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Unequal Opportunity in Income and Wealth: An Empirical Analysis of Inequality in Ghana

Panchanan Das (University of Calcutta, India)

Extended Abstract

This paper contributes to a growing literature by providing a comprehensive analysis of the levels, the origins and drivers of income and wealth inequality by using living standard survey data in Ghana. Historically, inequality in Ghana dates back to the era of colonial administration and further accentuated by post-colonial development policies and strategies (Aryeetey et al. 2009). In 2012-13, the Gini coefficient of income in this country was nearly 41 per cent when it experienced GDP growth at around 14 per cent (Ghana Statistical Service, 2014). The faster growth with rising inequality may be an indication of dissociation of growth with job creation especially among the youth. According to the official statistics, the youth unemployment rate was nearly 11 per cent during that time. Ghana Living Standard Surveys (GLSS) conducted between 1991 and 2013 show that inequality by any measure increased across sex, region and locality. Oduro et al. (2011) found that the mean value of gross wealth of women was lower than those of men for all asset categories. This study analyses these observed facts on inequality by estimating the relative contributions of circumstances and efforts.

Research on inequality in income and wealth in Africa has been expanded since the mid-1990s through the initiative of the African Economic Research Consortium in the shape of a collaborative project on 'Poverty, Income Distribution and Labour Market Issues in Africa'. Since then a number of studies have examined income inequality with household level information in Ghana (Canagarajah et al., 1998; McKay and Aryeetey, 2007; Annim, et al. 2012). Cooke, et al. (2016) documented that income inequality showed an increasing trend during the high growth phase of Ghana. Studies conducted by Annim et al. (2012) showed wide disparities in terms of consumption and income in the country.

Although a number of studies have examined income inequality, the possible sources behind high inequality in Ghana has not been focussed so far. This paper sets out to carry out an empirical analysis of inequality of opportunity in getting income and wealth in Ghana where the majority of the labour force is working in agriculture by using GLSS data. This study analyses inequality in terms of circumstances and efforts as used in the literature of equal opportunity with household level information. Inequality in terms of income may either be overestimated or underestimated because of the dominance of the informal sector. As wealth is associated with prestige and in many cases it is tax free, information on wealth in the survey data is expected to be more reliable. Thus, it may be appropriate to measure inequality by taking wealth at the household level.

Inequality persists in a society primarily because of the presence of unequal opportunity (Arrow et al. 2000). Unequal opportunity creates barriers to access to quality education, jobs and other positions. Unequal access to quality education, for example, across social groups by their caste identity and also between gender classes transmits into unequal access to quality jobs and pay differences between them. Thus, it is important to examine the role of these social variables in explaining economic disparity among the working age people.

This study analyses how income and wealth are affected by social identity and gender among the working age people controlled by their educational attainment. First, we measure inequality by using nonparametric approach with household level data. Then, we analyse inequality in terms of circumstances and efforts. Theil's Index is decomposed into between group and within group components. In measuring inequality of opportunity we use *ex-ante* approache. In this approach there is equality of opportunity if all individuals face the same set of opportunities regardless of their circumstances. We have used Roemer's (1998) definition of equal opportunity in which individuals exerting the same effort are entitled to obtain the same earning.

In this study, circumstances include gender, region of birth, and parental education:

$$C_i = \{C_{i,1}, C_{i,2}, C_{i,3}\}$$

$$C_{i,1} = (male, female)$$

$$C_{i,2} = (north, south)$$

$$C_{i,3} = (illiterate, primary, secondary, graduate)$$

The whole sample can be partitioned into 16 types which are non-overlapping

$$T = \{t_1, t_2, \dots, t_j, \dots, t_{16}\}$$

This type distribution is a representation of the opportunity set expressed in terms of earning for any individual endowed with given circumstances.

In this study, we assume that effort is two-dimensional: person's education and work experience,

$$E_i = \{E_{i,1}, E_{i,2}\}$$

$$E_{i,1} = (illiterate, primary, secondary, graduate)$$

$$E_{i,2} = (with\ experience, without\ experience)$$

Therefore, the whole sample can be partitioned into 8 tranches:

$$\tilde{T} = \{\tilde{t}_1, \dots, \tilde{t}_p \dots \tilde{t}_8\}$$

Checchi and Peragine (2010) proposed a measure of inequality in terms of a counterfactual distribution obtained by removing inequality within types from the original distribution. The counterfactual distribution is constructed by replacing individual earning of those with same circumstances (j) and same degree of effort (k) with their mean income of $\{y_{j,k}\}$. Then, a smooth distribution of the earning is constructed by taking the mean earning for each type, $\{\bar{y}_j\}$, by replacing $\{y_{j,p}\}$.

here $\bar{y}_j = \frac{1}{N_j} \sum_k y_{j,k}$, N_j is the size of type t_j, j =1,2,….16; k= 1, 2, …., 8.

Inequality in this counterfactual distribution is the inequality of opportunity:

$$IO = I\big(g(C,\bar{E})\big)$$

In this study, inequality of opportunity is measured by "between group" component of the Theil index.

Further, we use discrete choice model to calculate inequality of opportunity in terms of the dissimilarity index, a component of human opportunity index. The dissimilarity index is obtained by taking the weighted absolute differences in average probability of access to earn among the circumstance groups:

$$I_{IO} = \frac{1}{2\bar{p}} \sum_{j=1}^{16} s_j \left|\bar{p}_j - \bar{p}\right|$$

In this approach we need to calculate average probability of access to earn for each circumstance group, $\bar{p}_j = \frac{\sum_{i=1}^{N_j} p_i}{N_j}$, and for the sample as a whole, $\bar{p} = \frac{\sum_{i=1}^{N} p_i}{N}$. Here, s_j is the population share of circumstance type j.

The conditional likelihood for access to earn of a person in the sample is estimated by using logit model.

$$ln\left(\frac{p_i}{1-p_i}\right) = \gamma_0 + \sum_{j=1}^{16} \gamma_j x_{ji} + \varepsilon_i$$

We observe substantial regional difference in income inequality as well as in inequality of opportunity in Ghana. Southern region exhibits high inequality with low inequality of opportunity, while Northern shows high inequality with high inequality of opportunity. One of the major implications of our findings is that equal opportunity of access to higher education and to entry into labour market for gainful job increases the probability of better living standard that ultimately can reduce overall inequality.