HC}/N = 3/10 = 0.3$$

$$\text{PGR} = (3.5-1)+(3.5-2)+(3.5-3)/10 \times 5.5 = (2.5+1.5+0.5)/10 \times 5.5 = 0.08182$$

$$\text{IGR} = (3.5-1)+(3.5-2)+(3.5-3)/(3.5 \times 3) = 4.5/10.5 = 0.4286$$

$$\text{PGI} = (3.5-1)+(3.5-2)+(3.5-3)/(10 \times 3.5) = 4.5/35 = 0.1286$$

$$\begin{aligned} \text{FGT}_2 &= 0.1 \times [(3.5-1/3.5)^2 + (3.5-2/3.5)^2 + (3.5-3/3.5)^2] \\ &= (0.5102 + 0.1837 + 0.0204)/10 = 0.07143 \end{aligned}$$

ii. The absolute income of the poor also grows by 3%

iii. By monotonicity axiom, the income transfer by the UN makes the poverty situation less severe.

2. Examples of some “Life Shocks” are Divorce, Forced sale of house, Unexpected and substantial drop in income, Eviction, Bankruptcy, Substantial financial loss, Layoffs, Becoming a sole parent, 3 months or more unemployed, Major damage to home, House burgled, Victim of violence, Imprisonment and other sentences, Illness lasting three weeks or more, Major injury or health problem, and Unplanned pregnancy

An example of the story could be about John Doe, a middle-income white-collared worker who is married with a child. Due to bad economic condition, his salary declined by half (1). Eventually the company he worked for had to undergo massive layoffs, and John was one of them (2). Being unemployed with depleting unemployment benefit (3), his wife asked for a divorce (4). As John was more likely to be able to support the child financially, he fought and finally achieved the custody of their only child (5). However, with poor financial situation, both John and his child became malnourished (6). He had no way out but to steal food from the nearby grocery store, and got sentenced to jail (7). During his time in the prison, he got beaten up by his fellow prisoners for being “elite looking”(8). Now, John is done with his time, but his fate is still unknown, as he has completely fallen into poverty cycle.

Your story could be different. This is an open-ended question, so feel free to be creative.

3. This is also an open-ended question. The possible policy measures you can take to reduce this poverty problem in the short-run could be to boost economic growth. Even the ratio of the income of the poor to total income is unchanged, a positive economic growth would translate to a positive growth in absolute income of the poor. Another short-run solution is direct subsidy for those living under extreme poverty. You can issue food stamp for these poor people to use in exchange for food at their nearby grocery. Other types of measures, e.g. an advocate for international aid, or establishment of microfinancing, are also possible.

For the long-run, it is best to start with education. Try to ensure that every child receives equal opportunity in education as those rich ones, as well as recreations such as arts, sports, and music. Personnel involved with education should be reinforced to implant the reading habit and value of hard work to every child, rich or poor. At another level, providing more incentive for people working with elementary students could result in better quality people in primary education. The possibility is endless.