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POVERTY AND PRO-POOR GROWTH IN ETHIOPIA

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EXECUTIVE SUMMARY

Policies and programs aimed at poverty reeducation necessitate continuous monitoring and evaluation of welfare conditions and the effectiveness of poverty reduction interventions. The relevance and effectiveness of development plans should be gauged based on welfare conditions and specific poverty reduction targets.

Datasets and methods

This paper measures the state of welfare conditions at household level using the latest three-panel surveys from the Living Standards Measurement Study (LSMS). Data on 6,191 households from 2018/19 and 4,959 households from 2021/22 across regional states and the two city administrations are utilized. Moreover, the 2015/16 estimates of poverty and inequality are used to compute changes in poverty and inequality between 2015/16 and 2021/22. Distributive analysis of poverty and inequality, growth and redistribution, pro-poor growth, poverty elasticities, decomposition, and other distributive tools are employed.

Key findings

1. Between 2015/16 and 2021/22, absolute poverty increased in many regional states of Ethiopia. The rise in poverty was more pronounced in SNNP, Somali, Oromia, Dire Dawa, and Amhara. The state of absolute poverty in Addis Ababa was unchanged over the six years. The total absolute poverty in rural Ethiopia increased from 23.5% to 33% between the two periods, a rise of 9.5%.
2. Absolute poverty in urban Ethiopia increased from 14.8% to 17.5% between the two periods (2015/16 and 2021/22). Though absolute poverty increased in rural and urban areas, it was relatively higher in rural Ethiopia. In 2021/22, nearly half of the rural population in Ethiopia was in extreme poverty.
3. Between the two periods, absolute food poverty in Ethiopia was reduced. There was reduction in absolute food poverty from 24.8% in 2015/16 to 19.1% in 2021/22, an annual decrease of about 1%. The reduction in food poverty in urban Ethiopia during this time was relatively lower than in rural areas.
4. Income inequality increased from 32.8% in 2015/16 to 39.3% in 2021/22. In 2021/22, income inequality particularly surpassed the national average (39.3%) in the SNNP, Gambella, and Somali regional states. Changes in income inequality were not significant in Benishangul-Gumuz, Addis Ababa, Dire Dawa, Amhara, and Harari.
5. Between 2018/19 and 2021/22, income growth in some regional states and cities of Ethiopia did not benefit the poor, indicating a potential mismatch between policy design and implementation. While the policies may have been intended to reduce poverty, their outcomes measured in economic growth were counterproductive. This was particularly evident in Oromia and Harari regional states, as well as the two city administrations, where poverty exacerbated for both the poor and non-poor populations.

Concluding remarks

The federal government should formulate poverty reduction policy frameworks that can harmonize and ensure the internal consistency of growth policies pursued by different stakeholders at different levels. To effectively translate the pro-poor policies into tangible poverty reduction outcomes, the federal government, regional states, city administrations, and urban centers should implement strategies that prioritize investment in pro-poor social sectors and establish robust monitoring and evaluation systems to ensure the effective implementation of these policies.

1. INTRODUCTION

Economic development and social welfare can be measured by several indicators including real GDP per capita income, and human development index (HDI). However, other aspects of human welfare cannot be captured by these aggregate indicators. GDP, as a measure of human welfare, has several limitations.

GDP measures the value of goods and services produced for final consumption. It measures output (not welfare) and ignores income distribution or inequality. Welfare conditions related to inequality and redistribution cannot be measured by GDP and GDP per capita. Beyond a certain level, a higher material standard of living does not make people happier. Furthermore, GDP does not directly take into account nonmaterial needs.

The HDI, on the other hand, is a broader measure of key dimensions of human development captured by a long and healthy life, a good education, and a decent standard of living. Unlike GDP per capita, the HDI considers social development (health and education) to capture the level of social development. The HDI provides a broader picture of an economy than GDP per capita. It measures the social (or qualitative aspects) and economic progress of nations. Although human welfare is adversely affected by income distribution, the HDI is an aggregate measure that does not take income inequality into account.

In this study, poverty and inequality are used as measures of standard of living or welfare at a micro or household level. Distributive analysis is the method employed to measure other welfare issues that cannot be captured by GDP per capita and HDI. This analysis includes nonmaterial elements that affect people's well-being at the household level. Poverty and inequality indices estimated from household surveys provide more realistic pictures, reflecting the actual standard of living experienced by citizens. These indices offer insights into the disparities in income distribution and access to resources within a population, highlighting areas where interventions are most needed to improve welfare outcomes. The study measured welfare conditions at the household level using country-representative household survey data.

For its several advantages, the Foster-Greer-Thorbecke (FGT) measures of poverty and inequality are employed to investigate the welfare conditions of households between 2015/16 and 2021/22. Real consumption expenditure is used as an indicator of economic well-being to analyze the incidence, depth, and severity of poverty. Pro-poor growth policies pursued in Ethiopia are also assessed at both regional and national levels.

The study is generally aimed to examine poverty, inequality, and pro-poor growth policies pursued in Ethiopia. It is specifically intended to:

- a. Measure the dynamics of poverty and inequality;
- b. Estimate the poverty effects of growth and redistribution; and
- c. Identify pro-poor growth policies pursued in Ethiopia.

2. METHODOLOGY

2.1. Datasets

To address the major limitations of GDP and HDI as measures of human welfare, this study estimates the economic welfare of households using two country-representative surveys from the Living Standards Measurement Study (LSMS), covering 6,191 and 4,959 households surveyed nation-wide⁴ in 2018/19 (wave 4) and 2021/22 (wave 5) respectively (Table 2.1). Estimates of poverty and inequality from 2015/16 are also utilized to investigate the dynamics of welfare between the two periods.

Table 2.1: Distribution of LSMS samples across waves and regions

Regions	Wave 4 (2018/2019)	Wave 5 (2021/2022)
Dire Dawa	676	521
Oromia	753	637
Addis Ababa	778	644
Somali	610	522
SNNP	691	657
Benishangul-Gumuz	364	206
Harari	550	444
Amhara	750	656
Gambella	495	422
Afar	524	250
National	6,191	4,959

Source: EEA staff compilation from LSMS data in the World Bank (wave 4 and wave 5).

In this study, nominal household consumption expenditure is adjusted to account for inflation using constant basic prices in 2016. This adjustment ensures that the data reflects real changes in consumption, excluding the effects of price changes over time. The Consumer Price Index (CPI) is a key tool in this process, as it helps remove the impact of inflation from consumer prices or final household consumption expenditure. However, Ethiopia's regional states have experienced significant variations in consumer price inflation, leading to disparities in the cost of living across different areas. These regional differences mean that a single, national CPI would not accurately reflect the inflationary pressures faced by households in various regions. Using the national CPI for adjustment could result in misleading conclusions about real consumption expenditure and welfare conditions at the regional level.

To address this issue, the study employs regional CPIs to deflate consumer prices specific to each region or city administration. This approach allows for a more accurate and nuanced analysis of real household consumption expenditure by considering the unique inflationary trends in each area. By using region-specific CPIs, the study ensures that the adjustments for inflation are relevant and precise, providing a clearer picture of the actual standard of living and economic well-being experienced by households across different regions of Ethiopia (Table 2.2).

⁴ Due to the domestic conflict erupted in 2020 in Northern Ethiopia, Tigray regional state is not covered by the 2021/22 survey. Consequently, the region is not covered by this study.

Table 2.2: Adjustment of consumption expenditure for inflation

Region	Deflator (general inflation, December 2016=100)	
	2018/19	2021/22
Tigray	136.48	213.78
Harari	121.43	251.55
Gambella	123.17	244.01
Benishangul Gumuz	133.49	288.35
Somali	124.08	231.55
Afar	124.43	235.40
Amhara	138.89	255.19
Oromia	129.87	255.00
SNNP	129.52	277.51
Dire Dawa	125.02	240.87
Addis Ababa	119.52	252.46
National	132.04	254.66

Source: Authors' compilation from LSMS data in the World Bank

2.2. Determination of the Poverty Line

National poverty lines serve as the benchmark for estimating poverty indicators that are consistent with a country's specific economic and social circumstances. Like poverty lines estimated in other developing countries, the poverty line for Ethiopia is anchored to the cost of a food bundle, based on the prevailing national diet of the poor, that provides adequate nutrition for good health and normal activity, plus an allowance for nonfood spending. National poverty lines must be adjusted for inflation between survey years to allow for meaningful comparisons of poverty over time.

Poverty lines are expected to change mainly due to two factors, price changes and determination of the poverty line. Poverty lines reflect the costs of purchasing food and non-food items in which nominal poverty lines increase as prices change. In addition, the way the poverty line is constructed may change. Without further information, the rise in the poverty line cannot tell whether the rises in the poverty line merely reflect changes in prices or represent a revision in the real poverty threshold.

In the long run, the consumption pattern, or food bundle of households is expected to change. If the consumption bundle does not significantly change, the real poverty lines remain unchanged. The national poverty lines estimated for Ethiopia in 2016 were ETB 7,184 for total absolute poverty and ETB 3,781 for food poverty. These specific poverty lines measure the minimum acceptable standard of living in Ethiopia and cannot be compared with other countries.

There is ample evidence of the rising cost of living around the world over the last decade. The World Bank reports that, from 2020 to 2022, the global economy experienced an overall economic slowdown and a loss of development gains (Mahler et al. 2023). As the cost of living for basic food, clothing, and shelter around the world changes, the World Bank sets new international poverty lines. Accordingly, it has raised the international absolute poverty threshold from \$1.90 to \$2.15 per day, making a 13.16% increase in the extreme poverty threshold.

Similarly, the World Bank data shows a significant decline in Ethiopia's real aggregate output, which fell by 34% between 2015 and 2023. The rising cost of living in Ethiopia is largely driven by

macroeconomic imbalances resulting from an overall economic slowdown. The gap between aggregate output and aggregate demand has been increasing over the last decade. This macroeconomic imbalance has been exacerbated by widespread domestic conflicts and political instability in the country. Since 2019, nearly all of the nation's productive capacities have stagnated, limiting the production of goods and services (EEA, 2024).

These factors have considerably escalated the cost of living in Ethiopia. The costs of accommodation, food, transport, fuel, imported goods, and other utilities have remained persistently high. To account for the increasing cost of living experienced after 2015/1, the total and food absolute poverty lines are accordingly revised at ETB 8,262 and 4,348, respectively, reflecting a 15% increase. The estimation of poverty in this study utilizes these absolute poverty lines for 2018/19 and 2021/22.

2.3. Estimation of Poverty and Inequality

The Foster-Greer-Thorbecke (FGT) poverty measures are additively decomposable, allowing for the separation of changes in these measures into components driven by rising average incomes/expenditures and those caused by shifts in income or expenditure distribution. For its several advantages, the FGT measure of poverty and inequality is employed to measure the welfare conditions of households in 2018/19 and 2021/22 and the welfare dynamics between 2015/16 and 2021/22.

In this study, real consumption expenditure serves as an indicator of economic well-being. It is used to analyze the incidence, depth, and severity of consumption poverty. As one of the measures proposed by Foster et al. (1984), it can generally be expressed as

$$P_a = \frac{1}{N} \sum_{i=1}^N \left(\frac{G_i}{z} \right)^a, a \geq 0 \quad (1)$$

where α is a measure of the sensitivity of the index to poverty and the poverty line. When parameter $\alpha = 0$, P_0 is simply the headcount index. When $\alpha = 1$, the index is the poverty gap P_1 , and when α is set equal to 2, P_2 is the poverty severity index. For all $\alpha > 0$, the measure is strictly decreasing in the living standard of the poor.

The non-normalized and usual normalized FGT indices are estimated as (Arrar & Duclos, 2013)

$$\hat{P}(z; \alpha) = \frac{\sum_{i=1}^n w_i (z - y_i)_+^\alpha}{\sum_{i=1}^n w_i} \quad (2)$$

$$\hat{\hat{P}}(z; \alpha) = \hat{P}(z; \alpha) / (z)^\alpha \quad (3)$$

where z is the poverty line and $x_+ = \max(x, 0)$.

The FGT poverty index (P) can be decomposed by population subgroups as follows (Araar and Duclos, 2013):

$$\hat{P}(z, \alpha) = \sum_{g=1}^G \hat{\phi}(g) \hat{P}(z; \alpha, g) \quad (4)$$

where G is the number of population subgroups, $\hat{P}(z, \alpha, g)$ is the estimated FGT index of subgroup g , $\hat{\phi}(g)$ is the estimated population share of subgroup g , $\sum_{g=1}^G \hat{\phi}(g) \hat{P}(z; \alpha, g)$ is the estimated absolute

contribution of subgroup g to total poverty, and $\sum_{g=1}^G \hat{\phi}(g) \hat{P}(z; a, g)$ is the estimated relative contribution of subgroup g to total poverty.

The total reduction of FGT poverty can be decomposed into the sum of the contributions from separate income/expenditure components. Total alleviation is maximal when all individuals have an income/expenditure greater than or equal to the poverty line. A negative sign on a decomposition term indicates that a specific income component reduces poverty.

Assume that there exist K income/expenditure sources and that S_k denotes source k . The FGT index is defined as (Araar and Duclos, 2013):

$$\hat{P} = \left(z; a, y = \sum_{i=1}^k s_k \right) = \frac{\sum_{i=1}^n (1 - y/z)^\alpha}{\sum_{i=1}^n w_i} \quad (5)$$

where w_i is the weight assigned to individual i and n is the sample size.

This estimates the share in total consumption expenditure of each source k and the absolute and relative contributions of each source k to the value of $\left(\hat{P}_{-1} \right)$.

Growth elasticity of poverty (GEP) is the percentage reduction in poverty rates associated with a percentage change in mean income or expenditure. The information on the responsiveness or sensitivity of poverty measures to changes in income or expenditure is relevant to evaluating the likely impacts of poverty reduction measures. The overall GEP, when growth comes exclusively from growth within a group k (within that group, inequality neutral), is estimated by (Araar & Duclos, 2007; Araar, 2012):

$$GEP = \begin{cases} -\frac{zf(k,z)}{F(z)} \text{ if } \alpha = 0 \\ \alpha \frac{\bar{P}(k,z;\alpha) - \bar{P}(k,\bar{z};\alpha-1)}{\bar{P}(z,\alpha)} \text{ if } \alpha \geq 1 \end{cases} \quad (6)$$

where z is the poverty line, k is the population subgroup in which growth takes place, $f(k, z)$ is the density function at the level of income or expenditure z of group k , and $F(z)$ is the headcount.

The property of mean independence is considered a desirable feature of an inequality measure. Inequality measures are often calculated for their distributions. As a good measure of income and consumption inequality, the Gini coefficient has desirable properties (Haughton & Khandker, 2009). It is the most widely used single measure of inequality officially used by the World Bank to compare inequality among countries in the world. It is based on the Lorenz curve, a cumulative frequency curve that compares the distribution of a specific variable with the uniform distribution that represents perfect equality. To construct the Gini coefficient, we create a graph of the cumulative percentage of households (e.g., from poor to rich) on the horizontal axis and the cumulative percentage of expenditure (e.g. income) on the vertical axis.

The diagonal line in the Lorenz curve represents perfect equality. The Gini coefficient is defined as

$$G = 1 - \frac{1}{N} \sum_{i=1}^N (\gamma_i + \gamma_{i-1}). \quad (7)$$

2.4. Measuring Pro-poor Growth

Growth can be either pro-poor or anti-poor (not pro-poor). Pro-poor growth is the income growth that benefits the poor. But how much poverty reduction is required for growth to be considered pro-poor? The degree of being pro-poor is measured by a pro-poor growth index (PPGI). This index shows the relation between total poverty reduction and poverty reduction that results from distribution-neutral growth (Ravallion & Chen, 2003). Poverty reduction depends on two factors: the growth itself and how the benefits of growth are distributed among the poor and the non-poor. The PPGI is the ratio of the total poverty elasticity to the growth elasticity of poverty. Growth is pro-poor (antipoor) if the change in inequality that accompanies it reduces (increases) total poverty (Kakwani, et al. 2004). A measure of pro-poor growth is absolute if, after comparing the absolute benefits from growth, the poor gain more than the nonpoor. This is called the poverty equivalent growth rate (PEGR).

The following decision rules hold for most estimates of pro-poor growth indices:

- If PPGI is greater than 1, growth is pro-poor (the inequality effect is less than 0), the poor benefit proportionally more than the non-poor, and growth results in a redistribution in favor of the poor.
- If PPGI equals 1, everyone receives the same proportional benefits.
- If PPGI is less than 0, economic growth leads to an increase in poverty and may be characterized as ‘immiserizing’ growth.
- If PPGI is between 0 and 1, growth is not strictly pro-poor (i.e., growth results in a redistribution against the poor) even though it still reduces the incidence of poverty. This situation may be generally characterized as ‘trickle-down’ growth.
- If PEGR is greater (less) than the benchmark (actual growth rate of mean per capita income), growth is pro-poor (not-pro-poor).
- If PEGR lies between 0 and the actual growth rate, the growth is accompanied by increasing inequality but still reduces poverty. This situation may be characterized as the trickle-down process when the poor receive proportionally less benefits than the non-poor. However, when PEGR is negative, growth may increase poverty. The difference between the PEGR and the benchmark growth rate captures gains or losses of the growth rate due to changes in the distribution of income. The gains imply pro-poor growth, while the losses imply a growth that is not pro-poor.

Measures of pro-poor growth may take the following five different scenarios (Kakwani & Son, 2008):

1. **Relative pro-poor:** A measure of pro-poor growth is relative when economic growth benefits the poor proportionally more than the non-poor. While growth reduces poverty, it also improves relative inequality.
2. **Absolute/Super pro-poor:** A measure of pro-poor growth is absolute if the poor receive the absolute benefits of growth equal to, or more than, the absolute benefits received by the non-poor. In this approach, absolute inequality would fall during economic growth, which may also be referred to as ‘super pro-poor’.
3. **Strongly pro-poor:** When growth is negative, poverty in general increases. However, if the effect of inequality reduction on poverty outweighs the adverse impact of negative growth on

poverty, there may be a situation where negative growth results in poverty reduction. This negative growth scenario may be termed as ‘strongly pro-poor’.

4. ***Anti (not pro)-poor***: When negative growth raises poverty, growth is termed as ‘anti-poor’ or not ‘pro-poor’ even if inequality improves.
5. ***Strongly anti (not pro)-poor***: If both poverty and inequality become worse during the spells of negative growth, growth is termed as ‘strongly anti-poor’.

One way of defining pro-poor growth is growth where poverty declines, irrespective of growth and distribution. In this case, growth will always be pro-poor whenever poverty falls (Ravallion & Chen, 2003). The Ravallion and Chen pro-poor index (2003) is estimated as:

$$Index = \frac{W_1(z) - W_2(z)}{F_1} \quad (8)$$

where $W_D(z)$ is the Watts index for distribution $D \in [1,2]$ and $F_1(z)$ is the headcount index for the first distribution, both with poverty lines z .

However, the strict definition of pro-poor growth emphasizes how the benefits of growth are distributed among the poor and the nonpoor in society. This definition focuses on growth that leads to poverty reduction whereby the benefits of growth accrue largely to the poor (McCulloch & Baulch, 2000; Kakwani & Pernia, 2000).

The full definition of pro-poor growth provides a conclusive result as to whether or not growth is pro-poor. The Kakwani and Pernia pro-poor index (2000) is estimated as follows:

$$Index = \frac{P_1(z, \alpha) - P_2(z\alpha)}{P_1(z, \alpha) - P_1(z(\mu_1/\mu_2), \alpha)} \quad (9)$$

The Kakwani, Khandker and Son pro-poor index (2003) is measured as

$$Index1 = g \frac{P_1(z, \alpha) - P_2(z\alpha)}{P_1(z, \alpha) - P_1(z(\mu_1/\mu_2), \alpha)} \quad (10)$$

where g is the growth rate, and the average growth (ag) is

$$ag = g(\mu_2 - \mu_1)/\mu_1 \quad (11)$$

and where a second index is given by:

$$Index2 = Index_1 - g \quad (12)$$

3. POVERTY AND INEQUALITY

3.1. Poverty Incidence

The absolute poverty rate at the poverty line of ETB 8262 increased from 23.5% in 2015/16 to 33% in 2021/22 (Table 3.1). In 2021/22, regional states where poverty incidence was above the national average include SNNP (46.7%), Somali (42.1%), Oromia (38.8%), and Amhara (36.3%). The poverty rate was relatively lower in urban centers.

Compared to the 2015/16 poverty rate of 23.5%, total absolute poverty in 2021/22 increased by about 9.5% over the six years. Stated differently, total absolute poverty incidence increased by about 1.6% every year. Total absolute poverty rose in all regions. The increase in poverty was relatively higher in SNNP (26%), Somali (19.7%), Oromia (14.9%), Dire Dawa (12.6%), and Amhara (10.2%). Between the two periods, poverty remained unchanged in Addis Ababa.

The results verify that the nation's aspirations to reduce and eradicate extreme poverty by 2030 have become out of reach. The achievement of the Sustainable Development Goals (SDG) of the United Nations to eradicate absolute poverty by 2030 is less likely.

Table 3.1: Dynamics of total absolute poverty across regions

Regions	Absolute poverty rate (%)		Poverty changes (wave5-wave3)
	2015/16 (wave3)	2021/22 (wave5)	
SNNP	20.7	46.7	26
Somali	22.4	42.1	19.7
Oromia	23.9	38.8	14.9
Dire Dawa	15.4	28	12.6
Amhara	26.1	36.3	10.2
Afar	23.6	32.5	8.9
Harari	7.1	14.1	7
Gambella	23.0	28.1	5.1
Benishangul Gumuz	26.5	30.2	3.7
Addis Ababa	16.8	16.8	0
National	23.5	33.0	9.5

Source: Authors' computation from LSMS data in the World Bank and FDRE (2018)

Poverty incidence between 2015/16 and 2021/22 varied significantly by place of residence. The total absolute poverty in rural Ethiopia increased from 25.6% in 2015/16 to 47.5% in 2021/22, a rise of 21.9% (Table 3.2). In 2021/22, nearly half of the rural population in Ethiopia was in absolute poverty. Total absolute poverty remained persistently high over the six years. Moreover, absolute poverty in urban Ethiopia increased from 14.8% in 2015/16 to 17.5% during the same period. Although absolute poverty increased in both rural and urban areas, it was relatively higher in rural Ethiopia.

Absolute food poverty was slightly reduced in Ethiopia. There was a reduction in absolute food poverty from 24.8% in 20215/16 to 19.1% in 2021/22, an annual decrease of about 1%. The reduction in food poverty in urban Ethiopia between the two periods was relatively lower than in rural areas.

Table 3.2: Dynamics of total and food poverty by place of residence

Place of residence	Poverty rate (%)		
	2015/16 (wave3)	2021/22 (wave5)	Changes (wave5-wave3)
Total poverty	23.5	33.0	9.5
Rural	25.6	47.5	21.9
Urban	14.8	17.5	2.7
Food poverty	24.8	19.1	-5.7
Rural	27.1	25.5	-1.6
Urban	15.2	12.1	-3.1

Source: Authors' computation from data in the World Bank

The implications of the food poverty rate are consistent with the total absolute poverty dynamics discussed above. The national absolute food poverty rate in 2021/22 was 19.1% (Table 3.3). Absolute food poverty was relatively higher in SNNP (37.2%), Oromia (25.4%), and Amhara (24.3%). Food poverty is very high in the three largest regional states. Between 2015/16 and 2021/22, absolute food poverty substantially decreased from 24.8% to 19.1%, a reduction of 5.7% (nearly 1% annually). However, to achieve the SDG goals of the United Nations to eradicate hunger by 2030, Ethiopia still needs to make significant progress. Over one-third of the population in SNNP and one-quarter in Oromia and Amhara regional states are still living in absolute food poverty. Absolute food poverty was reduced by 5.7% (nearly 1% annually). To achieve the SDG goals of the United Nations to eradicate hunger by 2030, Ethiopia still requires more steps. Over one-third of SNNP and one-quarter of the population in Oromia and Amhara regional states is under absolute food poverty.

Table 3.3: Dynamics of absolute food poverty rates across regions

Regions	Food poverty rate (%)		
	2015/16 (wave3)	2021/22 (wave5)	Poverty changes (wave5-wave3)
Afar	32.7	6.4	-26.3
Benishangul Gumuz	23.7	9.7	-14
Somali	25.8	16.5	-9.3
Amhara	31.4	24.3	-7.1
Addis Ababa	19.5	14.8	-4.7
Gambella	17.4	13.8	-3.6
Harari	6.3	4.8	-1.5
Dire Dawa	12.6	13.7	1.1
Oromia	20.5	25.4	4.9
SNNP	24.5	37.2	12.7
National	24.8	19.1	-5.7

Source: Authors' computation from LSMS data in the World Bank

3.2. Depth and Severity of Poverty

One of the disadvantages of the headcount ratio is that it ignores the depth of poverty; it does not consider how far households are below the poverty line. The limitations can be addressed by the poverty gap index, which is a better measure of poverty. Nationally, the depth of poverty increased from 6.7% in 2015/16 to 10.8% in 2021/22. The depth of poverty in Ethiopia significantly increased in many regional states (Table 3.4). Poverty is relatively deeper in SNNP (19.8%), Somali (14.5%), Oromia (13.7%), and Addis Ababa (10.7%).

The poverty severity index describes the distribution of expenditure among the poor. The severity of poverty differs in Ethiopia and across regional states. Nationally, the severity of poverty slightly decreased from 3.1% in 2015/16 to 2.7% in 2021/22. However, poverty remains relatively severe and above the national average in SNNP (6.2%), Somali (4.1%), and Oromia (3.6%). The slight reduction in the severity of poverty between the two periods signifies decreasing inequality among the absolute poor.

Table 3.4: Depth and severity of absolute poverty across regions (2021/22)

Regions	Depth of poverty (%)	Severity of poverty (%)
SNNP	19.8	6.2
Somali	14.5	4.1
Oromia	13.7	3.6
Amhara	10.7	2.2
Gambella	8.9	2.1
Dire Dawa	7.9	1.2
Afar	7.9	1
Benishangul Gumuz	6.9	1
Harari	3.6	0.6
Addis Ababa	3.6	0.5
National	10.8	2.7

Source: Authors' computation from LSMS data in the World Bank

3.3. Inequality

The national income inequality in Ethiopia increased significantly between the two periods, rising from 32.8% in 2015/16 to 39.3% in 2021/22 (Table 3.5). In 2021/22, inequality was particularly pronounced and above the national average in SNNP (40.9%), Gambella (40.8%), and Somali (39.9%). Except for Benishangul-Gumuz and Addis Ababa, an increase in inequality was observed between the two periods in all other regional states, indicating that the growth policies pursued were not prop-poor. The welfare of citizens was adversely affected by the redistribution of income that worked against the poor.

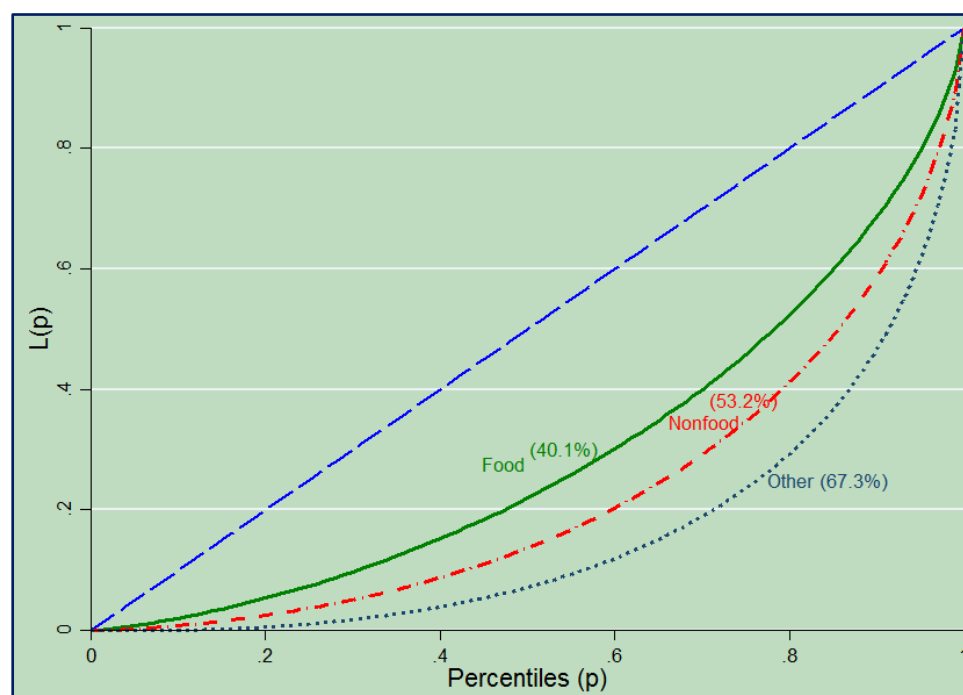
Table 3.5: Dynamics of regional distribution of income inequality

Regions	Gini index (%)		Changes in inequality (wave5-wave3)
	2015/16 (wave3)	2021/22 (wave5)	
Benishangul Gumuz	34.1	33.3	-0.8
Addis Ababa	35.7	35.4	-0.3
Dire Dawa	37.3	37.8	0.5
Amhara	34.3	35.2	0.9
Harari	35.3	37.2	1.9
Afar	33.3	36.2	2.9
Gambella	34.5	40.8	6.3
Oromia	30.4	38.7	8.3
SNNP	32.2	40.9	8.7
Somali	26.5	39.9	13.4
National	32.8	39.3	6.5

Source: Authors' computation from LSMS data in the World Bank and FDRE (2018)

The rate of inequality among households by items of consumption expenditure substantially varies (Figure 3.1). The rates of inequality for nonfood (53.2%) and other items of expenditure (67.3%) were very high. The inequality for food items was 40.1%, which is nearly equal to the overall inequality estimated for 2021/22.

Figure 3.1: Lorenz and concentration curves of real consumption expenditure (2021/22)



Source: Authors' computation from LSMS data in the World Bank

3.4. Poverty Elasticity

The national elasticity of poverty concerning household growth was 1.49% (Table 3.6). In 2021/22, a unit percentage growth in the real consumption expenditure per adult equivalent led to a poverty reduction of about 1.5%. Poverty reduction was relatively more responsive to income growth in Somali (1.75%), Amhara (1.65%), Afar (1.59%), Oromia (1.54%), and Addis Ababa (1.51%). In other regions, poverty reduction was less responsive to income growth and below the national average of 1.49%.

The elasticity of poverty with respect to inequality is 0.44%. A 1% rise in income inequality among households leads to a 0.44% increase in poverty. In 2021/22, poverty was inelastic with respect to income redistribution. Poverty was exacerbated by inequality in Somali and Afar regional states. In contrast, reduced inequality significantly helped reduce poverty in Benishangul-Gumuz.

The last column of Table 3.6 shows the combined effect of income growth and inequality on poverty. Benishangul-Gumuz is the top region for reducing poverty through income growth and redistribution policies (3.55%), followed by Addis Ababa (1.91%). Generally, poverty was either inelastic or less elastic with respect to growth and redistribution in Ethiopia, as well as in other regions and city administrations.

Table 3.6: Poverty elasticity with respect to growth and inequality (2021/22)

Regions	Poverty elasticity (%) with respect to		Total elasticity (%)
	Growth	Inequality	
Benishangul Gumuz	-1.32	-2.23	-3.55
Addis Ababa	-1.51	-0.40	-1.91
Dire Dawa	-1.49	-0.01	-1.5
Oromia	-1.54	0.43	-1.11
Gambella	-1.09	-0.01	-1.1
SNNP	-1.21	0.15	-1.06
Harari	-1.05	-0.00	-1.05
Amhara	-1.65	0.72	-0.93
Somali	-1.75	1.21	-0.54
Afar	-1.59	1.96	0.37
National	-1.49	0.44	-1.05

Source: Authors' computation from LSMS data in the World Bank

4. PRO-POOR GROWTH

A pro-poor growth is one that directly targets poor people and is more generally aimed at reducing poverty. It is an inclusive growth policy that enables the poor to actively participate in and significantly benefit from economic activity, making a major departure from the trickle-down concept of development. Growth is considered pro-poor (not pro-poor) if the change in inequality that accompanies growth reduces (increases) the total poverty (Kakwani, 2004).

4.1. Poverty Effects of Growth and Redistribution

The total effects of average income growth per adult equivalent between 2018/19 and 2021/22 were negative in rural but positive in urban areas (Table 4.1). Due to income growth, absolute poverty was reduced by 3.9% in rural but increased by 3.1% in urban areas. The poverty reduction effect of redistribution, on the other hand, was negligible (0.1%) in rural areas but relatively larger (6.6%) in urban areas. Overall, poverty was reduced more among rural households (3.8%) compared to their urban counterparts (3.1%). This highlights that while Ethiopia's urban economic growth policies were pro-poor, they ultimately failed to deliver tangible benefits to the most vulnerable population.

Table 4.1: Poverty effects of growth and redistribution by place of residence (2018/19-2021/22)

Sources of poverty changes	Poverty effects on (%)	
	Rural	Urban
Growth	-3.90	3.51
Redistribution	0.09	-6.57
Total effect	-3.80	-3.05
Growth policy	Pro-poor	Not pro-poor

Source: Authors' computation from LSMS data in the World Bank.

The effects of the growth of real consumption expenditure per adult equivalent and consumption inequality on poverty change⁵ between 2018/19 and 2021/22 significantly differ across regions of Ethiopia (Table 4.2).

- Growth has substantially increased poverty in Dire Dawa (26.2%), Addis Ababa (19.7%), SNNP (5.1%), Oromia (4.0%), and Harari (3.5%).
- Growth has significantly reduced poverty in Somali (23.4%), Amhara (17.5%), Afar (8.3%), and Gambella (7.2%).
- The effect of growth on poverty reduction in Ethiopia was negligible (0.05%).
- Redistribution significantly helped poverty reduction in Benishangul-Gumuz (18.3%), SNNP (9.1%), Amhara (7.3%), and Dire Dawa (5.1%).

⁵ Decomposition of the actual percentage change in poverty indices into "pure growth" and "pure inequality change" components enables to identify and estimate the effect of growth and inequality on poverty changes. The poverty bias of growth (PBG) is just the negative sign of the inequality effect. It measures pro-poor growth and captures the impact of changes in the distribution on poverty.

- Redistribution has caused poverty in Harari (6.2%), Oromia (3.8%), and Afar (1.2%).
- Income redistribution has slightly helped reduce poverty in Ethiopia by 2.7%.
- The highest total poverty reduction effects of growth and redistribution were observed in Somali (27.2%), Amhara (24.8%), and Benishangul-Gumuz (21.7%).
- Growth and redistribution in Gambella (9.7%), Afar (7.1%), and SNNP (4.0%) have moderate poverty reduction effects.
- Poverty was increased due to growth and redistribution⁶ in Dire Dawa (by 21.1%), Addis Ababa (by 18.6%), Harari (9.7%), and Oromia (by 7.8%). Growth policies pursued between 2019/20 and 2021/22 in these regions and city administrations were not pro-poor.

Table 4.2: Poverty effects of growth and redistribution across regions (2018/19-2021/22)

Region	Effects on poverty changes (%)		
	Growth	Redistribution	Total effect
Benishangul Gumuz	-2.82	-18.83	-21.65
SNNP	5.09	-9.07	-3.98
Amhara	-17.49	-7.30	-24.79
Dire Dawa	26.21	-5.11	21.10
Somali	-23.36	-3.78	-27.15
Gambella	-7.24	-2.44	-9.68
Addis Ababa	19.66	-1.08	18.58
Afar	-8.25	1.16	-7.08
Oromia	4.03	3.76	7.79
Harari	3.48	6.19	9.67
National	-0.05	-2.65	-2.70

Source: Authors' computation from LSMS data in the World Bank

4.2. Pro-poor Indices

Productivity improvements in agriculture are a primary determinant of pro-poor growth, particularly in countries like Ethiopia where the poor are predominantly rural, and their livelihoods are based on agriculture. Agricultural productivity can be improved through research and extension, adequate supply of agricultural inputs, improved rural infrastructure, and access to agricultural credit and insurance.

The pro-poor growth indices for rural and urban Ethiopia clearly show that the economic growth attained between 2018/19 and 2021/22 was generally pro-poor in rural areas but not pro-poor in urban areas (Table 4.3). The pro-poor growth index (PPGI) was below zero indicating that growth in urban Ethiopia was not pro-poor. The decline in real consumption expenditure per adult equivalent in urban Ethiopia led to increased poverty. The effective growth rate for poverty reduction in urban Ethiopia was negative, demonstrating that the economic growth did not translate into tangible improvements for the urban poor, contrary to its intended pro-poor objectives.

⁶ Despite the rise or fall of poverty, growth is generally biased against the poor if poverty reduction is accompanied by an increase in inequality, because a greater reduction in poverty would occur if there were no distributional shift of income. The poverty bias of growth is the negative of the inequality component obtained from decomposition of poverty with respect to growth and redistribution.

Table 4.3: Pro-poor indices by place of residence (between 2018/19 and 2021/22)

Pro-poor indices (headcount ratio)	Place of residence	
	Rural	Urban
Actual growth rate (%)	4.6	-6.6
Pro-poor growth index (PPGI)	1.434	-0.630
Poverty equivalent growth rate (%)	6.63	4.2
Growth policy	Pro-poor	Not pro-poor

Source: Authors' computation from LSMS data in the World Bank

Pro-poor indices estimated for regional states in Ethiopia are consistent with other measures of pro-poor growth discussed above. Between the two periods, economic growth in Afar, Amhara, Somali, Benishangul-Gumuz, SNNP, and Gambella was pro-poor (Table 4.4). Conversely, economic growth achieved in Oromia, Harari, and the two city administrations were not pro-poor.

Table 4.4: Pro-poor indices across regions (between 2018/19 and 2021/22)

Regions	Actual growth rate (%)	Pro-poor growth index	Poverty equivalent growth rate (%)	Growth
Afar	13.9	1.002	13.9	Pro-poor
Amhara	25.5	1.565	39.9	Pro-poor
Oromia	-5.5	1.706	-9.4	Not pro-poor
Somali	28.6	2.115	60.4	Pro-poor
Benishangul Gumuz	3.7	5.327	19.9	Pro-poor
SNNP	-9.8	-77.013	7.6	Pro-poor
Gambella	13.2	1.426	18.8	Pro-poor
Harari	-11.4	2.806	-32.0	Not pro-poor
Addis Ababa	-34.5	1.083	-37.4	Not pro-poor
Dire Dawa	-32.6	0.993	-.32.3	Not pro-poor
National	0.2	27.76	5.09	Pro-poor

Source: Authors' computation from LSMS data in the World Bank

In summary, despite the implementation of poverty reduction policies in Ethiopia between 2018/19 and 2021/22, the economic growth attained during this period did not significantly benefit the most vulnerable populations. Poverty rates in Ethiopia generally increased. Several factors hindered the effective implementation of these policies. Domestic conflicts, in particular, played a significant role. The instability and violence associated with these conflicts constrained productive capacities, leading to high inflation, shortages of goods and services, and macroeconomic instability (EEA, 2024). Additionally, the violent conflicts resulted in fatalities, displacement, and material destruction which affected the implementation of the intended policies.

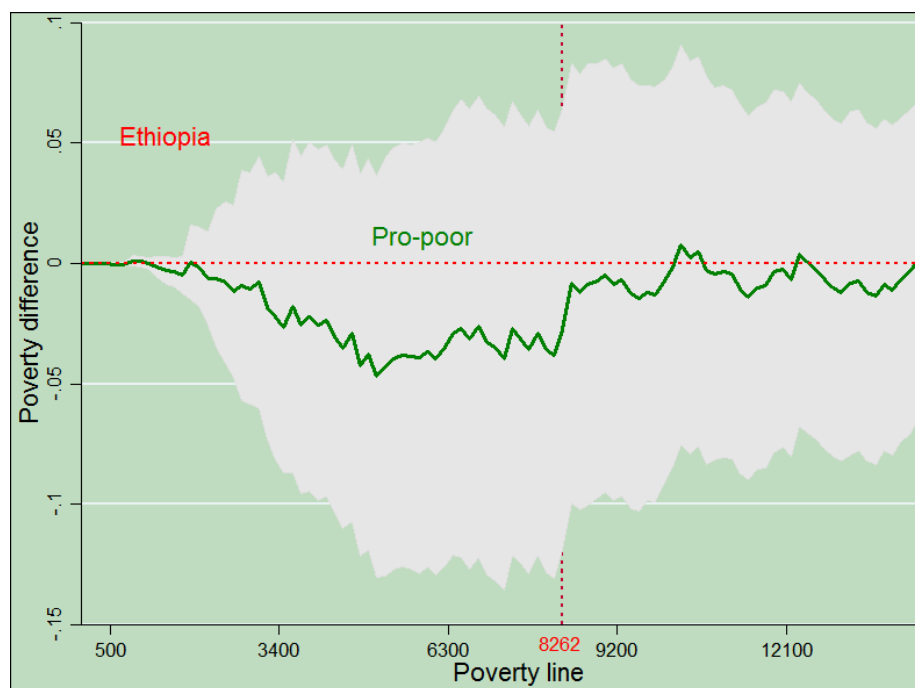
Future research should delve deeper into the underlying causes of the ineffective implementation of pro-poor policies in Ethiopia. Identifying and quantifying these factors would provide valuable insights

for policymakers and aid in developing more effective strategies to alleviate poverty and promote inclusive growth.

4.3. Pro-poor Growth Curves

Ethiopia: The absolute pro-poor growth⁷ curve for Ethiopia shows that pro-poor growth policies were pursued between 2018/19 and 2021/22 (Figure 4.1). Poverty in Ethiopia was generally reduced, with the poor benefiting more compared to their nonpoor counterparts. Most households below the poverty line (ETB 8262) benefited relatively more due to the pro-poor policies implemented in Ethiopia.

Figure 4.1: Pro-poor growth in Ethiopia

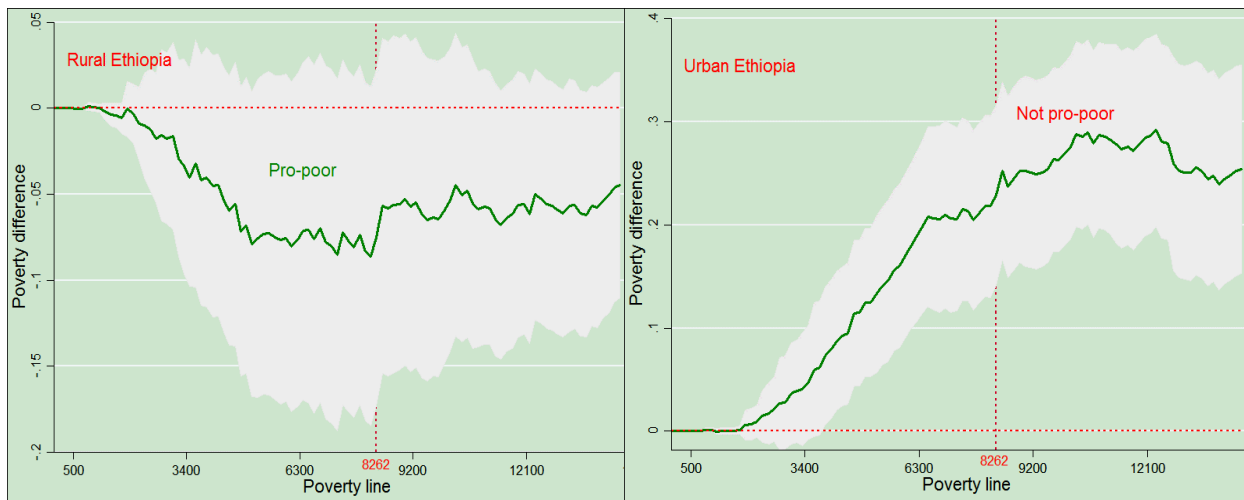


Source: Authors' computation from LSMS data in the World Bank

Pro-poor growth policies in Ethiopia significantly vary by rural-urban settings (Figure 4.2). In rural Ethiopia, poverty was reduced among all rural households (left panel of the figure). Pro-poor growth policies between 2018/19 and 2021/22 were effective in reducing poverty. However, in urban Ethiopia, poverty increased among both the poor and nonpoor (right panel of the figure). Impoverishment rose with income for both groups. This shows economic growth in urban Ethiopia failed to alleviate household poverty and worsened the living conditions of many residents.

⁷ Growth in this case refers to the growth of real consumption expenditure per adult equivalent, not aggregate economic welfare measures such as real output growth or real GDP per capita. Pro-poor growth is measured by the poverty outcomes of policies formulated and implemented. Policies are often formulated and implemented to affect the output in the supply side. But pro-poor growth is measured in the demand side using household real expenditure per adult equivalent.

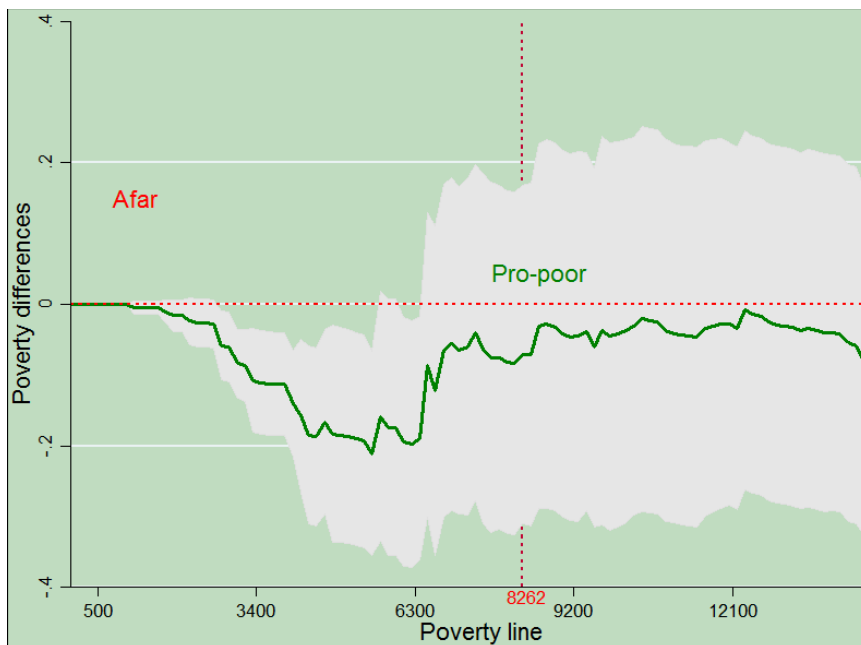
Figure 4.2: Pro-poor growth in rural and urban Ethiopia



Source: Authors' computation from LSMS data in the World Bank

Afar: The economic growth in Afar regional is pro-poor between 2018/19 and 2021/22 (Figure 4.3). The incidence of absolute poverty was reduced, benefiting both the poor and nonpoor populations.

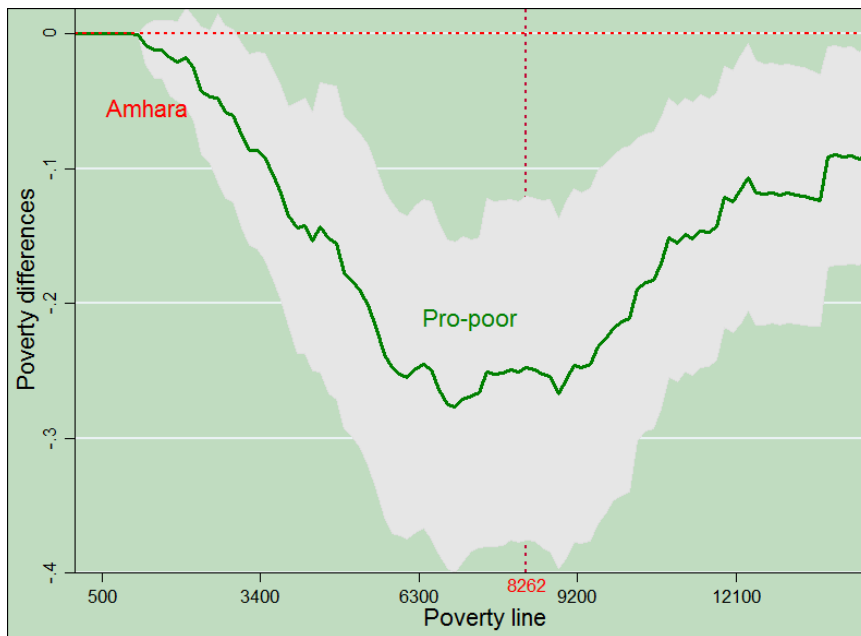
Figure 4.3: Pro-poor growth in Afar region



Source: Authors' computation from LSMS data in the World Bank

Amhara: Poverty was substantially reduced in the Amhara region between 20218/19 and 2021/22 (Figure 4.4). Both poor and nonpoor households benefited from the poverty reduction efforts in the region, with the poor experiencing relatively greater gains. Compared to other regions, poverty reduction in the Amhara region was more significant for both the poor and the non-poor.

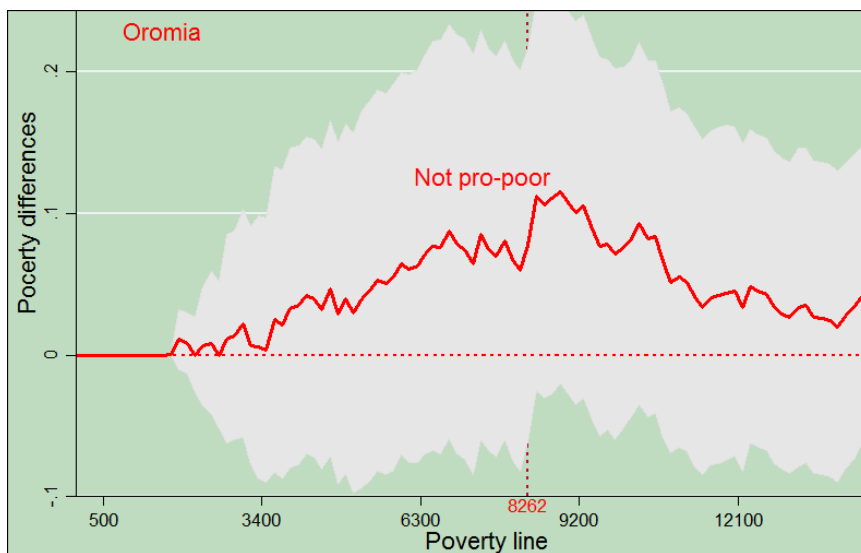
Figure 4.4: Pro-poor growth in Amhara region



Source: Authors' computation from LSMS data in the World Bank

Oromia: The economic growth in Oromia region between 2018/19 and 2021/22 was not pro-poor (Figure 4.5). Poverty increased significantly, and the welfare of both the poor and non-poor households was substantially eroded.

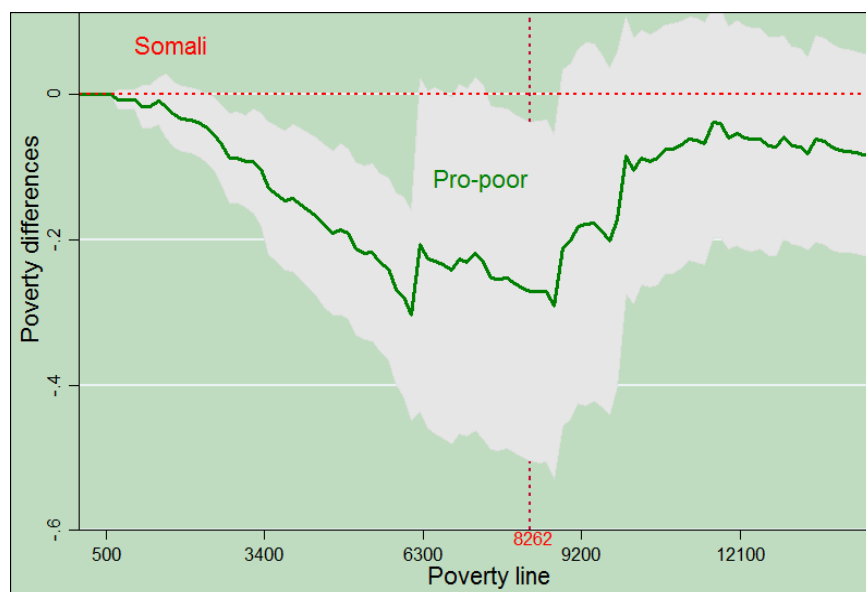
Figure 4.5: Growth policy in the Oromia region was not pro-poor



Source: Authors' computation from LSMS data in the World Bank

Somali: The growth in the Somali region was pro-poor between the two periods (Figure 4.6). Poverty was reduced and both the poor and the nonpoor benefited. Compared to the nonpoor, however, the poor households obtained more gains from the growth process and poverty reduction policy.

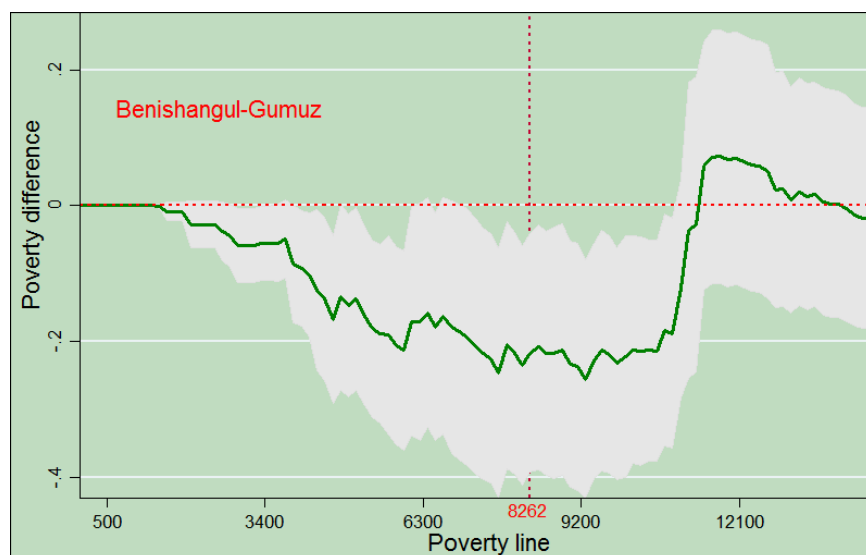
Figure 4.6: Pro-poor growth in Somali region



Source: Authors' computation from LSMS data in the World Bank

Benishangul-Gumuz: Between the two periods, poverty was reduced in Benishangul-Gumuz (Figure 4.7). Both the poor and the nonpoor benefited from the pro-poor growth in the region, with the poor particularly gaining more from the poverty reduction efforts.

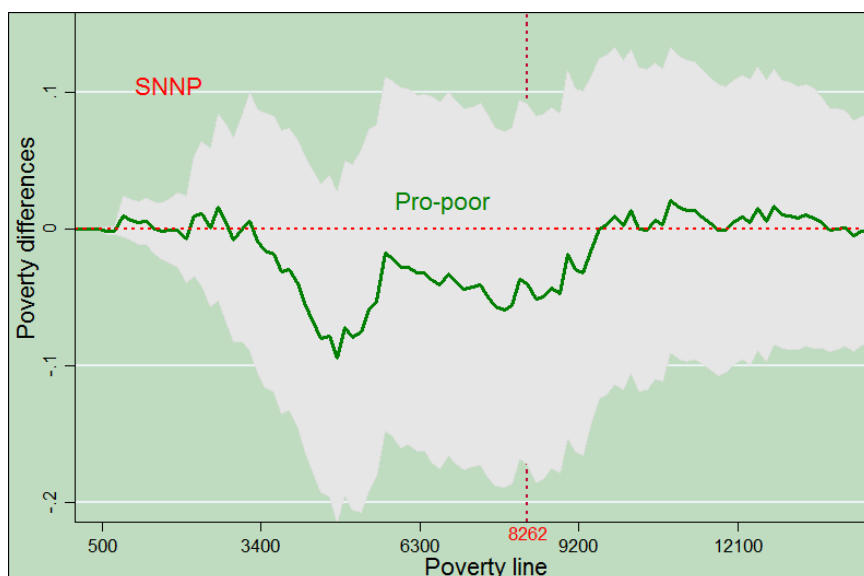
Figure 4.7: Pro-poor growth in Benishangul Gumuz region



Source: Authors' computation from LSMS data in the World Bank

SNNP: Poverty in the SNNP region was reduced between the two periods (Figure 4.8). The poor benefited more than the nonpoor from the pro-poor growth policy pursued in the region. However, compared to other regions, the level of poverty reduction in SNNP was relatively low.

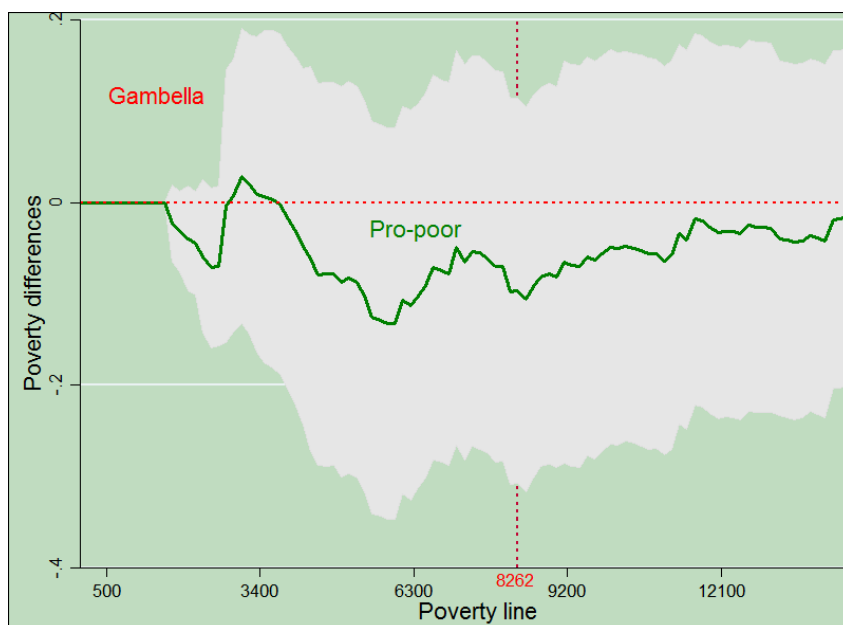
Figure 4.8: Pro-poor growth in SNNP region



Source: Authors' computation from LSMS data in the World Bank

Gambella: Poverty was reduced in Gambella region between the two periods (Figure 4.9). The poor benefited relatively more from the growth attained in the region between the two periods.

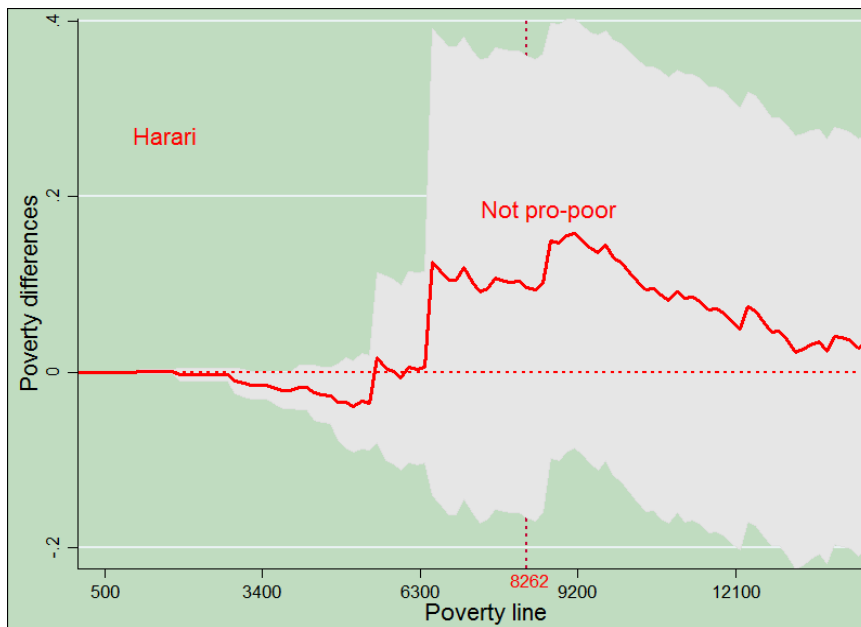
Figure 4.9: Pro-poor growth in Gambella region



Source: Authors' computation from LSMS data in the World Bank

Harari: Between the two periods, the **economic** growth in the Harari region was not pro-poor (Figure 4.10). Except for a few households with negligible gains, the welfare of almost all households was significantly eroded. Households with lower incomes experienced a relatively greater loss in welfare compared to those with higher incomes.

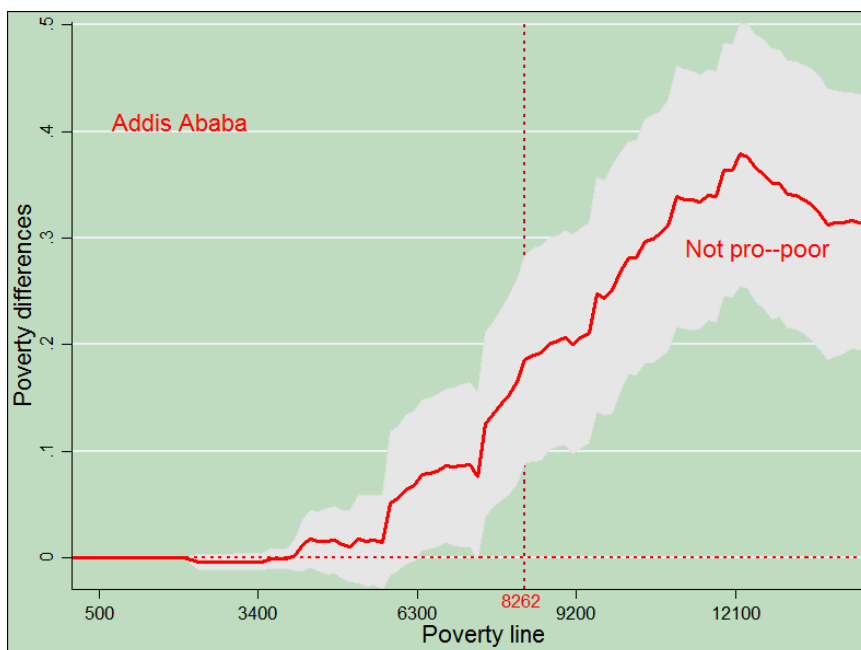
Figure 4.10: Growth policy in the Harari region was not pro-poor



Source: Authors' computation from LSMS data in the World Bank

Addis Ababa: Despite poverty status or income level, poverty substantially increased among all households in Addis Ababa (Figure 4.11). The economic growth achieved in Addis Ababa during this period was not pro-poor. Both poor and nonpoor households experienced significant welfare losses, leading to increased impoverishment.

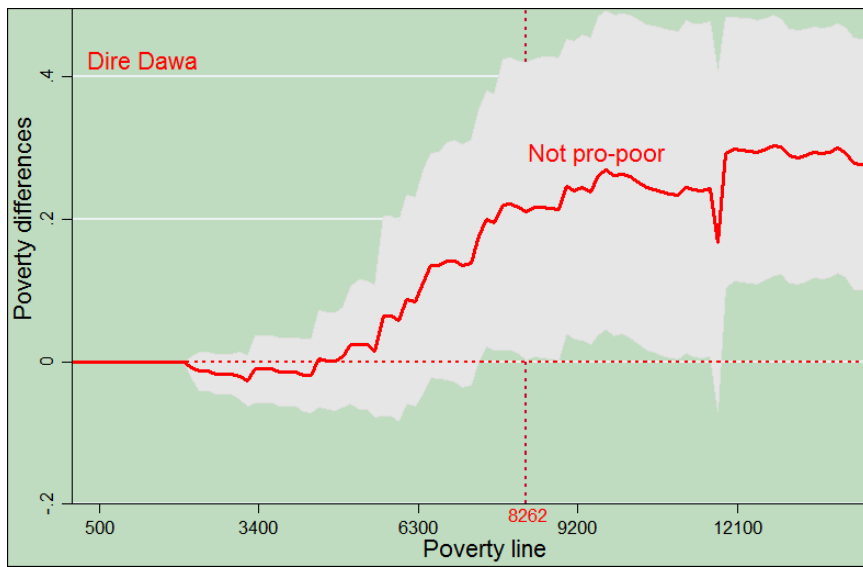
Figure 4.11: Growth policy in Addis Ababa was not pro-poor



Source: Authors' computation from LSMS data in the World Bank

Dire Dawa: The economic growth in Dire Dawa between 2018/19 and 2021/22 was not pro-poor similar to the one observed in Addis Ababa (Figure 4.12). The growth was not pro-poor. Welfare loss increased with income level in Dire Dawa, mirroring the situation in Addis Ababa.

Figure 4.12: Growth policy in Dire Dawa was not pro-poor



Source: Authors' computation from LSMS data in the World Bank

5. CONCLUDING REMARKS

Using the three waves of the LSMS datasets (2015/16, 2018/19, and 2021/22), this paper rigorously investigates and estimates poverty and inequality, as well as the pro-poor growth achieved across regional states, and rural-urban settings. Poverty and inequality rates are estimated using the 2015/16 national poverty lines adjusted by 15%. The poverty lines, adjusted for the cost of living in 2018/19 and 2021/22 are ETB 8,262 for total poverty and ETB 4,348 for food poverty. The paper also analyzes the pro-poor nature of economic growth at national and regional levels.

Between 2015/16 and 2021/22, absolute poverty in Ethiopia increased with considerable variations across regions. The poor became particularly poorer during this period. The national absolute poverty increased from 23.5 in 2015/16 to 33% in 2021/22. The four regional states with an incidence of extreme poverty higher than the national average are SNNP (46.7%), Somali (42.1%), Oromia (38.8%), and Amhara (36.3%).

Poverty was particularly aggravated in Dire Dawa (by 21.1%), Addis Ababa (by 18.8), Harari (by 9.7%), and Oromia (by 7.8%). On the other hand, poverty was substantially reduced in Somali, Amhara, and Benishangul Gumuz regional states. Poverty reduction was more pronounced in rural Ethiopia. Income inequality increased substantially between the two periods, rising from 32.8% in 2015/16 to 39.3% in 2021/22, an annual increase of 1.1%. Inequality varied significantly, ranging from 33.3% in Benishangul-Gumuz to 40.9% in SNNP. The increase in income inequality was more pronounced in Somali (by 13.4%), SNNP (by 8.7%), Oromia (by 8.3%), and Gambella (by 6.3%). Inequality remained relatively unchanged in Benishangul-Gumuz, Dire Dawa, Amhara, and Harari. Nationally, poverty was unitary elastic with respect to growth and inequality between the two periods, with poverty being relatively more elastic in Addis Ababa and Dire Dawa.

Income growth in many regional states was not pro-poor. Economic growth in Oromia and Harari was not pro-poor and the welfare of both the poor and the nonpoor eroded between the two periods. Similarly, income growth in Addis Ababa and Dire Dawa city administrations was not pro-poor. The growth measured by expenditure growth in these regional states and city administrations contradicts the nation's aspirations to reduce poverty. These regional states, city administrations, and other urban centers should formulate and implement growth policies that can enhance the country's poverty reduction efforts.

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