Factors Influencing Income Inequality in Urban Ethiopia (Cross-sectional Analysis)

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To cite this article:
Gizachew Mengesha Abebe. Factors Influencing Income Inequality in Urban Ethiopia (Cross-sectional Analysis). Science Research. Vol. 8, No. 5, 2020, pp. 115-127. doi: 10.11648/j.sr.20200805.12

Received: February 26, 2020; Accepted: March 12, 2020; Published: September 10, 2020

Abstract: This study focuses on investigating the source of inequality in urban part of Ethiopia. The study uses descriptive analysis by using the raw data collected from central Statistical authority and uses empirical investigation by employing Field’s (2003) regression based decomposition technique to establish the influencing factor of inequality in urban Ethiopia. The main finding from descriptive analysis is household educational level, employment area of household, gender of the household head, age of the household head, and the household size has influencing factor to inequality. 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 income inequality of Ethiopia. This finding suggests that widening access to education is expected to reduce income inequality by increasing individual productivity and by facilitating the movement of poor persons from the low paying jobs of the rain fed agriculture, and from uncertain street vendor towards the well-paying jobs of the industrial and services sectors of the economy. From empirical analysis Age and household size is negatively affecting the expenditure of the household, and it has a contribution for inequality of income to widen among the households. While Age squared and tertiary education attainment of household are positively affecting the expenditure and narrowing the income variation among the households. Age of the household head is also one of the positive contribute of income inequality it means that as age increase the number of poor household increase so in order to mitigate this problem the government should increase the pension payment and transfer payment plus the government should provide service as he provide for younger household head in the form mobility fund. 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.

Keywords: Income Inequality, Urban, Ethiopia

1. Introduction

Ethiopia is one of the poorest countries in the world which is largely rural, but urbanization is proceeding at the fast pace, the urban population expected to grow more than 4% over 2000-2035 period resulting from in the rise of share at about 35% [13]. In Ethiopia increasing urbanization has been accompanied by growth but not by poverty reduction and with income inequality. This paper seeks to shed light on factor that affects income inequality in urban Ethiopia. These papers exploit the availability of the household consumption surveys of 2010/11 to see the level of urban inequality in Ethiopia. The major factor that expect to influence income inequality is education in the household level, occupational difference among household head, household characteristics that the new profile of urban household with young heads, well educated, living alone or in couples with no children also contributed to increase inequalities as those type of household experienced higher growth rate in consumption per capital. We know that distribution and inequality affect a society’s ability to convert income into welfare. Assuming quasi_concave individual and social utility function with respect to income, one can conclude that societies that experience a higher degree of equality clearly better off than those with a lesser degree of equality, given the average income are the same. The uneven distribution of income has
several reasons, considering this reason it’s important to distinguish between urbanization in developed countries and developing countries. Urbanization in developed countries have usually established at relatively stable level of income inequality in accordance with their economic, political and cultural characteristics in urban areas, while urbanization in developing countries have undergone considerable economic and political change and their economic variable, thus making it in political to establish some stable level of income inequality. Ethiopia tries to provide equitable economic and social development opportunities to its population in its growth and transformation process, for vulnerable and food insecure households. The country has one of the largest social protection programmes in the African continent, i.e. The productive safety net programme (PSNP). Countries such as Mozambique, Malawi and South Africa have also safety net programmes targeted at the poor with the aim of sharing the fruits of their respective growth. However, in most African countries inequality remained as the main challenge exacerbated by data and measurement problem [10].

Both macro and microeconomic determinants matter to explain the nature and dynamics of inequalities, but in these paper microeconomic determinants are used to explain income inequality in urban Ethiopia. Even if there is a structural transformation (e.g., Services value added outstripping agricultural value added in recent years), Ethiopia has to make progress in economic diversification and competition. For instance, the poor concentrated in the poorly performing informal or self-employment sectors which constitute the bulk of the service sector activities.

There is a complex set of factors affecting income inequality in a country. The extensive literature about this topic also includes many empirical studies focused on correlations between single factors and inequality according to WB Ethiopia is one of the most equal countries in the world as a result of a very equal consumption distribution in rural areas. In comparison to Other African countries, but this equality especially in rural areas is not due to economic policy rather due to the nature of the economy. Subsistence farming is the dominant economic activity particularly in rural areas, income and consumption may not differ much. Even during severe negative shocks, consumption is likely to stay positive through different household survival strategies. It is also well known that surplus-growing households purchase and keep chicken, goats or cows during the good harvest years as their savings and investment which could be used to smooth future consumption and also build more assets. In the contrary inequality is seen in urban areas some recent papers prove that inequality exists with Gini coefficient 0.37 in urban areas. Which tell that problem of income inequality is existed in Ethiopia with empirical evidence.

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 Gottschalk and Justine, (2006) (13)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. Policy makers do not seem to give considerable attention to the widening inequality in the country, more has been given to infrastructure development. Policy makers don’t have not all? 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

Analysis of factors affecting income inequality in urban Ethiopia has not done that much paper on this regard it gives additional information for new researcher and most of the related studies are not give emphasis for source of inequality rather they give emphasis on the level of inequality rather than dictating sources, but a lot to say about source inequality among the urban people of Ethiopia, unfortunately source of inequality in Ethiopia is simply ignored specially in urban part of the country, but in this studies I give more concern for sources of inequality in urban part of Ethiopia. In this case the paper contributes new methodological insight in the area.

Indeed, the distribution of wealth is too important an issue to be left to economists. Sociologist, Historians and philosophers. It is the interest to everyone, and that is a good thing. The concrete, physical reality of inequality is visible to the naked eye and naturally inspires sharp but contradictory political judgments. Peasant and noble, worker and factory owner, waiter and banker, each has his or her own unique vantage point and sees important aspects of how other people live and what relation of power and domination exist between social groups and these observation shape each person judgment of what is and is not just. Hence there will always be a fundamentally subjective and physiological dimension to inequality, which inevitably gives rise to political conflict that not purportedly scientific analysis can alleviate. Democracy will never be supplemented by a
republic of experts and that is a very good thing. Due to this the researcher is highly interested on detecting source of income variation in urban Ethiopia by employing field regression based inequality. It is important to note that expenditures are not similar with income, which may even be a better indicator of well-being, for various reasons. Among them, there is the possibility of consumption without expenditures at least within the same period. Rightly observed by the, “Expenditures are supposed to better reflect “long-term” or “permanent” income and are from this point of view considered to be a better measure of economic well-being and respective inequalities”. Income is also more likely to be subject to transitory fluctuations. The life-cycle hypothesis suggests that people smooth their consumption over their lifetime so that even if income varies significantly over the life-cycle, consumption would be less variable from year to year than income. Consumption expenditure data are collected in many developing countries including Ethiopia, the process is time taking, costly and needs adjustment for household size, composition and for price level. Owing to these difficulties, the economic proxies (consumer durables, housing quality and household amenities) are collected to measure the economic status of the households in both small and large-scale population based surveys. So for this analysis the researcher employ expenditure as a proxy variable for income.

2. Objective

The general objective of the study is to assess the major factors that affect income inequality in urban Ethiopia. Specifically the objective look into the effect of educational level, gender and age of the household head to income variation among the household head.

3. Methodology

This study use regression based decomposition technique to establish the Influencing factor of inequality in urban Ethiopia (14). He extends Shorroks’ theorem and applies It to an income-generating function in order to account for or decompose the level of income inequality contributed by explanatory variables in a country and its change over time. This is possible as the income generating function has the same additive form, which expresses total income as the sum of the income from various components [13].

The standard income generating function written in the following form;

\[ \text{LNEXP} = \alpha \cdot Z \cdot i \]

Where

\[ \alpha = [\beta_1, \beta_1, \beta_2, ..., \beta_j] \]

And

\[ Z = [i \cdot i \cdot i \cdot i \cdot ij \in i] \]

Where, LNEXP is a vector of household income in log, Z is a matrix of household Characteristics (such as age, education, household size, residence, including the residual), \( \alpha \) is A vector of the regression coefficients. The relative factor of inequality weight by explanatory variable j and it’s very similar used by shorroks to decompose inequality by income source [11]. The product of the OLS coefficient and explanatory variable is regarded as the income flow associated with the explanatory variable is regarded as the income flow associated with the explanatory variable.

3.1. The Model, Data and Descriptive Stastics

Household expenditure survey 2010/11 will be used to conduct an analysis in this chapter. Before that let us describe the way the data collected. The 2007 Population and Housing Census served as the sampling frame from which the rural and urban EAs were selected. A fresh list of households for each selected EA was collected at the beginning of the survey period. Households were then selected for inclusion in the survey by choosing a random number as the starting point in the list and selecting every nth household (n being the necessary number to achieve the desired number of households in each EA).

3.1.1. Sample Design & Selection

In order to produce a representative sample, the country was stratified into the following four categories: rural, major urban centers, medium towns, and small towns.

a. Category I – Rural

This category consists of the rural areas of 68 zones and special wederas, which are considered zones, in 9 regions of the country. This category also includes the rural areas of the Dire Dawa City Administration. A stratified two-stage cluster sample design was used, with the primary sampling unit being the EAs. Sample EAs were selected using Probability Proportional to Size, with size being the number of households identified in the 2007 Population and Housing Census. Twelve households were randomly selected from each sample rural EA for survey administration. The total sample for this category is 864 EAs and 10,368 households.

b. Category II - Major Urban Centers

This category includes all regional capitals as well as five additional major urban centers with large populations, for a total of 15 major urban centers. These 15 urban centers were broken down into the 14 regional capitals and the 10 sub-cities of Addis Ababa City Administration resulting in a total of 24 represented urban domains. A stratified two-stage sample design was also used for this category as in the rural sample with EAs as the primary sampling unit. For this category, however, 16 households were randomly selected in each EA. In total, 576 EAs and 9,216 households were selected for this category.

c. Categories III & IV - Other Urban Centers

These two categories capture other urban areas not included in Category II. A domain of other urban centers was formed from 8 regions (all except Harari, Addis Ababa, and Dire Dawa where all urban centers are included in Category II). Unlike the other categories, a three-stage sample design was used. However, sampling was still conducted using
probability proportionate to size. The urban centers were the primary sampling units and the EAs were secondary sampling units. Sixteen households were randomly selected from each of the selected EAs. A total sample of 112 urban centers, 528 EAs, and 8,448 households were selected for these two categories.

3.1.2. Response Rate

In the rural part of the country it was planned to cover 864 Enumeration Areas (EAs) and 10,368 households. However, due to various reasons 2 EAs and 47 households were not covered by the survey. The overall response rate is 99.8 percent for EAs and 99.5 percent for households. For urban areas 1104 EAs and 17,664 households were planned to be covered ultimately, 100 percent of EAs and 99.1 percent (i.e. 17,513 Households) of households were successfully covered by the survey. The researcher take the urban area alone.. In total, 576 EAs and 9,216 households were selected for this category.

3.2. Theoretical Framework

As discussed above, this study uses Field model to establish the determinants of Inequality in urban Ethiopia using the 2010/2011 Household Income Expenditure Survey. According to Gindling and Trejos Field’s decompositions have important advantages over other recently-developed regression-based techniques to measure ‘quantity’ and ‘price’ effects such as those of Bourguignon, Fournier and Gurgand (1). The latter decompositions use simulation techniques, such that decompositions of the change in inequality between two years are based on simulations which start with the distribution for year one and then substitute (one at a time) the distribution and price of each characteristic from year two into the earnings equation for year one, measuring the change in inequality in the resulting distribution of earnings in each case. The change in inequality in the simulated distributions resulting from changing the price and quantity of each variable is then interpreted as the contribution of that price or quantity to the change in inequality. 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 Bourguignon, et. al. (2001) calls path dependence. Therefore, the researcher cannot be sure of the contribution of each variable to the change in inequality unless the results from all possible ‘paths’ are calculated (and are of similar signs and magnitudes). Calculating the distributions using every possible path becomes cumbersome especially if the number of variables to be considered is large. In addition to the constraints outlined above, Field’s technique is used in the study as it allows for decomposition to be done even when only one survey period is available. This is very important as the 1994/1995 Household income survey has limited variables and hence the Bourguignon et. al.’s technique cannot be employed. Model specification is mainly guided by previous studies on income inequality and on the available variables in the Household Income Expenditure Survey. As the first step of the regression-based decomposition, an income-generation function must be obtained. The income function below is employed to decompose household inequality by contributing factors[1].

\[
\ln(EXP) = \sum \beta_j X_{ij} + \epsilon \]

Where LNEXP is the log of annually expenditure for household i, \(X_{ij}\) are variables j associated with household i that affect income and \(\epsilon\) 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[11]

Where lnEXP is expenditure of the household

- \(\beta_0\) The intercept of the equation, while \(\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \text{and } \beta_9\) is the parameter of respective variable.

| Variable name                                      | Variable labels |
|---------------------------------------------------|----------------|
| Age of the household heads                        | Age            |
| Age of the household heads square                  | Agesq          |
| Marital status of the household heads              | Marital        |
| The average age of the household members           | Meanage        |
| The household head who have primary education level| Pre            |
| The household head who have secondary education level | Sec            |
| The household head who have tertiary education level | Ter            |
| Sex of the household head                         | Sex            |

\(e \sim N(0, \delta^2)\) is assumed.

4. Result and Discussion

4.1. Descriptive Analysis

Before going to the econometrics analysis of the model it is natural to discuss the characteristics and the distributional patterns of the variables included in the model.

In 2010/11, the Gini coefficient for urban areas become 0.37 and rural 0.27. Similar to the previous years, inequality is higher in urban areas than in rural areas. However, rural inequality marginally increased, while urban inequality declined substantially leaving the national Gini Coefficient...
unchanged. Since 1995/96 urban inequality was increasing at an alarming rate Reaching 0.44 in 2004/05, but because of the change in urban development policy after 2005 the rising trend of urban inequality reverted [7]. The decline in income inequality in urban areas has resulted into a huge decline in poverty. Such positive developments in urban areas are because access to such jobs is largely determined by an increasing demand for high-wage employment opportunities in the modern sector. This is because access to such jobs is largely determined by an individual’s education. On the supply side, the quantity of school places at the primary, secondary, and university levels is determined largely by political processes, often unrelated to economic criteria. Given mounting political pressure throughout the developing world for greater numbers of school places at higher levels, we can for convenience assume that the public supply of these places is fixed by the level of government educational expenditures. These are in turn influenced by the level of aggregate private demand for education. Because the amount of education demanded largely determines the supply (within the limits of government financial feasibility), let us look more closely at the economic (employment-oriented) determinants of this derived demand. The amount of schooling demanded that is sufficient to qualify an individual for modern-sector jobs appears to be related to or determined by the combined influence of four variables: the wage or income differential, the probability of success in finding modern-sector employment, the direct private costs of education, and the indirect or opportunity costs of education. The source of income can determine education. Education is both the source of income for the future and it is expense at current this fee comes from income. The income determined by the expense in addition to opportunity. Based on the survey of 2010/11 the educated household head are more income than uneducated one. The following graph is explaining the relation between average expenditure and education level.

The analysis of household expenditure and education from the above graph we understand the positive relation of expenditure and educational level of household head. The direction of causality is not clear with education. It often goes both ways in that having larger incomes increases education and having more education increases incomes.

Table 1. Description of variable.

| Variable       | Obs  | Mean       | Standard.deviation | Min   | Max   | Skewness | Variance |
|----------------|------|------------|--------------------|-------|-------|----------|----------|
| Expenditure    | 17,513 | 25016.22  | 30029.13           | 648.5789 | 146546 | 2.224    | 9.02e+08 |
| Age            | 17,513 | 36.80998  | 15.239445          | 12    | 99    | 1.57     | 232.2408 |
| Agesquare      | 17,513 | 1587.215  | 1396.492           | 144   | 9801  | 1.8844   | 1950190  |
| Sex            | 17,513 | 1.386085  | 0.4868511          | 0     | 2     | 0.467    | 0.23704  |
| Householdsize  | 17,513 | 2.891108  | 2.004731           | 1     | 28    | 1.19667  | 4.019    |
| Meanage        | 17,513 | 6.519962  | 4.562701           | 12    | 95    | 1.178171 | 1.584998 |
| Marital status | 17,513 | 2.258392  | 1.258967           | 0     | 1     | 1.178171 | 1.584998 |
| Pri            | 17,513 | 0.3043199 | 0.4601193          | 0     | 1     | 0.85     | 0.2117098|
| Ter            | 17,513 | 0.5694757 | 0.4951502          | 0     | 1     | -0.28    | 0.2451737|
| Sec            | 17,513 | 0.382726  | 0.1918538          | 0     | 1     | 4.81     | 0.0368073|
| Sex            | 17,513 | 0.234353  | 0.234554           | 0     | 1     | 2.3      | 0.004567 |

Source; CSA, own computation

From the table we understand there is high standard deviation in expenditure this have implication on income inequality, and also we get surprise thing 12 years old child manage the household in urban Ethiopia.

In the distribution issue, the concept of skewness and kurtosis give important information about the distributions of sample point before running regression. Skewness measures the degree of symmetry and it shows the departure from normal distribution while kurtosis show (is) the degree of Preeness of a distribution relative to normal distribution. If the jointly probability of skewness and kurtosis (prob>chiz) is greater than 10%, based on this the whole variable except tertiary level educated household level are normally distributed.

4.1.1. Educational Level of Household Headed

The amount of schooling received by an individual, not only affected by expenditure many nonmarket factors also determined it this can be regarded as largely determined by the combined effect of demand and supply, like any other commodity or service. On the demand side, the two principal influences on the amount of schooling desired are a more educated student’s prospects of earning considerably more income through future modern-sector employment (the family’s private benefits of education) and the educational costs, both direct and indirect, that a student or family must bear. The amount of education demanded is thus in reality a derived demand for high-wage employment opportunities in the modern sector. This is because access to such jobs is largely determined by an individual’s education. On the supply side, the quantity of school places at the primary, secondary, and university levels is determined largely by political processes, often unrelated to economic criteria. Given mounting political pressure throughout the developing world for greater numbers of school places at higher levels, we can for convenience assume that the public supply of these places is fixed by the level of government educational expenditures. These are in turn influenced by the level of aggregate private demand for education. Because the amount of education demanded largely determines the supply (within the limits of government financial feasibility), let us look more closely at the economic (employment-oriented) determinants of this derived demand. The amount of schooling demanded that is sufficient to qualify an individual for modern-sector jobs appears to be related to or determined by the combined influence of four variables: the wage or income differential, the probability of success in finding modern-sector employment, the direct private costs of education, and the indirect or opportunity costs of education. The source of income can determine education. Education is both the source of income for the future and it is expense at current this fee comes from income. The income determined by the expense in addition to opportunity. Based on the survey of 2010/11 the educated household head are more income than uneducated one. The following graph is explaining the relation between average expenditure and education level.

The analysis of household expenditure and education from the above graph we understand the positive relation of expenditure and educational level of household head. The direction of causality is not clear with education. It often goes both ways in that having larger incomes increases education and having more education increases incomes.

The social costs of education (the opportunity cost to society as a whole resulting from the need to finance costly
educational expansion at higher levels when these limited funds might be more productively used in other sectors of the economy) increase rapidly as students climb the educational ladder. The private costs of education (those borne by students themselves) increase more slowly or may even decline. This widening gap between social and private costs provides an even greater stimulus to the demand for higher education than it does for education at lower levels. But educational opportunities can be accommodated to these distorted demands only at full social cost that is why some level of decline income happen at the highest. [12]

**Figure 1.** Source: CSA own computation.

### 4.1.2. Decomposition of Household Head Based on Occupational Type

The occupational choice of laborers is depend on their skill and educational level and also determined by the demand of labor force. As we see in the graph below there is low amount of worker engaged on technicians which need more education. In general the occupational type for household head is determined by education factors and demand of the labor force. In some area of work the demand of labor is decline this might be due to the application of technologies and cyclical type of unemployment.

**Figure 2.** Decomposition of household head based on occupational type.

Source: CSA, own computation
Service workers take a largest place of occupation with the share 23.92% of the household head followed by Elementary occupation with the share of 22.24% of the household head. In our country those of the service worker get a low wage but it absorbed a high amount of household head the same is true for those engaged in elementary occupation this might be create income inequality among the household head.

4.1.3. Decomposition Household Head Based on Budget Allocation by Sex

Characteristics of the household head are also related to expenditure levels and patterns. Sex and education are of particular interest due to their measurability. The graph disaggregates households by the sex of the household head and examines the average proportion of household expenditure allocated to different item groups. It is important to note here that this is strictly based on household expenditure and does not consider differences in household composition. Female household heads allocate more of their expenditure to food and housing and utilities. That is, for food, females devote about 1.75% more than males urban. For housing and utilities, female headed households in urban areas spend an additional 6.9%. Male headed households allocated slightly more of the total household expenditure to alcohol, tobacco, chat and coffee/tea, clothing and footwear, transportation and communication. These goods and services tend to be more luxury items, which is in line with the observation that there are more male headed households in the higher quintiles. Based on Engels hypothesis we understand there is income inequality between female headed household and male household headed. As we describe above most of the income of female house hold head is used to by the basic material it means that essential for life while the male household head is used the income for luxury material. 

The Engels hypothesis tells as income as goes up more to the expenditure on necessity goods implies there is low income posses by the households. That means the males household headed spend for luxuries is due the increasing income while the female household headed are low income since they spent more of their income for necessity goods. This implies the income difference between male household headed and female household headed is a problem in urban part of Ethiopia.

This is a significant percentage despite the common perception that classifies women’s work and their contribution to society as ‘invisible’. However, it is true that women play a key role for agricultural productivity in agrarian societies such as Ethiopia. “Gender equality is smart economics,” as stated by the World Bank Gender Action Plan and further described in the World Development Report (WDR) on Gender (World Bank, 2012). First, women’s economic empowerment is a goal to which all poor countries should aspire to. By respecting women’s right and promoting social justice, effort can be strengthened to design, target interventions and support women’s economic empowerment. 

Ethiopia has a long history of discrimination against women in social and economic spheres through oppressive social norms and unequal pay in labour markets. In the Gender Equity Index by Social Watch, measuring the gender gap in education, and economic and political empowerment, Ethiopia ranked 133rd out of 154 countries in 2012.Hence, there is a daunting task of bridging the gender gap at various levels of society and across many dimensions.

![Figure 3. Source: CSA.](image-url)
4.1.4. Decomposition of Household Head Based on Employment Place

| Employment                  | Percent | Cumulative | Average share of expenditure |
|-----------------------------|---------|------------|------------------------------|
| Employer/working employer   | 0.91    | 0.91       | 19842.95                    |
| Own-Account work (Self Employed) | 44.86  | 45.77      | 23322.94                    |
| Employed - in private enterprise | 18.26  | 64.02      | 28306.66                    |
| Employed - in public enterprise | 7.48   | 71.5       | 26862.84                    |
| Employed - in public service | 22.12  | 93.62      | 27460.2                     |
| Employed - in local NGO     | 0.19    | 93.8       | 20244.76                    |
| Employed - in International NGO | 0.91   | 94.72      | 29183.76                    |
| Employed - in Extra-Territorial organ | 0.16   | 94.87      | 16912                       |
| Employed - in Religious Institution | 1     | 95.88      | 23097.55                    |
| Employed - in cooperative/unions | 0.36  | 96.23      | 23530.9                     |
| Employed - in chamber of commerce & Re | 0.06  | 96.35      | 35586.64                    |
| Employed - in civic Associations (Prof) | 0.06  | 96.35      | 21908.91                    |
| Employed - in political organization | 0.06  | 96.41      | 30199.25                    |
| Employed - for private Hh/person | 2     | 98.41      | 26064.73                    |
| Unpaid family work Unpaid/for family wo | 0.31  | 98.71      | 17111.56                    |
| Unpaid family work Unpaid/Free service | 0.03  | 98.74      | 20959.11                    |
| Member of cooperatives       | 0.36    | 99.11      | 30041.41                    |
| Other, nec                   | 0.89    | 100        | 26032.48                    |
| Total                       | 100     |            | 25061.98                    |

Source: CSA own computation

From the above table in the above most of the head of household engaged in Own-Account work (Self Employed) with the share of 44.86% followed by Employed - in public service and Employed - in private enterprise with the percent share of 22.12 and 18.26 respectively, but the share of the average expenditure in the household head is high in employed in chamber of commerce followed by employed in political organization and employed in international organization. But in this working environment that means the number of people employed in political organization is 6% only the same true for the second highly wage payer work area. This implies there is a high income variation among household head.

In the own account work /self-employed activities which is the largest observer of labor force and it mainly engaged on service sector. This sector by nature is volatile in terms of generation of income. The household head those engaged in in the own account work get their income from the default other they consider themselves as mercantilist. This implies ones get at the expense of the other or the competitor. Since in our country Ethiopia most of self-employed household engaged on trade and related activities. This service sector is exposed to informational asymmetry and knowledge gap so the engaged of household head in sector is exposed to differential in profit this bring income inequality among the house hold head within the same employment type.

Next to the self-employed most of the household head engaged on public service and in private enterprise. Mostly in our country those engaged on public enterprise earn low income than those employed on in private enterprise. The data also show this on the average those household head work in private enterprise get 28306.66 birr annually while work in public service get 26862.84 birr annually. Mostly in private enterprise there a high wage gap among the worker. This bring income differential among the household head not only income inequality but also the future generation also lose a lot by this wage differential because our country is not developed as well most of the human capital sector like education, health are control by the public, but the public sector employee is not get sufficient reward from their contribution so they lose satisfaction from work based on rationality assumption of the individual go to the private enterprise. The overall effect is adverse for the country.

Finally the employment area of the household head is the ability to determine the income difference among the head of the household. The above table tells about the share of the household head in working environment.

4.1.5. Decomposition of Household Head Based on Industry Work Involvement

| Industry          | Percent | Cum | Average share of expenditure |
|-------------------|---------|-----|------------------------------|
| Agriculture       | 7.62    | 7.62| 18063.34                    |
| Fishing           | 7.62    | 7.62| 12108.1                     |
| Mining and Quarrying | 0.4    | 8.02| 21049.35                    |

Source: CSA own computation
### Industry

| Industry                                | Percent | Cum | Average share of expenditure |
|-----------------------------------------|---------|-----|--------------------------------|
| Manufacturing                           | 9.07    | 17.1| 24339.7                       |
| Electricity,                             | 1.15    | 18.24| 27765.62                      |
| Construction                            | 26.49   | 26.49| 24347.1                       |
| Wholesale & Maintenance of Vehicles      | 20.68   | 47.16| 22413.59                      |
| Hotel and Restaurants                    | 7.85    | 5.015| 29386.23                      |
| Transport, Storage and communication    | 4.26    | 59.27| 23246.23                      |
| Financial intermediates                 | 2.19    | 61.46| 27084.48                      |
| Real Estate, Renting and Business       | 0.66    | 62.13| 20746.7                       |
| Public Administration and Defence       | 13.02   | 75.15| 26665.97                      |
| Education                               | 8.61    | 83.75| 29656.54                      |
| Health and Social work                  | 3.02    | 86.78| 28605.97                      |
| Other community, Social and Personal    | 10      | 96.78| 26494.56                      |
| Private Hhs with Employed Persons       | 1.41    | 98.19| 27382.06                      |
| Extra - Territorial Organizations and   | 1.81    | 100  | 26469.65                      |
| Total                                   | 100     | 25061.98|                                 |

Source: CSA own computation

From the above table most of the household head engaged on industrial activities is on construction with the share of 26.49% with the 24347.1 birr the annual income for single head of the household. While the work area which involves only 7.6% opportunity for household head pay 29386.23 birr per annual for single household on the average.

The second and third are wholesale and maintenance of vehicles, and public administration and defense with the share 20.68 % and 13.02% respectively and pay for the employees annually on the average 26665.97 birr and 22413.59 birr respectively, the lowest earner of household head are engaged on fishing and agriculture hunting and forestry both share equal amount of worker which is 7.62% and get income from the fishing sector is one of the lowest which is 12108.1 birr annually per single person while those engaged in agricultural, hunting and forestry are earn 18063.34 birr annually on the average per single person. Since most of this activities are concentrated in specific cities or towns especially fishery are limited in our country in rift valley area and some parts of northern area due to this in that particular cities or town it create income inequality, but at the country level or at the whole urban part of our country it may not determine the income inequality since excluding Hawasa and Bahirdar the major cities like Addis Ababa, Adama, Mekelle, Dire Dawa have engaged on fishery economy. The same is true for agricultural, hunting and forestry.

In general the unequal involvement of household head in working area has their own contribution to the income gap among the household head as well for the country development in terms of politics social and as a whole level of the living standard of the population.

#### 4.1.6. Decomposition of Household Head Based on Region

| Region/race         | Percent | Cum | Average share of expenditure |
|---------------------|---------|-----|--------------------------------|
| Tigray              | 7.86    | 7.86| 28300.45                      |
| Afar                | 4.07    | 11.93| 22766.63                      |
| Amhara              | 19.33   | 31.27| 27305.69                      |
| Oromiya             | 20.74   | 52.01| 26445.39                      |
| Somali              | 5.38    | 57.39| 18299.13                      |
| Benshangul          | 5.03    | 62.42| 25499.46                      |
| SNNP                | 11.68   | 74.10| 20645.98                      |
| Gambella            | 3.47    | 77.58| 26105.54                      |
| Harari              | 1.8     | 79.38| 19526.55                      |
| Addis Ababa         | 18.27   | 97.65| 21547.93                      |
| Dire Dawa           | 2.35    | 100  | 25273.93                      |
| Total               | 100     | 25016.22|                                 |

Source: CSA, own computation

From the above the Tigray households headed consume highest share followed by Amhara and oromia. This might be the political elite from Tigray may favor for Tigray region through infrastructural development and safety net program. this argument nowadays highly supported by politician and economic activist.
4.1.7. Distribution of Urban Regional Population by Household Expenditure Quintile

Table 5. Distribution of Urban Regional Population by Household Expenditure Quintile.

| Region    | 1st quintile | 2nd quintile | 3rd quintile | 4th quintile | 5th quintile | Total |
|-----------|--------------|--------------|--------------|--------------|--------------|-------|
| Tigray    | 53.29        | 22.55        | 13.23        | 6.505        | 4.4          | 100   |
| Afar      | 51.4         | 32.51        | 8.68         | 4.52         | 2.9          | 100   |
| Amhara    | 59.04        | 17.55        | 12.52        | 6.56         | 4.33         | 100   |
| Oromiya   | 69.54        | 14.53        | 8.46         | 4.55         | 2.92         | 100   |
| Somali    | 69.92        | 14.75        | 8.34         | 4.08         | 2.92         | 100   |
| Gambella  | 68.86        | 14.57        | 8.92         | 4.68         | 2.99         | 100   |
| Harari    | 67.07        | 14.26        | 10.8         | 4.86         | 3.008        | 100   |
| Addis Ababa | 51.46    | 24.14        | 12.8         | 7.16         | 7.16         | 100   |
| Dire Dawa | 48.83        | 16.42        | 20.98        | 7.55         | 6.23         | 100   |
| Total     | 61.65        | 18.3         | 10.76        | 5.62         | 3.66         | 100   |

Source: CSA, own computation

The first quintile shows 20% of the urban population an all-region is above the half percent except Dire Dawa city administration which is only 48.83% of the household are in low income group.

The highest percent of the household head that live with low income groups is from Somali, Oromiya and Gambella region with the share of 69.92, 69.54 and 68.86 respectively. The upper 20% quintile is the highest in Addis Ababa followed Dera Dawa and Tigray with the share of 7.16, 6.23 and 4.4 respectively.

From the above table we understand that the small number of the people consumes the large while the largest number of people consumes the least. This implies there is a high income gap among the household head.

For instance in urban Somali region the highest number of population are under the first quintile and the lowest number of population are under the fifth quintile. These have obvious implication on the income inequality since the small numbers of household consume a large amount of resource while the largest part of the society consumes a small resource.

Even in dire Dawa which somewhat better amount of the population are under the first quintile and fifth quintile have also prove a high amount of income inequality.

4.1.8. Size of the Distribution by Lorenz Curve

The more the Lorenz line curves away from the diagonal (line of perfect equality), the greater the degree of inequality represented. The extreme case of perfect inequality (i.e., a situation in which one person receives all of the national income while everybody else receives nothing) would be represented by the congruence of the Lorenz curve with the bottom horizontal and right hand vertical axes. Because no country exhibits either perfect equality or perfect inequality in its distribution of income, the Lorenz curves for different countries will lie somewhere to the right of the diagonal. The greater the degree of inequality, the greater the bend and the closer to the bottom horizontal axis the Lorenz curve will be.

Figure 4. Lorenz curve.
Y axis represent cumulative share of income earned  
X axis cumulative share of population from the lowest to highest  
As we have seen on the figure the Lorenz curve is not that much away from the diagonal line this implies the gini coefficient are not that much is large or the size of the distribution of income is somewhat good but it’s not fair.

4.2. Econometric Analysis

4.2.1. Empirical Result
Based on this simple linear regression model the papers try to explain the dependent variable relative to the independent variable.

\[ \text{LNEXP} = \beta_0 + \beta_1 \text{age} + \beta_2 \text{agesq} + \beta_3 \text{marital status} + \beta_4 \text{households} + \beta_5 \text{meanage} + \beta_6 \text{sex} + \beta_7 \text{pre} + \beta_8 \text{sec} + \beta_9 \text{ter} + e_i \]

Table 6. OLS regression result.

|              | Coef.       | Std.err     | Contribution to income inequality | p>|t|     | [95% conf. interval] |
|--------------|-------------|-------------|-----------------------------------|--------|---------------------|
| age          | -0.0085387 | 0.0004877   | -17.51                            | 0.000  | -0.0094945, -0.00758 |
| Ageqs        | 0.00000824 | 0.0567-0.6  | 16.23                             | 0.000  | 0.0000724, 0.000923  |
| Marital status | -0.0023687 | 0.0005779   | -0.77                             | 0.442  | -0.084014, 0.003639  |
| householdsize| -0.301099  | 0.0007587   | -396.86                           | 0.000  | -3.025861, -2.99612  |
| meanage      | 0.0000189  | 0.0262-0.7  | 31.37                             | 0.450  | 0.0000177, 0.000201  |
| sex          | -0.0369855 | 0.0013699   | -27.00                            | 0.200  | -0.0396685, -0.034296 |
| Pre          | 0.0009623  | 0.0005064   | 0.17                              | 0.863  | -0.0090476, 0.0107731 |
| Sec          | 0.0004729  | 0.0008046   | 0.06                              | 0.953  | -0.0152942, 0.01624  |
| Ter          | 0.0350181  | 0.0048114   | 7.28                              | 0.000  | 0.0255879, 0.044451  |
| -cons        | 10.71039   | 0.012637    | 950.71                            | 0.000  | 10.68831, 10.73247  |

Number of obs = 17,513; Prob > F = 0.000; R-squared = 0.390; Adj R-squared = 0.3902

4.2.2. Hypothesis Testing and Interpretation

As shown in the above table R squared in the model is relatively good and it is expected for the cross sectional data with the value of 39.02% this means other things being equal, on the average 39.02% of variation in the income inequality/expenditure is explained by the explanatory variables included in the model.

The overall significant of the model is tested using F-test against the hypothesis:

\[ H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = 0 \]

Since the probability of rejection of F statics is zero so all variables jointly are perfectly significant. While the individual significant variables are age, agesq, household size, household education level the income of the poor household increases.

Age and household size increases the income share of the household number is decreases so it widens the income inequality relative small household sizes.

Age, sex and tertiary education attainment of households are positively affecting the expenditure and also decrease the income variation among the households. 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 due to this the income variation among the households decreases. Education also contributes positively to decrease the income variation among the society of urban households. It means that as the household education level the income of the poor household increases.

4.2.3. Discussion of the Result

The regression result shows that 39.02% of the variation in expenditure is explained by independent variables included in the model jointly. To say in other words 39.02% of the variation in expenditure is explained by the variables included in the model. At f-statics all variables are jointly significant.

Age and household size is negatively affecting the expenditure of the household, and it has a contribution for inequality of income. Obviously as the Age of the household increases the income is going to decrease relative to that of younger households. The household size also contributes for income variation. This means as the number is decreases so it widens the income inequality relative small household sizes.

5. Conclusion

The major objective of the study is to analyze the factor of income inequality in urban part of Ethiopia by using the cross-sectional data analysis of 2010/11 household consumption expenditure survey. The main finding is to know the determining factor of inequality in urban income by taking expenditure as dependent variable instead of gini coefficient of the household. As discussed in the MOFED (2013) development and poverty in Ethiopia 1995/96-2010/11 the gini coefficient is 0.37 for 2010/11 which is a relatively high income differential in urban part of Ethiopia.

By employed Field’s (2003) regression based decomposition technique to establish the Influencing factor
of inequality in urban Ethiopia. The main finding from descriptive analysis the contributor to income variation among household are educational level, employment area of household, gender, age of the household head, and the household size has influencing factor to inequality. From empirical analysis Age and household size is negatively affect the expenditure of the household, and it has a contribution for inequality of income. While Agesquare and tertiary education attainment of households are positively affecting the expenditure and narrowing the income variation among the households.

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.

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.

So the government should take to reduce income inequality in creating market based on system that can able to get free information and knowledge to the consumer and producer since most of the activities in our urban part of country is service sector specially trade is take big place of activities. So if the government create o good environment to this sector it contribute to reduce the income inequality (good environment in this case by giving the awareness to the consumer to become rational when they buy goods and service and by protecting the legal traders from the illegal one. Through giving training for informal sector and by giving legal tender for the participant in the market. Then it’s simple to create market based approach and a good environment for this sector) plus The government should be fair interims of distributing resource among the region especially in infrastructural development.

The government should do in the promotion of labor intensive activities (use of cobblestone to construct urban roads), promotion of micro and small scale enterprises via the provision of training, credit and business development support, and the distribution of subsidized basic food items to urban poor in times of crisis. Such positive developments in urban areas are because of the urban focused development activities carried out in the country including urban infrastructural development (road, private and condominium housing construction) this have a great contribution to reduce inequality among the household head in urban Ethiopia.

The paper also 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 dwellers.

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.

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