
Determinant of Income Inequality in Ethiopia: Regression Based Inequality Decomposition

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Abstract: Widening inequality has significant implications for growth and macroeconomic stability; it can concentrate political and decision making power in the hands of a few, lead to a suboptimal use of human resources, cause investment-reducing political and economic instability, and raise crisis risk. Despite the decline in national poverty across all measures inequality at national level in Ethiopia appeared to increase over the course of time. This studies focusing on investigating the determinant of inequality in Ethiopia by using the raw data collected from central Stastical authority based on the regression decomposition of field's methodology. The empirical result tells the variables like years of education, age of the house hold head, residency of the head, agricultural sector and household married contribute to reduce the income inequality. The employment, the occupation and the race are also having a great contribution for the inequality of income. The policy maker should design a new way that able to benefit the female other than affirmative like reducing the passing point in exam. But giving more credit access like enat bank it's possible to avoid the income variation between the female household head and male household head. The government should be fair interims of distributing resource among the region without any racial discrimination and should give equal infrastructure to all regions.

Keywords: Inequality, Regression Decomposition, Ethiopia

1. Introduction

Equality, like fairness, is an important value in most societies. Irrespective of ideology, culture, and religion, people care about inequality. Inequality can be a signal of lack of income mobility and opportunities a reflection of persistent disadvantage for particular segments of the society. Widening inequality also has significant implications for growth and macroeconomic stability; it can concentrate political and decision making power in the hands of a few, lead to a suboptimal use of human resources, cause investment-reducing political and economic instability, and raise crisis risk. The economic and social fallout from the global financial crisis and the resultant headwinds to global growth and employment have heightened the attention to rising income inequality. The presence of income inequality at high level in many developing countries has made it more difficult to reduce poverty. High income inequality can also have undesirable political and social consequences, particular in developing countries, where the institutions of government

are weak, and income inequalities exacerbates the problem of creating and maintaining accountable government, increasing the probability of criminal activities [6]. Broadly speaking the economic impact of inequality widespread and considerable. It affects the demand structure of the lower and middle class. If the lowest class is perpetually at a state of subsistence, lacks access to education, health care, social security benefit and has political influence they will remain in poverty unable to consume a higher percentage of goods and services. According to murphy et al. (1989) in the study [8] decreases in income inequality imply a wealthier middle class, (enlarged by those coming out of the poorer classes), which are the most significant consumers of manufactured goods.

The negative effect of income inequality goes beyond this and it's associated with poor financial market development like credit rationing and collateral requirements that restrict the investment opportunities of the poor which subsequently lead growth. Increased inequality can also cause social unrest and this retards the growth process in a given country and

worsens insecurity. Ethiopia as not addressed the factor that aggravate income inequality with the attainment of infrastructural development [2]. Policy makers do not seem to give considerable attention to the widening inequality in the country, more has been given to infrastructure development it's possible to have the country more forward with the intent rules and regulation. Which are necessary if it include the society so, if there was a consideration that enhance income inequality, it should at least narrow the gap of the society? The reverse seems to be true that widening. So is it because of the fact that the policy makers/governments do not take into account the determinants of income inequality in Ethiopia? Alternatively, the policy maker doesn't have at all? According the study [23] the ever-increasing national inequality over time warrants further attention as rising inequality of this kind may pose a risk of economic growth and could result in the rolling back of development path.

Although numerous empirical studies have been conducted on the subject, most of these have focused on developed countries and a few developing countries. Due to limited income distribution data on African, very few studies have been conducted to determine drivers of income distribution for African countries [3]. And although African countries have been included in studies that use panel data, the number of African countries covered often constitutes a negligible fraction of the total. Currently there is no record of any study conducted on Ethiopia at national level by decomposing expenditure at household level. This study will fill the gap that exist in literature and examine the subject from a Ethiopia perspective. This highly necessary as the government of Ethiopia has declared fighting poverty, because several studies have established the fact that poverty is invariably related to income inequality. According to the study [25], two sets of factors can be identified as the main causes of poverty reduction at given rates of growth: (i) the initial level of inequality; and (ii) how inequality changes over time. The higher the initial level of inequality in a country (even if it does not change), the less the gains from growth tend to be shared by the poor. In other words, a smaller initial share tends to mean a smaller subsequent share of the gains from aggregate economic expansion. In each and every environment, there are inequalities in a number of dimensions that are likely to matter, including access to both private (human and physical) capital and public goods. In addition, inequalities in access to infrastructure and social services (health care and education) make it harder for poor people to take up the opportunities afforded by aggregate economic growth. A second factor influencing the rate of poverty reduction at a given rate of growth is changing income distribution. Clearly, there are many country-specific factors (e.g. changes in trade regimes, tax reform, welfare-policy reforms and changes in demographics) underlying changes in distribution. Generalizations across country experiences are never easy, but one factor that is likely to matter in many developing countries is the geographic and Sectoral pattern of growth. The marked concentration of poor

people in specific regions and/or sectors that one finds in many countries points to the importance of the pattern of growth to overall poverty reduction. The extent to which growth favours the rural sector is often key to its impact on aggregate poverty. The geographic incidence of both rural and urban economic growth is often important as well. Also the study attempts to go step further by using the regression based decomposition of income inequality recently developed to decompose inequality is welfare based on the socio economic characterized of the households.

Indeed, over the last 10 years, Ethiopia experienced gradual and sustained economic growth and poverty reduction. The benefits of growth, however, are not being distributed equally. In all regions of the country, income and consumption are growing at a slower rate in rural areas than in their urban counterparts. Moreover, both rural and urban areas are experiencing growing inequality between the top and bottom income quintiles [23, 29]. As we discussed earlier much of empirical studies are done on this subject, but much of the paper is see the determinant of income inequality from macro perspective rather micro, but According to the study [29] micro level data is desirable to explain the nature of inequalities in Ethiopia since Ethiopia has to make progress in economic diversification and competition. For instance, the poor are concentrated in the poorly performing informal or self-employment sector which constitutes the bulk of the service sector activities. The whole idea of inclusive growth is to make the commendable recent growth that is taking place sustainable. Equal access to services, markets and a policy environment that does not discriminate against certain location (s), ethnic group and/or women is a fundamental ingredient of desirable development and societal transformation. Due to this the paper uses micro data to analyze the determinant of inequalities in Ethiopia. as far as the my knowledge most of the studies conducting in Ethiopia at regional level even if this studies are useful for identifying the structure of income inequality a given society. For instance laderch et al (2007) identify the determinant urban inequality in Ethiopia by using the micro simulation approach builds on the methodology in [5] A limitation of these simulation-based techniques is that the results of these simulations will be different depending on the order in which the variables are substituted, a problem that the study [7] calls path dependence this paper employ fields regression based decomposition to solve this problem as well this studies has small scope. However, their application for policy formulation at the national level is limited due to small scale. This study seek to use the most current national data to fill this gap and will add to the already existing body of knowledge by decomposing consumption expenditure at household level.

2. Objectives

The general objective

To use the regression-based decomposition approach to explore determinants of income inequality in Ethiopia using

the 2015/16 Ethiopia household expenditure survey.

The specific objectives are:

1. To determine the level of income/consumption inequality.
2. Decomposition of consumption expenditure into subgroups in order to examine the contribution of each subgroup to overall inequality using their between- and within-subgroup components.
3. To identify and quantify the relative contribution of household and community level factors in determining inequality.

3. Literature

A number of empirical studies have tried to explain income distribution or inequality from a macro and micro standpoint in Africa also for instance the study [8] found that in Ghana and Uganda, non-farm self-employment income was much more disequalizing than non-farm wages agriculture. Due to limited time series observations for a single country, especially developing countries, most empirical studies have been based on multi-country data sets were the range of potential determinants of income distribution being tested is wider

The study [19] presents a methodology to account for income inequality levels in a given country and differences in income inequality between one time period and another. This technique is then applied to the US using survey for two time periods, 1979 and 1999, to analyze labour earnings inequality. The technique starts off by estimating a semi-logarithmic income generating, using OLS, which included the following variables, gender, industry, occupation, education, race, region and experience. The study [19] further demonstrates the relative factor inequality weights and the corresponding percentage contributions would be virtually the same for any inequality measure used. The study finds that schooling is the variable that contributes most to high levels of inequality followed by occupation, experience, and gender. In explaining the increase in inequality between the two time periods (1979 and 1999), schooling was again the single most important variable followed by occupation. Gender worked in the equalizing direction. The study [10] uses some features of the study [19] model and extends it by including the analysis the decomposition by subgroups. This technique is applied to survey data for Finland and the United States for 1986 and 2004, respectively. The regression based results for the United States indicated that Master/PhD qualification and age provided the highest contributions to inequality, while high school education provided an equalizing effect. On the other hand, in Finland a college degree and the number of earners in the household were more important. High school education in Finland also provided an equalizing effect for Finland.

The study [30] combine the regression-based decomposition technique and the Shapley value framework developed [26] in analysing income inequality in rural China between 1996 and 2002. The decomposition of income

inequality is provided by the Theil -L and the Gini coefficient. The study finds that geographical conditions are the most significant contributor followed by capital input. The only equalizing variable is land input but its impact is minimal. The study [7] adopts a simultaneous-equation extension of the Blinder-Oaxaca decomposition technique. The model estimates an earnings equation (linking individual characteristics to their remuneration, also known as the occupation effect), a labour supply equation (explaining the decision of entering the labour force depending on individual and other household's members decisions, also known as the participation effect) and a household income equation (aggregating the individual's contributions to household income formation so, known as the population effect). Micro simulation techniques are then used to combine these equations and decompose inequality by each effect. This study finds that between 1979 and 1994, inequality in Taiwan can mainly be explained by the drastic transformation in the economy and the socio demographic structure of the population. With the main contribution being changes in the wage structure which could have been a result a dramatic growth of the educated workers in the economy. The study [7] also uses this technique to isolate the occupational effect, the participation effect and population effect for USA and Brazil in 1999. Results of this study show that most of Brazil's inequality (of 13 Gini points) is accounted for by underlying inequalities in the distributions of education and of non-labor income, notably pensions. Differences in occupational structure, in racial earnings and demographic composition are much less important. While the US the latter are of more importance.

4. Methodology and Data

4.1. The Data and Sampling Technique

The data used in this study is the 2015/16 Ethiopian household income, expenditure and consumption survey (HIECS). The HIECS survey was collected by the central Statistical authority in the period from 8 July 2015 to 7 July 2016. The 2015/16 HICE and Welfare Monitoring Surveys sampled 30,229 households in urban and rural areas of the country. Of which a total of 864 EAs and 10,368 households (12 households per EA) were selected to represent rural areas and a total of 1,242 EAs and 19,872 sample households (16 households per EA) were selected for urban domains, specifically, 744 EAs and 11,904 households and 498 EAs and 7,968 households to represent major urban and other urban areas, respectively. In total the sample size of the 2015/16 HICE survey is 30,229, which is higher than the previous surveys [23].

Its aim was to update knowledge on poverty and welfare status in Ethiopia by providing indicators that capture the living standards of the local population. This survey covers the national territory. The 2015/16 HICE survey covered all rural and urban areas of the country. Unlike previous surveys all non-sedentary areas in Afar and Somali regional states are

also covered by this survey. A stratified random sampling technique was employed to draw representative sample. The country was first stratified into nine regional states and two city administrations. Then each regional state was further stratified into three broad categories namely, rural, major urban centers and other urban area categories. However, Harari region and Dire Dawa City Administration were stratified into rural and urban categories, while Addis Ababa has only urban category, but stratified by Sub-City. Therefore, each category of a specific region, in most cases, was considered to be a survey domain or reporting level for which the major findings of the survey are reported. Accordingly, the 2015/16 HICE cited in the study [23] and Welfare Monitoring Surveys have 49 reporting levels.

In the first two categories, namely the rural and major urban, a two-stage stratified sampling technique was implemented whereby the Enumeration Areas (EAs) were considered as a Primary Sampling Unit (PSU) and the households were considered as the Secondary Sampling Unit (SSU). The EAs were selected using the Probability Proportional to Size (PPS); size being the number of households obtained from the 2007 Population and Housing Census, while the sample households were systematically selected from a fresh list of households within the EA made during the survey period.

On the other hand, for the other urban category, a three stage stratified sampling technique was carried out. In this case, the urban centers, EAs and households were used as a PSU, SSU and the Tertiary Sampling Unit (TSU), respectively. Here, the PSUs and SSUs were selected using the PPS, while the selection of households follow the same approach as described earlier.

4.2. Regression Based Inequality Decomposition Framework

The study [26] established a measure of inequality written as a weighted sum of income:

$$I(y) = \sum a_i(y)y_i \tag{1}$$

where a_i is the income share of household i , y_i is the income of household i , y is total income, $I(y)$ is the weighted sum of total household income, corresponding to an inequality measure, and $a_i(y)$ is the ethical weight attributed to individual i based on the vector of income y . Since household income may be observed as the sum of income from M sources or endowments, $y_i = \sum_{m=1}^M Y_{i,m}$ the inequality measure can now be written as the sum-specific component S_m :

$$I(y) = \sum a_i(y) \sum_m y_{i,m} = \sum_i a_i(y) y_{i,m} = \sum_m S_m \tag{2}$$

The proportional contribution of each income source may be obtained by dividing the sum specific component by $I(y)$. Thus, the relative contribution of income source m , S_m , can be written as:

$$S_m = \frac{\sum_i a_i(y)y_{i,m}}{I(y)} \tag{3}$$

[26] observed that the weight $a_i(y)$ may be chosen in an arbitrary manner leading to an infinite number of possibilities and proposed a unique decomposition rule that satisfy the following: (a) if a new distribution is obtained by multiplying all incomes by a constant, measured inequality should be the same under both distribution and; (b) if total income is divided into two components whose factor distributions are permutations of each other, their contributions to total inequality are equal.

Without loss of generality, we can express our estimating econometric model in the form:

$$y = x\beta + \varepsilon \tag{4}$$

Using such a form the study [22] mo extended the decomposition rule (13) to a regression-based decomposition by determinants of household income. Where X is a vector of explanatory variables with the first column made of a vector of constants $\alpha = (1, 1, \dots, 1)$ is a vector of parameters to be estimated and ε is the residual term.

Given the vector of consistently estimated parameters $\hat{\beta}$ income equation (14) can be expressed as a sum of the estimated income source flows and the predicted error term $\hat{\varepsilon}$ an in equation 15

$$y = x\hat{\beta} + \hat{\varepsilon} \tag{5}$$

Since the econometric results yield estimates of the income source flows attributed to household variables, they allow us to make use of decomposition by income sources (or factor endowments). By construction, total income is the sum of these estimated income source flows (plus the predicted regression residual)

$$y_i = \sum_{m=0}^{M+1} \bar{y}_{i,m} \tag{6}$$

Where $\bar{y}_{i,m} = \hat{\beta}_m x_{i,m}$ for $m=0, 1, 2, \dots, M$ and $\bar{y}_{i,m} = \hat{\varepsilon}_i$ for $m=M+1$ substituting equation (16) into equation (13), we obtain the share of inequality attributable to the income source $\bar{y}_{i,m}$ as;

$$S_m = \hat{\beta}_m \frac{\sum_i a_i(y)y_{i,m}}{I(y)} \tag{7}$$

$\hat{\beta}_m$ is the estimated coefficient associated with income sources m , $x_{i,m}$ is the income sources m is attributable to household i $\sum_i a_i(y)$ is the sum of weights attributable to household and $I(y)$ is the total income inequality index.

Wan (2004) extends the linear regression model by proposing the general form;

$$y = F(x) + \varepsilon \tag{8}$$

Where $F(X)$ allows for any form for the income generating function, which could be linear with the presence of the constant term or highly non-linear with the absence of this term. In terms of estimated income sources, equation 18 can take the form:

$$y = \hat{y} + \hat{\varepsilon} = \hat{\alpha} + \hat{y} + \hat{\varepsilon} \tag{9}$$

where \hat{y} is the deterministic part of the estimated income

generating function, $\hat{\varepsilon}$ is the estimated constant, \bar{y} is the vector of estimated income sources excluding the estimated constant term and $\check{\varepsilon}$ is the predicted residual. As noted by Wan [25], not by [3] relative inequality indices are not defined when the average of the variable of interest equals zero (the case of the residual). In addition, inequality indices equal zero when the variable of interest is a constant (the case of the estimated constant). To deal with these two problems, the study [30] proposed some basic rules. According to [4], let total income be expressed in terms of regressed-income source flows and the predicted residual as:

$$y = y_0 + y_1 + y_2 + \dots + y_m + \dots + y_M + \varepsilon$$

$$\hat{y} = y_0 + y_1 + y_2 + \dots + y_m + \dots + y_M \text{ and}$$

$$\check{y} = y_1 + y_2 + \dots + y_m + \dots + y_M, \text{ where } y_m = \beta_m X_m$$

Using $I(y)$ as an inequality measure, then overall income inequality can be decomposed into the contribution of the constant term $I(y_0)$, the contribution of the estimated income sources $I(\check{y})$ and the contribution of the predicted residual $I(\varepsilon)$ as follows:

$$I(y) = I(y_0) + I(\check{y}) + I(\varepsilon) \quad (10)$$

The contribution of the estimated constant to measured income inequality: $I(\varepsilon) = I(\hat{y}) - I(\check{y})$ and the contribution of the predicted residual to measured income inequality: $I(\varepsilon) = I(\hat{y}) - I(\check{y})$.

The difference between $I(y)$ and $I(\hat{y})$ is important. The ranking by y and \hat{y} differs and would be equivalent if and only if there is a perfect fit of the income-generating function. Looking at it from this perspective, the decomposition makes intuitive, as well as theoretical sense. Decomposing equation 20 entails that the disturbance term is irrelevant and does not affect income inequality. This is not true because in addition to earlier discussions, one should note that $I(y) \neq I(\hat{y})$ unless all $\varepsilon = 0$. One way to treat the residual term is to discard it altogether because the residuals are not explainable by the structural-income generating function. If this is the case, one could focus on \hat{y} and obtained further decomposition result. This, however, is not recommended. The residual term can be viewed as representing factors or determinants other than those included in the regression model. Ignoring, is certainly unwise as it does contain useful information and its contribution once identified, can inform policymakers on how much included factors can explain the overall inequality.

4.3. Ordinary Least Square (OLS)

Once the nature of data and method of sampling are identified, an OLS regression is used to analyze the determinants of household per capita expenditure variation. In order to see how much inequality is accounted for by each explanatory variable Fields (2002) proposes the semi log income or consumption function.

In addition to the above conventional decomposition of inequality presented in the preceding section, this study

analyses the determinants of income inequality via multivariate analysis. More specifically, it adopts a methodology suggested by the study [19] to account for income inequality.

This approach allows us to assess the importance of household and community characteristics in explaining the level of inequality, where the relative contribution by each factor is independent of the inequality measure used.

The regression-based decomposition technique developed by the study [19] enables us to answer two questions. First, how much inequality in per capita expenditures can be accounted for by various household characteristics? Second, to what extent do these characteristics account for the change in inequality over time? The answer to the first question pertaining to the level of inequality applies to a broad class of inequality measures including the gini coefficient and the GE measures. On the other hand, answers to the second question pertaining to changes in inequality depend on the inequality measure being adopted. This paper does not aim to answer the second question due to this the paper discuss only to answer the first question.

Answering the first question entails taking two steps. In the first step, the log of per capita expenditures is regressed on various household characteristics.

$$\text{LNEXP} = X\beta + \varepsilon \quad (11)$$

Where LNEXP is the log of annually expenditure for household i , X n by m matrices of independent variables and ε is the residual term which can be explained as the part of the variation in income among workers that cannot be captured by variation in the variables included in the earnings equation. The use of the semi-log specification is prompted by the finding that the income variable can be approximated well by a log-normal distribution [26, 30]. Specifically the studies propose the following variables. Based on the observed data obtained from the household income consumption survey and the empirical evidence that discussed earlier, the following variables were selected. The dependent variable considered as a proxy for income or production or wellbeing was household expenditure per capita. This variable is derived by dividing the total household expenditure by the number of individuals living in the household. The assumption with this variable is that there are no economies of scale in the household.

The study [16] developed Regression-based inequality decomposition (ineqrbd for STATA), by using [19, 26] decomposition rule. According to model, the Y_i and X_i variables based on n observations estimates following relationship as

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k \quad (12)$$

The model can be rewritten as:

$$Y_i = Z_1 + Z_2 + \dots + Z_K \quad (13)$$

Z_1 . Z_2 and Z_K are composite variable, product of regression coefficient and variables for inequality decomposition calculation the value of β_0 is irrelevant as it is

constant for every observation. The predicted value \hat{y}

$$\hat{y}_i = Z_1 + Z_2 + \dots + Z_K \quad (14)$$

Equation 27 and 28 are exactly the same from as the [26]. Used as equation for deriving inequality decomposition by factor components.

In the second step, the estimated coefficients on the various explanatory terms are used to derive the share of the log variance of per capita expenditures attributable to each of the j household characteristics.

$$s_j(\ln y) = \frac{\beta_j \delta(X_j) * cor(X_j, \ln y)}{\delta(\ln y)} \quad (15)$$

Where β_j is the estimated coefficient of the j th household characteristic, and X_{ij} is the value taken on by the j th household characteristic. For household characteristics that are captured by more than one dummy variable, a consolidated share can be computed as the sum of the individual shares.

The same applies to age of the household head, which enters on its own and in terms of its square; i.e., the shares for the age and age squared term can be summed to arrive at a consolidated share for age. Significantly, under certain conditions which includes the assumption that the log linear model for per capita expenditures is appropriate the shares from equation (29) also apply to standard inequality measures such as the gini coefficient [19]. Thus, the shares can also be described more generally as “factor inequality weights.”

Alternatively, one may apply the decomposition rule to the inequality of Y itself, in which case there is also a decomposition term corresponding to the residual [10] In STATA, `ineqrbd` provides a regression-based Shorrocks-type decomposition of a variable labelled "Total", where Total is defined as Y unless the `fields` option is used in which case Total refers to predicted Y

In either case, the contribution to inequality in Total of each term is labelled "s_f" in the output (From help for `ineqrbd` in STATA, [10, 16]). In `ineqrbd` modules provides the means, standard deviations, and correlations, of Total, the residual and the composite variables Z_1, Z_2, \dots, Z_k . Results for the composite variables are ordered in the same order as the underlying variables are ordered in Z_1, Z_2, \dots, Z_k .

In addition, `I2` summarizes inequality using half the squared coefficient of variation (the Generalized Entropy measure `I2`), rather than the coefficient of variation (`CV`). Based on various empirical studies it is observe that inequality may be negative, e.g. because the mean of a composite variable may be negative

5. Result and Discussion

Decomposition result of inequality in `logc` and predicted `logc` for the 2015/16 HIECS are presented in appendix 1 and 2. for inequality decomposition `logc` maximum value of `s_f` (= $\rho_f * sd(f) / sd(\text{total})$) is for years of education of the

household head. This trend is also followed for predicted `logc`. age of the household head and The residency of the household head contributing 10.4129 percent and 7.0227 percent inequality for per capita expenditure in total inequality. For predicted `logc` of per capita expenditure this value registered 29.6451 and 19.9933 respectively for age of the household head and the residency of the household head. gender, age square, government sector employer, self-employed in formal sector, self-employed in informal sector, Engaged on micro enterprises and mean age possessed for `S_f` (= $s_f * I2$ (Total)) gives negative value in inequality decomposition of `logc` and predicted `logc`. The ratio `S_f` and `I2_f` for total is 0.0789 in `logc` and 0.0468 for predicted `logc`.

Year of education of the household head

Having a higher education level qualification increases ones income so drastically that it widens the income gap in the population These results are consistent with previous studies using the regression based inequality decomposition such as studies by the study [3] for Cameroon, the study [10] for Finland, and the study [30]. The high training variable contribution to inequality could be a result of the mismatch between the education sector and the skills required in the labour market as explained by the study [24].

Age of the household head

The combined contribution by age and age is 2.29 and 6.52 for the both total `logc` and predicted `logc`, respectively. every one expect as age increase the income variation among household to decrease because the experience, knowledge and wisdom of the head is improve the life condition even for poor household but the situation is reverse in this finding. the reason for this unexpected result is due lack of giving attention for elder people by government since they cannot bring political turmoil like the youngest one.

Mean age of the household member: as mean age is increase income inequality is going to decrease this because of as average age increase the infant dependency ratio is going to decrease. i.e. mean age is associated with lower inequality could be that with age comes greater wisdom, knowledge and experience that improves the ability to generate income and improve the quality life of even of poor household members. This result ones again is consistent with the finding of the study [3]

Residency of the household head

Residency of the household head is positive contribution for income inequality in both total and predicted income this because of the urban resident has access a better infrastructure than rural area.

Sector dummy

Surprisingly although more low income household are engaged in agriculture, this variable doesn't equalize income in reference to the government sector. This could be attributed to the low returns to agriculture since we are dependent rain fed agriculture. The household engaged in manufacturing also does not equalize income in reference to the government sector. This could be attributed to the low return to manufacturing sector this obviously due to low level industry in Ethiopia. This result consistent with the study [3]

Government employer: as household head is engaging in the government sector the inequality among the household is decrease in reference to agricultural and manufacturing

Marital status

As far as marital status concerned, Household married have a positive contribution for income inequality that means as household head is married the income inequality is goes to increase.

Gender of the household head

Gender is an equalizing effect on per_capita expenditure it's interpreted as household head is male the income inequality is decrease among the household rather than female. This result is consistent with the study [3] by using regression based inequality decomposition in Cameron and the study [19]

Table 1. Regression-based decomposition of inequality in logC and predicted logC.

Decomposition	For per capita expenditure				
	100*s _f	S _f	100*m _{f/m}	CV _f	CV _f /CV (total)
Residual	65.2997	0.0515	-0.0000	-1.94e+15	-2.46e+16
GENDER	-0.1228	-0.0001	0.2285	0.7133	9.0406
AGE	11.1706	0.0088	-12.3091	-0.3758	-4.7634
YOEHH	18.7183	0.0148	2.8139	1.0658	13.5083
AGESQ	-8.8179	-0.0070	5.8383	0.7654	9.7000
URB	9.9534	0.0079	2.4634	0.7225	9.1572
GOVERNMENT	0.0918	-0.0001	-0.0121	-5.7152	-72.4341
MAN	0.0215	0.0000	0.0033	15.1579	192.1104
AGRC	4.3135	0.0034	-0.5504	-1.4680	-18.6059
HouseholdMaried	3.9322	0.0031	-1.9416	-0.7184	-9.1049
HouseholdSize	-0.0047	-0.0000	0.1158	0.5587	7.0805
Meanage	-0.0244	-0.0000	0.1436	0.6095	7.7254
SEIS	-0.0115	-0.0000	0.0425	1.3104	16.6073
SEFS	-0.0009	-0.0000	0.0046	2.1688	27.4873
NGOEMPLOYED	0.0000	0.0000	-0.0023	-14.5051	-183.8366
MIcroENTERPRISE	-0.0003	-0.0000	-0.0003	-22.8080	-289.0670
Total	100.0000	0.0789	100.	0.0789	1.0000

Table 1. Continued.

Decomposition	For predicted per capita expenditure				
	100*s _f	S _f	100*m _{f/m}	CV _f	CV _f /CV (total)
Residual	-	-	-	-	-
GENDER	-0.5783	-0.0003	0.3782	0.7133	15.2508
AGE	29.7030	0.0139	-11.5015	-0.3758	-8.0355
YOEHH	51.2466	0.0240	2.7071	1.0658	22.7876
AGESQ	-23.1822	-0.0108	5.3937	0.7654	16.3633
URB	20.0225	0.0094	1.7414	0.7225	15.4477
GOVERNMENT	-0.3443	-0.0002	-0.0160	-5.7152	-122.1915
MAN	0.0612	0.0000	0.0033	15.1579	324.0775
AGRC	12.2750	0.0057	-0.5504	-1.4680	-31.3870
HouseholdMaried	10.9242	0.0051	-1.8955	-0.7184	-15.3593
HouseholdSize	-0.0136	-0.0000	0.1188	0.5587	11.9444
Meanage	-0.0750	-0.0000	0.1551	0.6095	13.0322
SEIS	-0.0354	-0.0000	0.0460	1.3104	28.0154
SEFS	-0.0025	-0.0000	0.0044	2.1688	46.3693
NGOEMPLOYED	0.0001	0.0000	-0.0022	-14.5051	-310.1201
MIcroENTERPRISE	-0.0012	-0.0000	-0.0004	-22.8080	-487.6368
Total	100.0000	0.0468	100.0000	0.0468	1.0000

Note: Results are based on STATA 12.0 "ineqrbd" developed by Fiorio and Jenkins (2007); proportionate contribution of composite var f to inequality of Total, $s_f = \rho_f \cdot sd(f) / sd(\text{Total})$; $S_f = s_f^2 \cdot I_2(\text{Total})$; $m_f = \text{mean}(f)$; $sd(f) = \text{std. dev. of } f$; $I_2_f = 0.5 \cdot [sd(f) / m_f]$; HIECS survey household level data has been used. More details of various estimates. visit http://www.stata.com/meeting/13uk/fiorio_ineqrbd_UKSUG07.pdf.

6. Conclusion and Recommendation

In order to summarize the finding of this study, the impact on inequality of explanatory variables can be divided into four groups. The first group comprising of variables that provide a positive contribution and significant impact to income inequality. These variables are years of education, age of the house hold head, residency of the head, agricultural sector and household married. The second group

contains a variable that provide a positive contribution but a small impact for income inequality. These variables are manufacturing sector only. The third group contains a variable that equalize income significantly. These variables are age square and gender. The fourth group contains a variable that affect negatively but not significantly. These variables are government employer, mean age, self-employed in informal sector, self-employed in formal sector, household size, and micro enterprise.

The findings of the study suggests that a good inequality reduction policy must be supported by a comprehensive inequality analysis that identifies the nature of consumption/or income inequality, the profile of poor people, and all determining factors of inequality. Therefore, further panel data analysis is needed to understand the dynamic change and construct better models of the determinants of inequality in Ethiopia.

Nevertheless, this paper suggests some of inequality reduction policy recommendations, such as;

One of the main results of the study is the significant role that the educational level of the household head plays a greater role in consumption/income inequality of Ethiopia. This finding suggests that widening access to education is expected to reduce income inequality at first (the poorest quintile) by increasing individual productivity and by facilitating the movement of poor persons from the low paying jobs of the rain fed agriculture, towards the well-paying jobs of the industrial and services sectors of the economy.

The other most important factor to explain inequality is mean of age of the members of household. Hence it is expected that educated households are likely to have fewer children. Hence, the expansion of education, especially female education, and intensification of family planning programme at grass root level are amongst areas deserving prime attention to mitigate problem of large number of family size which is one of the factor for small mean of age as a means of aggravating poverty. This requires the provision of modern birth control methods and expansion of health centers.

The sector of the economy one of determining occupation of household heads working in agriculture sector does not reduce inequality. Therefore, supporting agriculture sector that typically operate on a small scale, with little capital and using family members as workers becomes a sound intervention. This can be done thorough employment creation opportunities and by making access to capital, improvement in the investment climate in which the sector operates especially in contract enforcement and creating market demand for their products by the public institutions are sound areas of intervention. Besides, enhancing urban agricultural productivity and employment will contribute a considerable impact on income inequality reduction, since Ethiopian agriculture is labour intensive.

The other influential factors of inequality are place of household residence. Those reside in rural areas get small amount of per capita expenditure. so the government should adopt rural development policy to increase the per capita income of the rural household. otherwise it may create other problem like rural urban migration which is the important factor of in increasing the urban inequality. According to feirra,(2010) findings this situation aggravate the inequality in the country level.

Male headed household is an equalizing factor of per capita expenditure so the paper suggest the government to support the female household head in different social and

technical case.

Age of the household head is also one of the positive contribute of income inequality it mean that as age increase the number of poor household increase so in order to mitigate this problem the government should increase the pension payment as well the government also should focus on elder people as he focus for younger household.

Head married household has a positive contributor of income inequality so the government should give special attention for those married household head since marriage is one of important institution in building the country interms of social and cultural traits.

Finally, the paper suggest that government should endeavour to design and implement different development programmes by providing physical infrastructure, housing, water and sanitation, energy, and social infrastructure such as roads, communications, telecommunications, schools, and hospitals, which can facilitate exchange of market information between rural and urban areas, which may in turn contribute to the modernization of the country and improvements in the well-being of urban as well as rural dwellers.

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