Drivers and Costs of Inflation in Oromia Region of Ethiopia

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EXECUTIVE SUMMARY

Background

Report of the National Bank of Ethiopia prevailed that in 2021/22 regional simple average headline inflation has increased to 34.9% from 20.4% in the preceding year. In this fiscal year, Benishanlgul-Gomuz, Oromia, Harari and Somali registered annual headline inflation rates greater than the regional simple average. In line with this, food and non-alcoholic beverage inflation in SNNP, Benishanlgul-Gumuz, Somali, Oromia, Harari, Gambela and Afar was higher than the regional simple average. Oromia had 38.1% general inflation, which comprised of food and non-alcoholic beverage inflation of 43.5% and non-food inflation of 29.8%. The region was the second inflationary next to Benishangul-Gumuz, which had 39.5% general inflation. The National Bank of Ethiopia identified that the recent national and regional level inflation becomes stronger as of the recurrent conflict, market imbalance, continuous weakening of Ethiopian Birr, fuel price rise, international inflation, and national and global shocks. Given this, the study attempted to examine the "*Drivers and Costs of Inflation in Oromia National Regional State***"**.

Currently, Ethiopia has become one of the most inflationary countries in the world. Regionally, Oromia region combined with Amhara accounts for about 70% of the general CPI decomposition at the national level. However, Oromia regional state had a significant share in determining the national level general and food price change within the country. This calls an urgent need to design a comprehensive approach to control inflation by the Oromia regional state, which requires identification of the underlying structural factors and their long-run patterns and relationships in causing inflation.

The study used primary and secondary data sources. Majority of the objectives in the study have been addressed by secondary data collected from Ethiopian Statistical Service (ESS), National Bank of Ethiopia (NBE), Armed Conflict Location and Event Data Project (ACLED), and Ethiopian Peace Observatory (EPO). Moreover, primary data were collected from sample individuals who participate in the production and/or marketing of food items within the region. Both parametric and non-parametric methods of data analysis were used to address the predefined objectives.

Trend and Dynamics of Inflation

Recently, significant proportion of the regional GDP is sourced from the service sector, which indicates that in recent times agriculture of the region is gradually decreasing its share in GDP while share of the service and industry sectors are increasing. The continuous and successive increment of the service sector could create huge demand within the regional economy that could strongly aggravate inflation.

However, the recent food price increment is by far larger than the non-food price, and the pressure of inflation on the society is becoming stronger. In the continuous upsurge of the annual regional general inflation, food inflation took the leading position that is about 60%. The contribution is considerably larger than the national level share, which is 57%. This indicates that the power of food inflation variability is recently strong enough in determining the general regional inflation rate. Bread and cereals account for about 45% of the relative share in determining the food inflation of the region. The second and third position of the relative contribution for food CPI of the region taken by vegetables and meat. In line with this, significant proportion of the variability in the non-food inflation is sourced from housing and related utilities. This component of non-food item took the right-hand contribution (32.24%) in determining the non-food inflation movement of the region in between 2007 and 2021.

Supply and Demand Side Drivers of Inflation

Sectorial value addition of service and industrial sectors of the region has exhibited a significant increment recently. The relatively strong and larger increment in the value addition of these sectors may demand huge output from the agriculture. Nevertheless, the growth of the agricultural sector is constrained to meet the rising demand. This circumstance, imbalance in demand and supply, may result in successive price increment for merchandises demanded by the service and industrial sectors from the agriculture.

From 2010/11 to 2020/21 per capita grain production of the region grew by about 3% per annum that was comparable with the annual population growth rate of 2.7% , which indicated that both supply and demand are growing in similar pace. Per capita production of pulses and oil crops of the region is decreasing since 2013, which may result in larger supply-demand gap in the market that may result in demand pull inflation within the region. The sluggish growth of per capita grain crop production of the region may create supply shortage, which could create supply-demand gap, and finally result in food price rise.

Gross capital formation of the region continuously increased. However, the trend of increment was inconsistent over years, where the growth becomes strong in some of the fiscal years and steady in some other years. Contrary to this, the percentage share of gross capital formation from the regional GDP has been continuously decreasing, which indicates that the region is not investing as to the potential to do. Gross capital formation of the regional state had an inflation stabilization effect, though the effect was not strong enough.

Both private and public final consumption expenditure of the region are increasing in an alarming rate in in the previous ten years. However, in relative terms, growth rate of the private consumption expenditure was by-far larger. Continuous increment of private and public consumption expenditures was had inflation fueling effect within the regional state.

Crosscutting Issues and Inflation in Oromia Region

Oromia and Amhara regions of Ethiopia, took about 70% of the general CPI decomposition at national level. However, Oromia had a relatively stronger share in determining the national level general and food inflation within the country. There is strong causation between the general CPI in Oromia and other regions. Each change in the general price level in Addis Ababa, Amhara and SNNP region has significant interaction with the general price in Oromia region.

Policies and regulations undertaken in combating the national level inflation have direct and indirect effect on the regional inflation. The government of Ethiopia has implemented several policy measures targeting inflation, particularly since 2020. However, amidst the policy measures, the momentum of price increment became much more pronounced after 2020. This suggests that none of the policy practices implemented to curb the rising inflation were effective enough to address the problem. Even worse, some of the policy trials of the federal government resulted in successive inflationary pressure in the country and the region.

The substantial market margins along the food market chain with the possibility of increasing transaction costs significantly influence retail food prices within the region. The market chain analysis shows varying degrees of margin for producers, intermediaries and retailers with implications for the roles played by middlemen in the price hike within the region. The overall price increment in wheat products is directly and strongly determined by the raw materials (unprocessed wheat) price increment. The overall price trend and direction of wheat products is strongly related to the price movement in the unprocessed wheat. The price gap between unmilled

wheat and flour was relatively consistent and constant with a minor increment after 2018. In the regional state, there are both short and long approaches to the marketing of fruits and vegetables, which result in different marketing margins for the participants. Two of them are not free from intervention of brokers, which hamper the smooth transaction to be made between producers and consumers. It is known fact that the lengthy marketing process could directly exacerbate the inflation. Hence, the intermediaries do have strong power in the food price rises by creating a substantial price gap between producer and final consumers.

In 2021 ACLED listed Ethiopia one of the top-ranked countries in the world regarding the conflicts and instabilities. The on-going conflict, instability and escalated war aggravated the inflation through disrupting the production, marketing, transporting, and by increasing the public and private expenditures. Incidence of instability has a significant fueling effect on price of fruits and wheat in the regional state. Free movement of those items from zones of excess production to demanding areas may be disturbed if there is instability, which may directly increase prices especially in areas of supply shortage. The government attempted to finance its expenditures, which mainly arises as of the conflicts and instabilities, through domestic borrowing and cutting on capital projects, which was a measure that aggravate inflation.

A continuous increment of food price was the critical reason for food shortage in urban areas of the country. The labour force and migration survey report of the Ministry of Planning and Development of Ethiopia shows that about 27% of the households in Oromia region had food shortage in 2021. More than 66% of the households replied that regular income reduction and successive price increment are the reasons behind the food shortage. A significant proportion of the urban households in Oromia region are strongly suffering from the inflation pressure, which could directly affect the consumption behavior.

Recommendations for Intervention

- Policies and strategies to curb inflation should give priority to enhance the production and smooth marketing of food items especially cereals, fruits and vegetables. Efforts should concentrate on how to enhance agricultural production to address the supply-side rigidity.

- To enhance market efficiency, shorten the supply chain, reduce transaction costs and power of intermediaries the current trials such as Cooperatives, Sunday markets, Oro-fresh and related ones should be enhanced.

- Efforts should be there to enhance smooth supply of facilities and utilities in furnishing houses to enable easy access of utilities, which are main source of non-food inflation.

- Eliminate administrative barriers that increase transaction and transport costs to have the law of one price (LOP) within the region. These barriers are creating pressure and result in food shortage for urban households.

- High transport and transaction costs are driving fruits and vegetables price in the region. Hence, it is advisable to organize and establish bulk transport facilities to reduce transport costs, which could stabilize the price within the region.

- To guarantee free movement of merchandises, frequent and recurrent outbreak of conflicts in the different corners of the region should be managed with the coordinated effort of the regional and federal level peace and security institutions.

- The regional government should be curious and proactive for national and global shocks to take protective strategies before they have escalated the inflation within the region.

1. INTRODUCTION

Inflationary trends in Ethiopia have been a serious macroeconomic issue for the nation. Since 2010 in particular, inflation has been the overriding welfare challenge in Ethiopia. Policy enactments to control inflationary pressures in the nation have been unsuccessful. Attempts by the government to keep inflation at single-digit have remained quite impossible. The whole effort of tackling the inflationary pressure has not yet brought any intended changes. Rather, quite the reverse, rising inflation, has become a common phenomenon in Ethiopia. A sizeable body of literature puts the inflationary trend in Ethiopia to be one of the top policy challenges of the economy. It is also asserted to be the result of structural problems and disequilibrium in major macro trends adversely affecting aggregate supply and demand in domestic markets.

While global markets were stable, Ethiopia's consumer good prices were wobbly. Only five years of the two decades since the 2000s have seen inflationary below 10%. Currently, the inflation in Ethiopia has remained above 25% for a year. This time around, though, life has become almost intolerable for the salaried workers whose wages have been more or less unchanged over the years, making Ethiopian workers, among the lowest paid people in the world. Food, housing, fuel, industrial inputs, rent, and virtually every other product have skyrocketed in price. Food staples such as edible oil, bread, bottled water, and milk are quickly becoming unaffordable to most. The government too seems to be conceding defeat, albeit slowly, in its fight against double-digit inflation. This circumstance combined with persistent macroeconomic challenges and global market disruption, result in persistent double-digit inflation in Ethiopia.

In Ethiopia, inflation was not a critical issue until 2003 (Alemayehu and Tafere, 2011), but afterwards the problem began to increase at an alarming rate. For instance, the annual average food inflation rate between July 2011 and July 2012 was 36.9% and in October 2012 compared to October 2011 was 30.4% (CSA, 2012). The government has taken different policy interventions on selected macroeconomic variables to tackle and keep the inflation rate at a single-digit level. Several factors have been claimed for the soaring food inflation in Ethiopia. The yearly variability of inflation was strong after the 1990s, wherein the overall rate of change was exhibiting a positive trend, which became stepper in recent times.

Currently, the country has become one of the most inflationary countries in the world. This calls an urgent need to design a comprehensive approach to control inflation, which requires identification of the underlying structural factors and their long-run patterns and relationships in causing inflation. In the earlier periods, inflation in Ethiopia was not a serious problem and had an immense association with agriculture and food supply shocks. The recurrent outbreak of conflicts and drought, which commonly affect the expenditure and production system of the country, and finally aggravate the recent inflation.

Possible factors for the worsening situation could be the Northern conflict broke out on November 2020, imbalance between supply and demand of merchandises, successive devaluation of the local currency, fuel price rise, marketing problems, international prices, and international conflicts are some of the causes that worsen the situation (Tamru *et al*., 2022 and Ketema, 2022). With any integrated economy, these multiple disruptions can be playing a huge role in the current conditions of the Oromia region. Generally, from a macroeconomic perspective, a sustained rise in inflation in emerging markets and developing economies like Ethiopia would be especially affected by the resulting spill-over effects.

It is known that inflation raises prices, lowering your purchasing power. Inflation also lowers the values of pensions, savings, and treasury notes. Assets such as real estate and collectibles usually keep up with inflation. Variable interest rates on loans increase during inflation. Therefore, this research is designed to forward some possible polices and strategies which, might make economic growth target in line with a monetary policy target to boost economic growth and control the level of inflation. Several macro-economic stabilization measures and policies implemented over the past three or four years were deemed to have failed. Consequently, the economy has remained principally constrained by dual macroeconomic problems *i.e.*, inflation and low international reserves.

National Bank of Ethiopia report revealed that the regional simple average food inflation was 13.8% at the end of June 2011 with Addis Ababa, Afar, Oromia, Harari, SNNP and Somali regions experiencing higher food price inflation than the regional simple average. In the fiscal year, the highest increase in food inflation was registered in Oromia (25.4 percentage points). Over the two-years (2009/10 to 2010/11), food price instability was high in Gambella, Benishangul Gumz, Amhara, Oromia and Tigray states. In 2015/16, regional simple average general inflation increased to 10.3 from 6.3% a year earlier where Afar, Tigray, Harari and Oromia regional states registered headline inflations rate greater than the regional average. However, the 2021/22 regional simple average headline inflation has increased to 34.9% in 2021/22 from 20.4% in the preceding year. In the fiscal year, Oromia had 38.1% general inflation, which comprised food and non-alcoholic beverages inflation of 43.5% and non-food inflation of 29.8%. The region was the second inflationary region next to Benishangul-Gumuz, which had 39.5% general inflation.

Oromia region combined with Amhara accounts for about 70% of the general CPI decomposition at the national level. However, Oromia regional state had a significant share in determining the national level general and food price change within the country. In line with this, the price change in Addis Ababa has strong causation on price change in the Oromia region that may be because of the geographic proximity and strong market linkage. Possible factors for the worsening of the recent national and regional level inflation may be the Northern conflict that broke out in October 2020, imbalance between supply and demand of merchandises, successive devaluation of foreign exchange rate, oil price rise, marketing problems, international prices upsurge, and national and international shocks. Thus, this study tried to identify **Drivers and Costs of Inflation in Oromia National Regional State**. The study had addressed the following objectives:

- Assess inflation trends and interrelated macroeconomic issues of the region;
- Identify the supply- and demand-side drivers of inflation;
- Decompose the potential drivers of food and non-food inflation;
- Investigate the welfare effect of inflation among the different groups of society;
- Identify inflationary effects of regional and national policy measures;
- Examine the market chain and price difference for selected items;
- Examine the inflationary pressure of national and international shocks; and
- Propose relevant policies and strategies relevant to control inflation in the regional state.

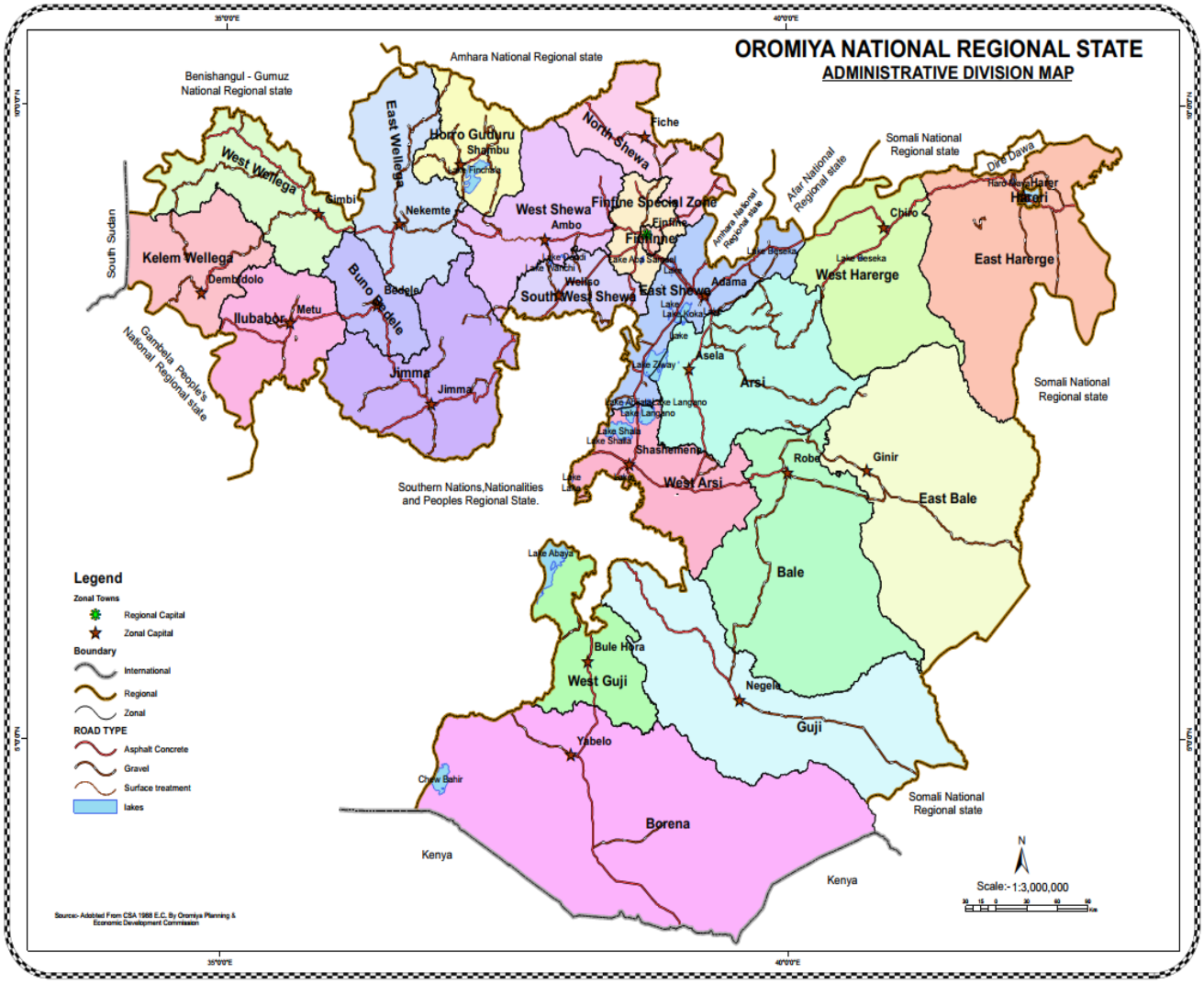
2. METHODOLOGY AND DESCRIPTION OF THE STUDY AREA

2.1. Description of the Regional State

Oromia is the largest region in Ethiopia, which stretches East to West to South of the country. The region extended from the Kenyan border in the south and extends across the central part of the country to the Sudan border in the West. The region stretches across central Ethiopia and shares boundaries with Kenya and South Sudan and with all the other regional states except Tigray. It has a total border length of about 5700 kms (about 600 km of international borderlines with Kenya (521km) and Sudan (66 kms), and has about 5100 km of borderlines with National Regional States (1860 kms with SNNP, 1410 kms with Somali, 706s km with Amhara, 690s km with Benishangul Gumuz, 255 kms with Gambela and 164kms with Afar).

Besides to the geographic coverage, it is the most populous region with a land area of 363,376 km^2 and an estimated population of 39,075,002 in 2022 (Oromia Plan and Development Commission, 2022). Oromia region has 21 zones and 336 (290 rural districts and 46 major towns) Woredas and city administrations. It has more than 6431 villages and 743 Urban Dwellers Associations/Gandas. Majority of the region's population still live-in rural areas while the urban population accounts only 16% of the total population.

Figure 2.1. Map of Oromia regional state, 2022



Climatic Condition

Oromia region has diverse climatic conditions, mainly determined by the altitude and latitude. The region falls latitudinally in the tropical zone, however, its tropical climate is affected by its altitude. The altitude also determines the distribution of temperature, rainfall, and vegetation type within the region. Average annual rainfall of the region varies from about 400 mm in Borena Zone to over 2400 mm around the Iluababor Zone in the Western Highlands of the region. In line with this, the temperature varies from about 7.5^0c to 22^0c in the highlands and from 22^0c to over 30^0c in the lowlands part of the region. Oromia region has Tropical (49.7%), Sub-tropical (41.6%), Temperate (7.3%, Desert 1.0% and Wurch (0.4%) agro-climatic zones, which allow production of diversified agricultural products in four growing seasons, namely Summer, Autumn, Winter and Spring.

Agriculture

Generally, by virtue of relatively abundant rainfall, suitable soils and other potentialities for agriculture, Oromia is the main crop-producing region of the country. Agriculture has remained the main source of livelihood for the overwhelming majority of the people. More than 85% of the total population earn their living from the sector. Significant share of the regional GDP, at a constant basic price, is sourced from agriculture (45.5%), followed by services (39.6%) and industry (15.3%) in 2020/21. In the fiscal year the regional annual economic growth rate at a constant basic price was about 8.1%.

The region's fertile soils with diverse geographical settings and agro-climatic zones are suitable for producing different food and cash crops. Oromia has large intensively and moderately cultivated cropland (about 28.5% of its total area) and huge agricultural resources that are the potential for agro-industrial development. Accordingly, the region produced 49.53% of the major grain crops of the country in the main production season of 2020/21. Crop production in the region is dominated by smallholders with a cropland holding of less than a hectare and limited use of inputs such as fertilizers, pesticides, improved seeds and implements. Smallholders accounts for about 98% of the total agricultural production of the region. Moreover, the crop production strongly depends on nature that is rain-fed cultivation. Hence, crop yield of the region is by-far below it's potential, which can allow to produce fifty quintals for wheat and up to eighty quintals for maize if the package of input use is as to the standard.

In general, the Oromia region is highly suitable for the cultivation of **Cereals** (wheat, barley, maize, sorghum, millet, teff, etc), **Pulses (**faba beans, field peas, chick peas, lentils, etc), **Oil seeds** (sunflowers, sesame, linseed, groundnuts, neug, etc), **Vegetables** (lettuce, head cabbage, Ethiopian cabbage, tomatoes, green peppers**)**, **Fruits** like avocados, bananas, guavas, lemons, mangoes, oranges, papayas and pineapples), **Beverage crops** (e coffee, tea, etc), **Root crops** (beetroot, carrot, onion, potatoes, taro, garlic, sweet potatoes, etc) and I**ndustrial/commercial crops** like cotton, malt barley, sugarcane, sisal, tobacco, highland grape, flowers, spices, etc. Moreover, the largest proportion of the country's livestock population is found in Oromia. For instance, in between 2016/17 and 2017/18, the region had about 35.0% of the country's total livestock population. However, there are problems of low productivity of animals, widespread animal diseases, poor feeding system, traditional husbandry practices, etc in the region.

Industry

The regional plan and development commission reported that industrial development of the region remains at its infant stage and it employs insignificant proportion of the regional total employees. The industries highly concentrated in the central part of the region mainly in major towns like Adama, Bishoftu, Mojo, and others relatively near to Addis Ababa. Private small-scale industries such as food and beverage processing factories, non-metallic mineral products, fabricated metal

products, furniture, rubber and plastic products, and related ones are common industries in the regional state. CSA reported in 2016/17 showed that there were 1086 large and medium-scale public and private manufacturing industries in the Oromia region.

Investment

Oromia has a huge protentional of agricultural resource, surface water, energy, minerals, wildlife and an abundant workforce that are vital for investment expansion. Accordingly, investment activity has shown a significant increment in the region. The regional investment commission reported that 10,635 investment projects, having a total capital of about 104 billion birr were registered in 2017/18. These projects had a plan to create 175,424 permanent and 199,379 temporary job opportunities when they come into full operation. Majority of the projects were in manufacturing (3437) followed by trade (3069), hotel and tourism (1796), agriculture (1598), and the remaining few were in construction (7), and mining and energy (8). Given this, a significant proportion of the exportable merchandises (Coffee, oilseeds, leather products, fruits and vegetables, flowers, and gold) is sourced from the Oromia region. Similarly, out of 53 districts known for Coffee production in the country 42 (79%) are found in Oromia showing the tremendous resource base the region is endowed with.

2.2. Conceptual Framework

2.2.1. Drivers of Inflation

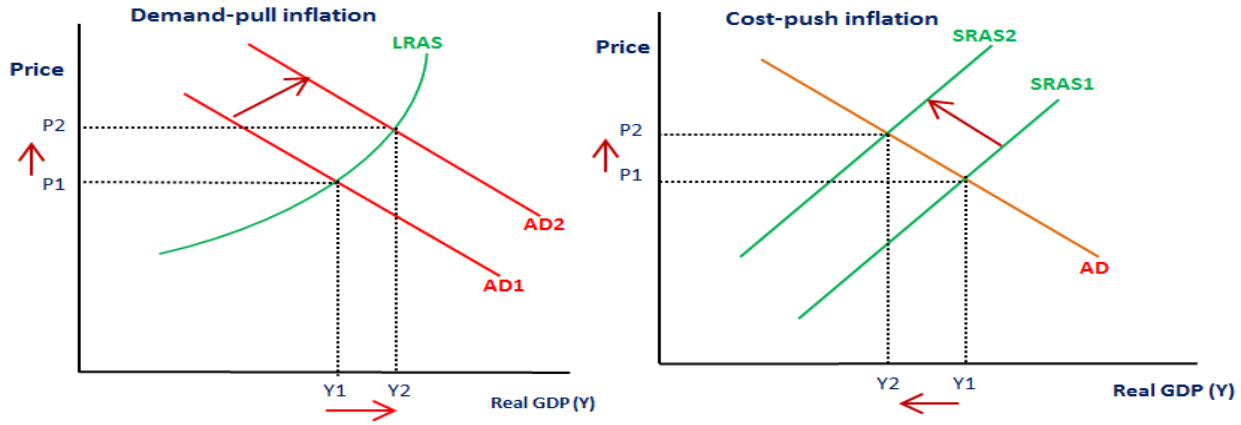
To effectively address the inflation problem and characterize agents who could engage in the policy intervention process, construction of the framework with its causes and effects is vital. Numerous drivers play a key role in contributing to high inflation within an economic system. Gelaw (2012) evaluated the lead causes of the rise in agricultural prices in Ethiopia, and identified multiple determinants such as money supply, general price level, world gain price, fertilizer price, domestic benzene price, non-food price, the goods market, and money market equilibrium price levels. In line with this, Degye *et al*. (2022) considered various factors in the effort of identifying the core and crucial variables that aggravate the inflation in Ethiopia. In addition to the demand- and supply-side drivers, the authors considered institutional and global as well as national-level shocks in their analysis. Scholars try to identify potential variables considering theoretical and empirical literature and finally design the conceptual framework. Based on past works, variables that are core and critical sources of inflation can be divided into supply and demand side drivers.

The supply-sided factors are mainly related to production, cost and availability of merchandises. On the other side, there are specific factors that aggravate the demand-side, which is mainly related to the market. Sometimes successive increment in the disposable income could result in demand-pull inflation, which is caused by a continuous upsurge of demand. Hence, demand-pull causes of inflation could be created when Aggregate Demand (AD1) increases or shifts to a higher level (AD2). If aggregate demand increases (Y1 to Y2), the price increases, and hence, then the demand will shift to the right and pulls the price to a higher level (from P1 to P2). Moreover, a rise in market prices may be related to money supply increment, increased public spending, reduced taxes, and high prices in international markets.

On the other hand, cost-push inflation is caused if the Short Run Aggregate Supply (SRAS) curve shifts to the left (from SRAS1 to SRAS2). The contraction of SRAS from a higher level (SRAS1) to a lower level (SRAS2) pushes the price to a higher level (from P1 to P2), hence it could lead to cost-push inflation. Cost-push inflation is generally caused by a reduction in aggregate supply arising from increased costs of production. Factors affecting costs of production may include

higher wages, lower productivity, devaluation of currency making imported inputs more expensive, higher Value-Added Tax (VAT), rising house prices, high prices in international markets, hoarding of stock, and the associated inflation expectations of individuals and firms.

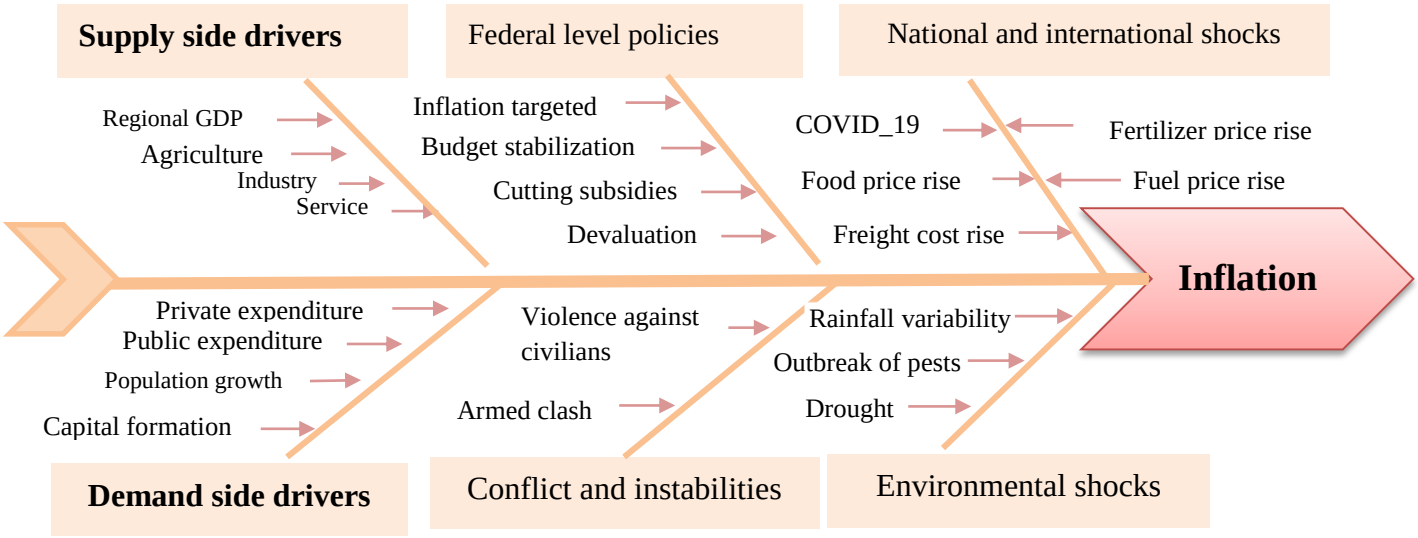
Figure 2.2. Conceptual framework of the study



Source: Adopted from Degye *et al*. (2022) design based on theory.

In addition to the two prominent factors (demand and supply-side drivers), the conceptual framework of the study tried to consider the effect of institutional factors, environmental and international shocks. The expected major and root causes of the regional inflation have been identified in constructing the conceptual framework of the study. Hence, the study broadly categorized the potential factors such as supply-side, demand-side, federal-level policies, conflict and instabilities, national and international, and environmental shocks. The study further decomposes the six major factors into specific ones that interact with the regional inflation (See figure 2.3).

Figure 2.3. Fishbone diagram of inflation problem in Oromia region



Source: Adopted from a book on Inflation and the Ethiopian Economy by EEA, 2022

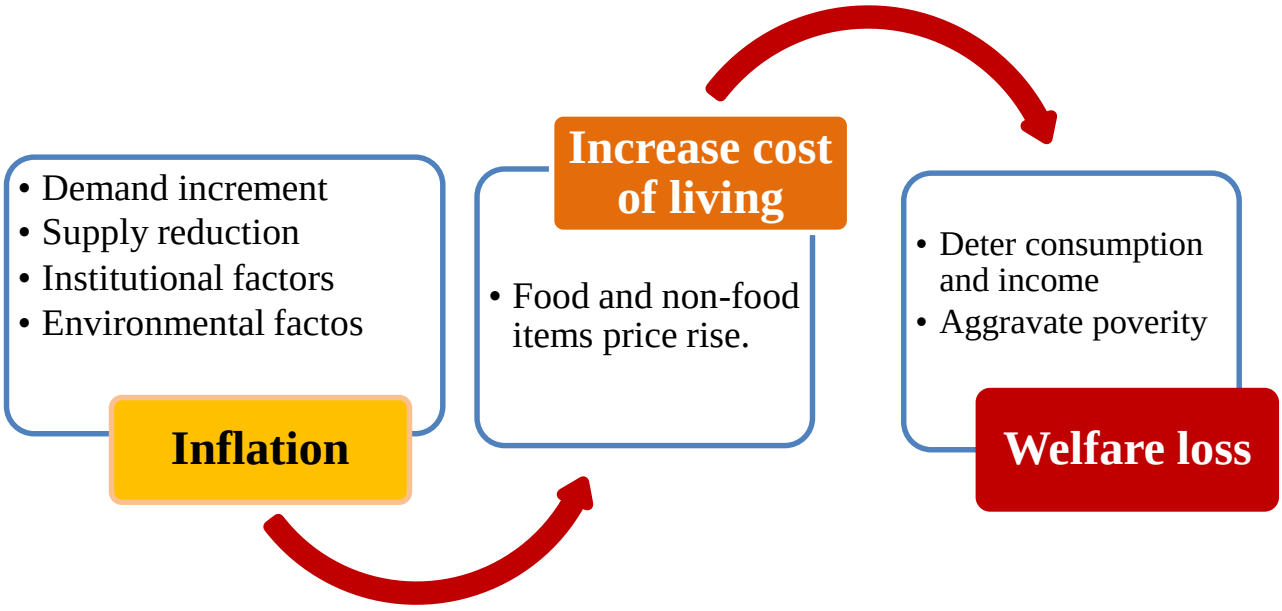
2.2.2. Cost of inflation

The livelihoods of individuals and the society as a whole may be complicated by the variability in price, which could directly or indirectly affect the consumption and income. High inflation usually leads to volatile or unpredictable livelihood. Sustainably continuous or unpredictable inflation also

signals to the incapability of the government to enact policies that curb inflation. An unpredictable economic system may be created if inflation sustains, which could also dis-incentivize investment, which could deter national productivity and strongly affect future prosperity. Moreover, successive inflation within an economic system could strongly discourage individuals to save, hence, incomes could not keep going up but rather decrease. The problem could be worse for poorer households that do not have cash in investments or assets form, hence value of the savings immediately depreciates Alem and Soderbom (2011). Due to the inability to save cash without depreciation, poor households would lose confidence in financial services and institutions. Richer households, on the other hand, might have safer livelihood, even better while there is high inflation. In such situations, banks might also raise the costs of borrowing to compensate for negative interest rates that dis-incentivize individuals from taking loans, starting businesses, or buying fixed assets.

Loening and Oseni's (2007) argued that differentiated welfare effects of inflation are highly dependent on a household's position in the food market (whether they net-sell or -buy). Households' behavior is crucial in determining whether inflation has a positive or negative effect on welfare. Scholars argued that net food buyer households were negatively impacted, especially the poorest ones, whereas net sellers gained the most from being able to sell food at higher prices. Ticci (2011) found that high inflation in urban areas could aggravate poverty. The scholar argued that the effect in rural areas is a mixed type. In line with this, Nordvik (2022) identified that the ethnic diversity of a country is an important component in determining the outcome or welfare impacts of inflation. The finding asserted that for ethnically heterogeneous countries inflation has a negative impact on the incomes of individuals and induced high-income inequality. Coleman (2012) assessed the regional and sectorial differences in poverty rates in Ghana due to inflation and identified that the problem has the most detrimental effect. The author concluded that welfare implications and inflation persistency is determined not only by high or low inflation but also based on regional differences in consumption patterns and substitution. Chen *et al*. (2014) estimated the impacts of inflation on the welfare of the Chinese people and found that only a 0.1% increase in inflation leads to a welfare loss of around 70 to 140 Yuan. Regarding Ethiopia, the welfare impact of inflation differs across income levels; hence welfare of those in the higher income quintile is not affected compared to those in a lower income quintile (Degye *et al*., 2022).

Figure 2.4. Direction of welfare loss as of inflation



Source, Own construction based on literatures, 2023

2.3. Type and Sources of Data

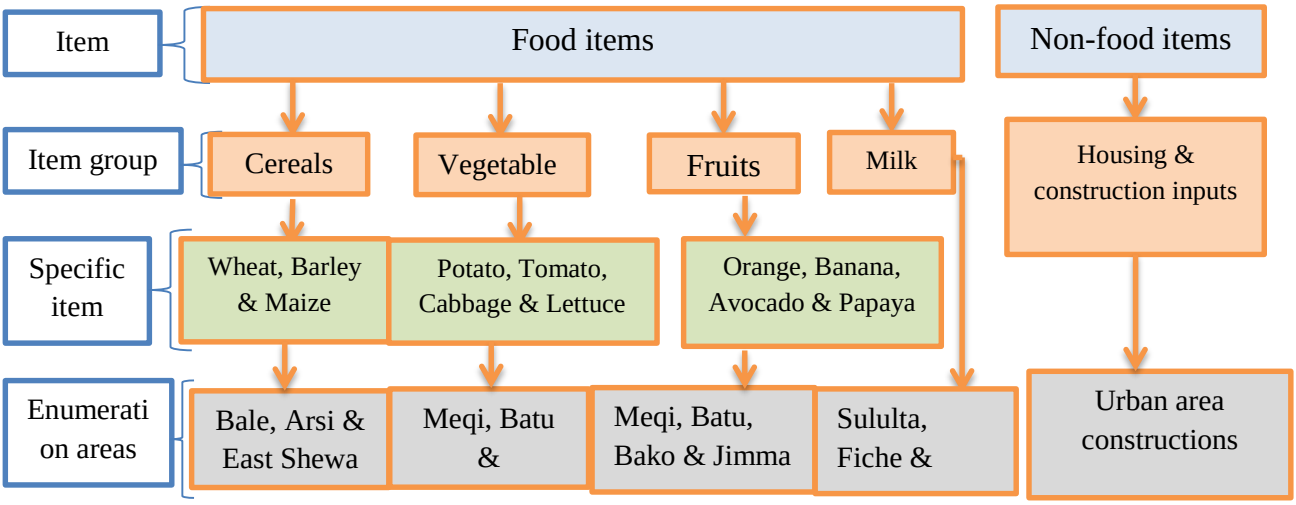
The study addressed the regional inflation from different perspectives. Hence, both both primary and secondary data were used for addressing the predefined objectives. Secondary data were collected from the Regional Planning and Development Commission, National Bank of Ethiopia (NBE), Ethiopian Statistical Service (ESS), Food and Agriculture Organization (FAO) of the United Nations, Ministry of Finance and Economic Development (MOFED), Armed Conflict Location and Event Data Project (ACLED), and Ethiopian Peace Observatory (EPO).

Moreover, the study collected primary data from sample enumeration areas and individuals in the regional state to examine the market chain of selected food items. Individuals from producers and participants in the market chain were considered in the data collection. The data enabled the study to examine price differences at the different marketing points, which could be easy to examine market margin sourced from marketing problems that may be a proxy for identifying artificial inflation. Differences between producers' and consumers' prices for selected food items were assessed, which is a crucial input to identify the right government intervention on the market chain to shorten the chain. The primary data also helped to examine the price deviation between the farm gate and final consumers of the food items in the sample enumeration areas. Based on their importance in determining the overall regional inflation, the study considered the following food crops and potential areas of production and marketing for conducting the survey.

2.4. Sampling and Sample Size Determination

The national level inflation decomposition shows that about 57.6% of the general inflation in Ethiopia is attributable to prices of food and non-alcoholic beverages, while the remaining 43% arises from inflation of non-food items (Degye *et al*., 2022). This indicates that food items took a significant share in determining inflation in the country. Hence, the primary data were collected from sample enumeration areas with the potential of producing and marketing sampled food items supposed to have a strong overall inflation effect in the regional state. Hence, the study considered Arsi and Eastern Shewa zone for collecting primary data for examining the market chain of Wheat and Barley, which are the prominent cereals expected to have a strong effect on the overall inflation. Given this, Batu, Bako, Jimma and Wolenchit were considered as enumeration areas to collect primary data related to vegetables and fruits (Figure 2.5). Since the main aim of considering sample units in the market chain is to examine the price difference in each market level, the study considered a relatively small proportion of samples from each marketing level.

Figure 2.5. Sampling design for primary data collection



2.5. Method of Data Collection

The study employed the relevant approach for collecting relevant data from sampled enumeration individuals. The primary data from sampled enumeration areas were collected with semi-structured and pre-tested questionnaires. The questionnaires were shared with Oromia Planning and Development Bureau for any of the comments. The questionnaires took different formats for the different participants in the different market chain of food crops such cereals, fruits, vegetables and milk and milk products.

2.6. Method of Data Analysis

The study used both parametric and non-parametric method of data analysis to address the predefined objectives. The non-parametric methods include simple descriptive, narratives, tabulations, graphics, differential diagnosis and benchmarking, decompositions, and ratios. The analysis based on the non-parametric methods was substantiated by employing the appropriate econometric models for a few of the specific objectives.

2.6.1. Non-parametric methods

The study used non-parametric methods to assess the trend and dynamics of inflation, identify supply and demand-side causes of inflation, co-movement of regional inflation, interaction of inflation with instabilities and conflicts, inflationary pressure of national policy measures, and inflationary interaction of national and international shocks.

2.6.2. Parametric methods

The study employed econometric models for addressing some of the specific objectives that demand this method. This method can substantiate the findings from the non-parametric methods.

Dynamics and decomposition of inflation

In most situation, there are differences in inflationary trends for food items versus non-food items and the causes for prices rise (Demeke and Tenaw, 2021). The study employed regression-based inequality decomposition to check relative share of the food and non-food components in determining the general inflation within the regional state. In the regression-based inequality decomposition, aggregate variables were decomposed by their predicted sub-components. The method decomposed the general CPI as a function of the food and non-food components, the constant, and the residuals to the total variation. The decomposition can be done by two approaches: the Shapley approach based on the expected marginal contribution of sources, and the analytical approach based on algebraic developments that express total variation as a sum of the contributing sources. Based on Araar and Duclos (2008) if the general inflation is Π and the set of components are food (F) and non-food (NF), then the functional representation could be $\Pi = \{F,\ NF\}$. Using a linear model specification, the formulation could look:

$$\Pi = \theta_0 + \theta_1 F + \theta_2 NF + \varepsilon$$

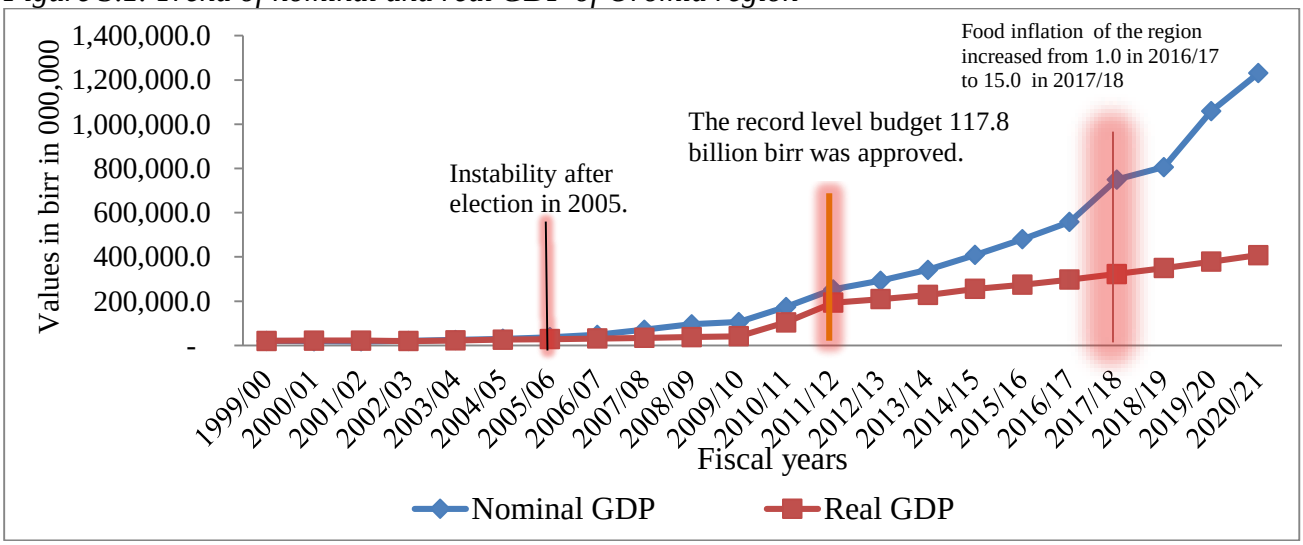
Where θ_0, θ_1 and θ_2 respectively, denote the coefficients (contributions) estimated from the model. Moreover, the model considered the error term (ε) that could represent the unexplained part. Decomposing total variation with the analytical approach assumes that the aggregate variable is the horizontal sum of variations contributed by each source. Accordingly, the contributions of all the sources, the constant term, and the residual totally add up to one.

3. DYNAMICS OF INFLATION

3.1. Trend of Inflation in Oromia Region

In the previous three decades, the real GDP of the region had a continuous increment though the rate of increment was different in some of the fiscal years. Contrary to the real GDP, the nominal one had an exponential increment in the last decade especially after 2011/12, which result in a wider gap between the real and nominal GDP of the region (Figure 3.1.). This difference in the two measures of GDP is purely the result of inflation, which became stronger after 2011. Continuous increment of the gap between them after 2011/12 indicates that there is successive increment in the inflation. Outliers in the regional GDP movements in few of the fiscal years were strongly related to shocks within the region and/or the national level circumstances (Figure 3.1.).

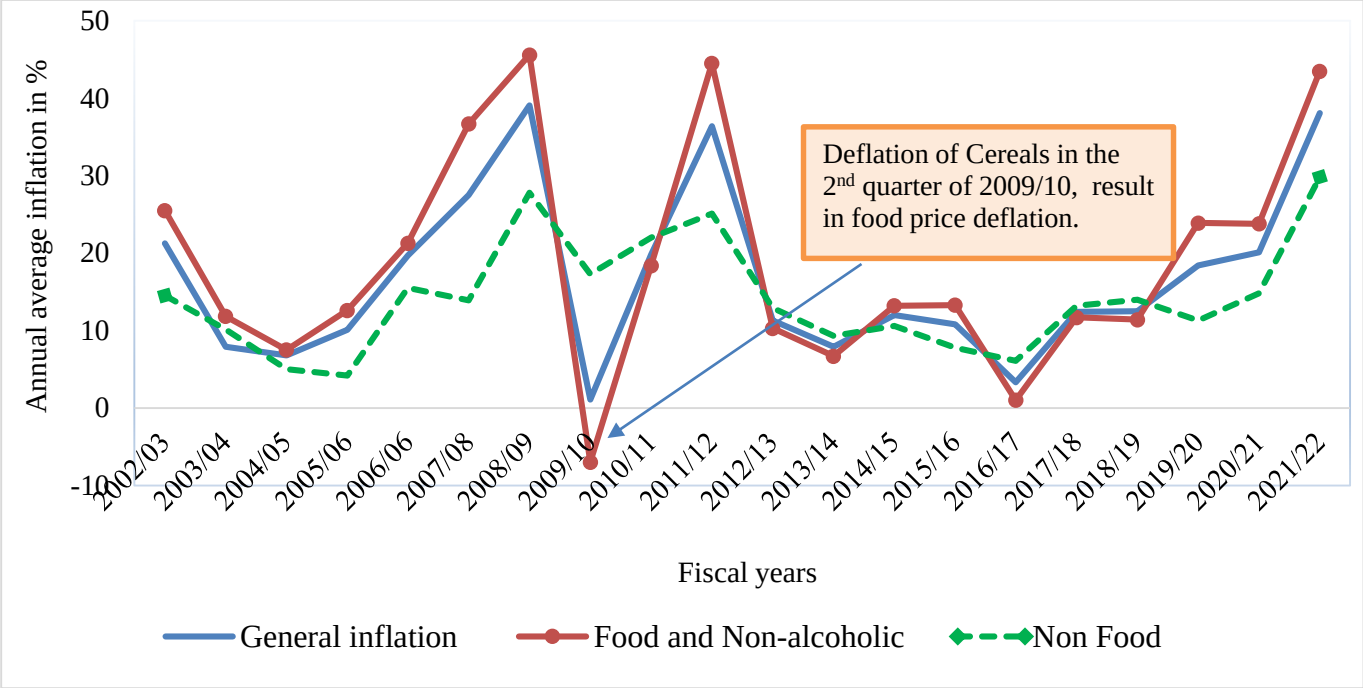
Figure 3.1. Trend of nominal and real GDP of Oromia region



Source; Own computation based on regional plan commission data, 2023

Figure 3.2. shows that in the last five years (after 2016/17) the annual average inflation in the Oromia region shows continuous increment. The figure also revealed that in the continuous upsurge of the annual regional inflation, food and non-alcoholic inflation took the leading position. In line with this, the gap between food and non-food inflation becomes narrow in the previous decades (2012/13 to 2021/22), which implies that two of them had a continuous upsurge. However, in almost all the fiscal years considered in the analysis food inflation of the region took the leading position in the general inflation. Figure 3.2 revealed that there was a significant and drastic reduction in the regional inflation of food and non-alcoholic beverages in 2009/10, which was due to the subsequent reduction in cereal prices. This drastic reduction was a national phenomenon, wherein food inflation had a 26.6% reduction as to the report of NBE in 2010. The Bank reported that the subdued global inflation coupled with prudent fiscal and monetary policy measures taken by the government have contributed to this effect. The report also verified that in 2009/10 there was strong food price deflation in the first quarter of the year, which was the result of reduction in the price of cereals, pulses, vegetables and fruits.

Figure 3.2. Trend of annual average inflation in Oromia region

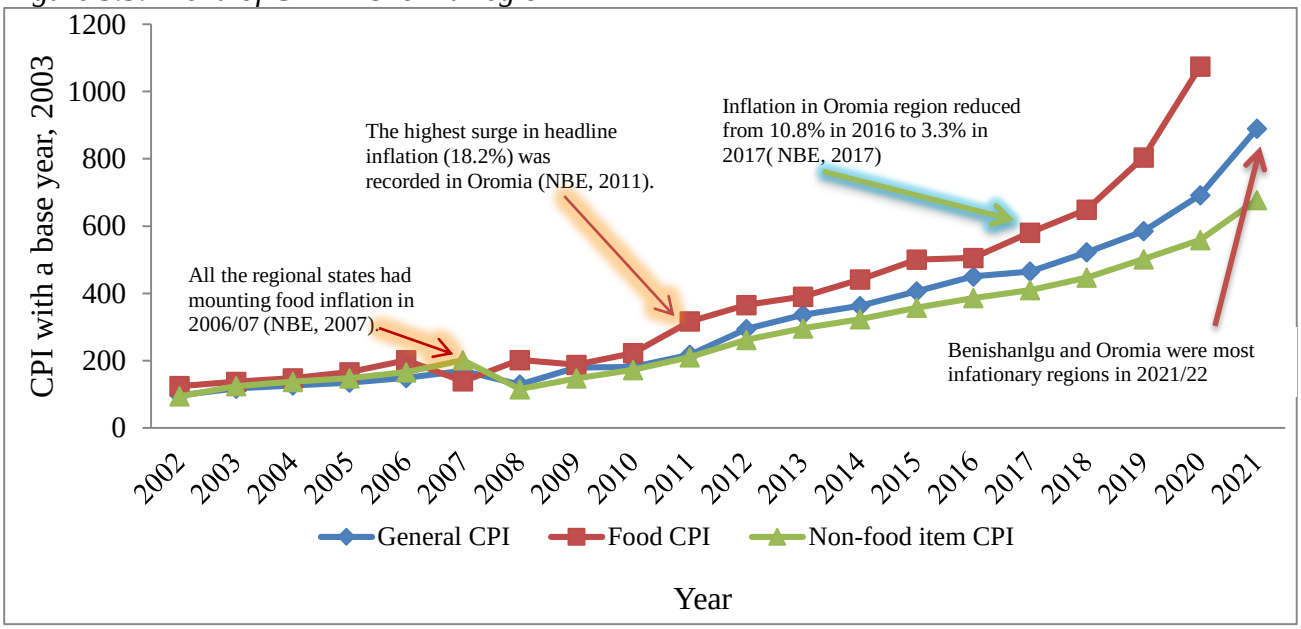


Source; Own computation from NBE and ESS, 2023

The rate of inflation (GDP deflator) during 2002 EFY was 0.8% while the five-year (2007-2011) average was 18.1% as to the annual report of the Oromia region plan commission. This report implies that the inflation within the region had strong variability in the aforementioned fiscal years. Figure 3.3 shows that both the general and food price index of the region had similar and equal movement until 2011, which implies that both the food and non-food items had similar price movement in the regional state. After 2011, the food price movement was steeper and higher than the general CPI, which implies that the gap between food and non-food CPI becomes wider, indicating that recently the food price rise is by-far larger than the non-food price increment. The steeper food price movement, starting from 2011, indicates that the pressure of inflation on society is becoming stronger since food items need day-to-day spending. The food price pressure on the general inflation of the region became stronger after 2017. Though the difference between food and non-food price is becoming larger, the trend was similar.

There was a smaller variability between food and non-food price indices in 2017, but they came to a similar trend of increment in 2018. After 2019 the two indices had quite different trends of increment, wherein the leading position was taken by the CPI of food items. Especially after mid of 2021 the gap between the two indices became wider, and non-food items had a relatively stable trend. In years, when there was a gap between food and non-food CPIs, the general CPI followed the trend for food CPI, which took the dominant share in the general consumer price index of the regional state. This indicates that if the regional state is able to curve down the inflation for a food item, it could significantly reduce the overall inflation within the regional state.

Figure 3.3. Trend of CPI in Oromia region



Source, Own computation from ESS, 2023

3.2. Regional Inflation Decomposition

The regression-based inequality decomposition result shows that the CPI of food items takes a prominent share of the general CPI of Oromia at different times. However, the share becomes larger in recent times, which implies that the pressure from the food inflation is becoming stronger. Between 2007 and 2021, the CPI of food and non-alcoholic drinks took about 60% of the relative share in determining the general CPI, which is by far larger than the national level share, which is 57% (Degye *et al*., 2022). This strong contribution implies that food price pressure is stronger in Oromia region in the process of determining the general inflation. The higher food inflation contribution in the general inflation of the region indicates that the regional population is suffering from inflation compared to the national level.

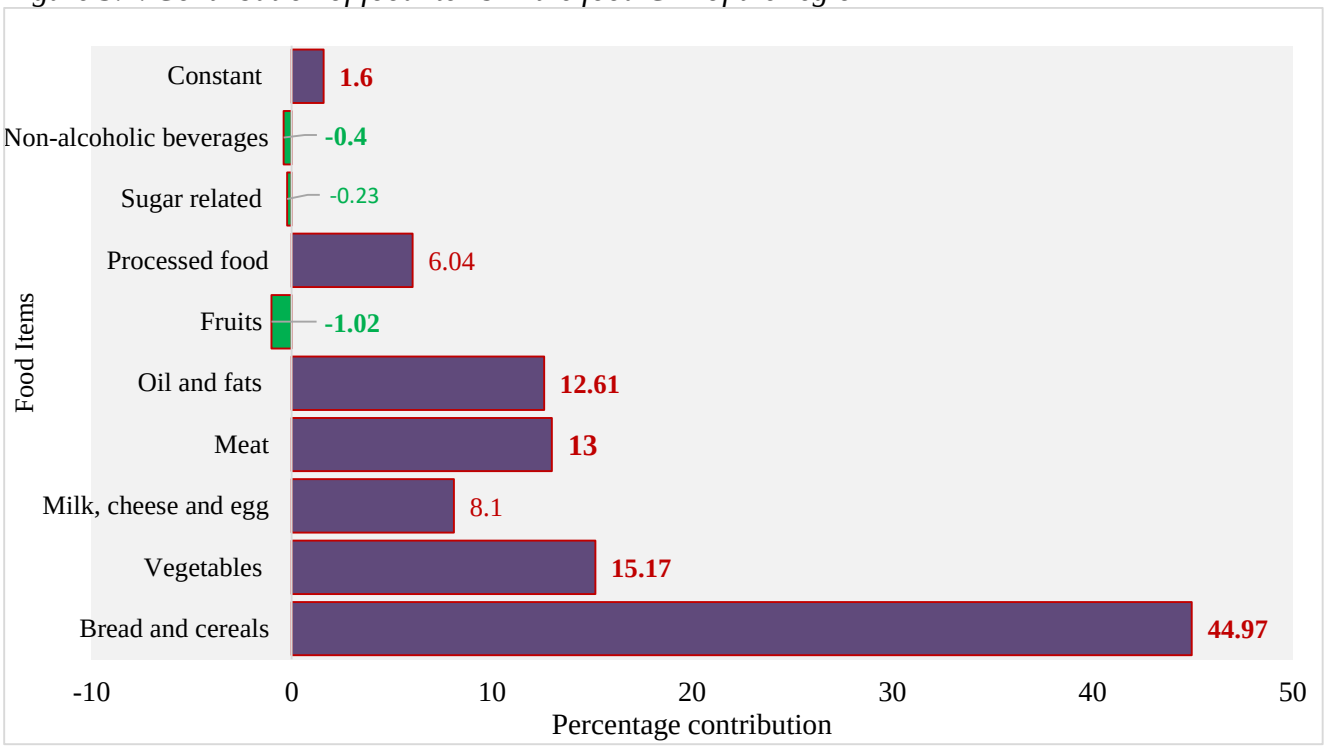
Table 3-1. Contribution of food and non-food components to the general inflation (2007-2021)

Food and non-food CPI	Quarterly CPI (2007-2021)	
	Inflation shares	Relative contribution
Food and non-alcoholic CPI	**58.68**	60.33
Non-food CPI	**41.24**	39.75
Constant	0.083	-0.08
Residual	0.00	0.01

Source; Own computation from NBE quarterly data, 2023.

The study examined the contribution of the different food items, considered in the basket for computing the food CPI, in determining the food inflation in the Oromia region (Figure 3.4). Based on the regression-based decomposition bread and cereals took about 45% of the relative share in determining the food inflation of the region. The second and third position of the relative contribution for food CPI of the region is taken by vegetables and meat. Given this, fruits, non-alcoholic beverages, and sugar related food items had a stabilization effect on the food inflation of the region. This regional-level finding partially corroborates the argument of Degye *et al*. (2022) who argued that fruits, milk, cheese and eggs, and non-alcoholic beverages have stabilization effects on the national level consumer prices of food.

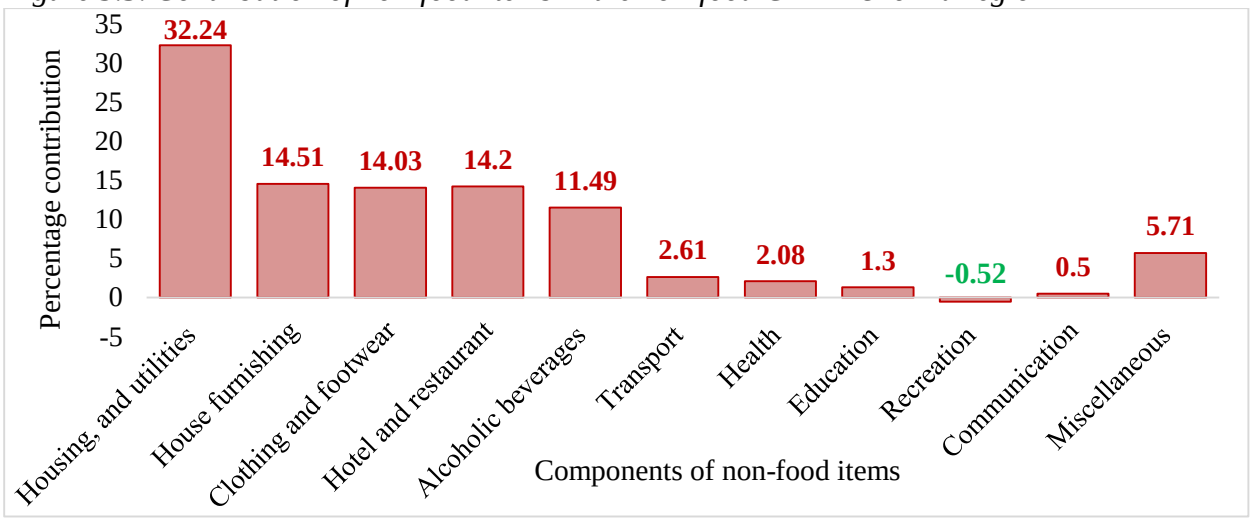
Figure 3.4. Contribution of food items in the food CPI of the region



Source: Own computation from data in NBE (2023)

Figure 3.5 shows that a significant proportion of the variability in the non-food price variation is sourced from housing and related utilities. This component of the non-food items took the right-hand contribution (32.24%) in determining the non-food price movement of the region between 2007 and 2021. This finding is strongly similar to the national level circumstance in which Degye *et al.* (2022) argued that 34.9% of the relative contribution in non-food inflation is sourced from the variation in the price of housing and related utilities such as water, electricity, gas, and other fuels. Moreover, house furnishing and clothing and footwear price movements took the second and third position in determining the non-food inflation in the Oromia region, which is strongly similar to the national level contribution. Contrary to this, the price movement of recreational items had stabilizing effect on the non-food inflation in the region. Degye *et al*. (2022) argued that prices of education and communication have price stabilization roles in the national economy.

Figure 3.5. Contribution of non-food items in the non-food CPI in Oromia region



Source: Own computation from data in NBE (2023)

4. SUPPLY AND DEMAND-SIDE DRIVERS OF INFLATION

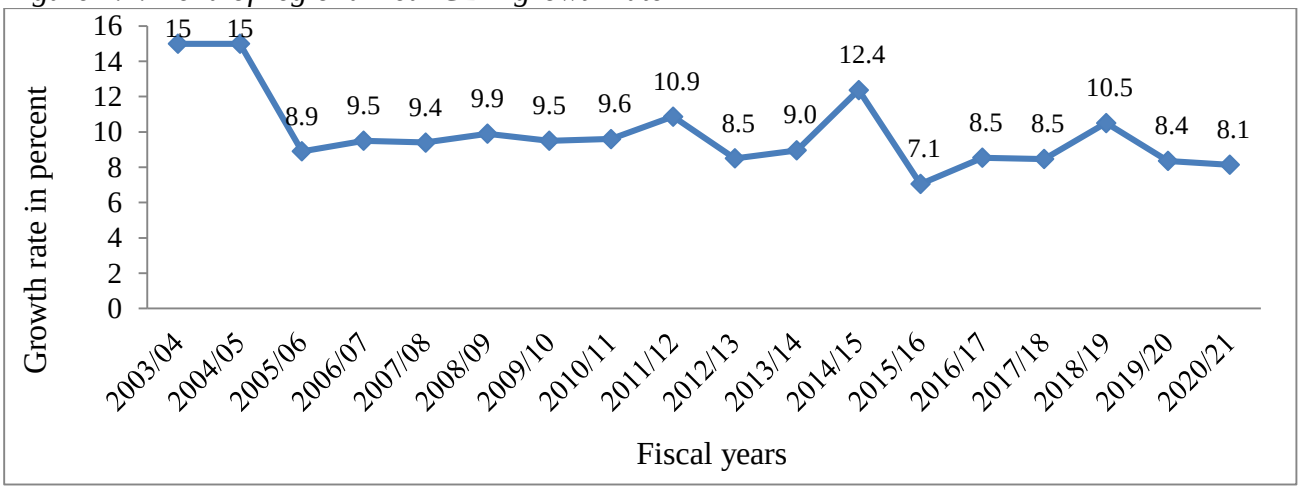
Inflation is the net result of sophisticated and dynamic interactions of monetary, demand- and supply-side (or real) shocks, structural and political (or institutions) factors (Jalil, 2011). The author argued that inflation is always and everywhere a macroeconomic and institutional phenomenon. Given this, early studies on inflation mainly rely on the traditional Phillips curve, which is built on the relationship between domestic inflation and output. Robert (2020) verified that inflation mainly depend on money supply, output gap, and labor costs. Nguyen *et al*. (2015) found that supply shocks are the main determinants of inflation in the short run in sub-Saharan Africa. The scholars argued that though there is a difference across countries the level of importing, vulnerability to agricultural shocks, trade policies, and the institutions have crucial roles in determining inflation. This indicates that different factors that affect the sustainable supply of an economic system, which could result in inflationary pressure within the economy.

4.1. Supply Side Drivers of Inflation in Oromia Region

4.1.1. Economic growth and inflation

In the previous two decades, the overall GDP of Oromia region grew consistently; however, the rate of increment was quite different, which had increment at a decreasing rate (Figure 4.1). Growth rate of the GDP had a continuously decreasing trend, and in few of the fiscal years it had double digit, but recently it has a growth rate below 10 percent. Albeit, the rate of increment was decreasing, the continuous increment of the regional GDP implies that the region is trying to produce outputs and supply to the economy to narrow down the gap between demand and supply. This effort of the economy may try to stabilize the regional inflation through balancing demand and supply, though the effect may not be strong enough. Reduction in the agricultural sector (2013/14 to 2015/16) was the reason behind the lower performance of the regional GDP in 2015/16 (OPDC[1], 2016). This implies that the sector, which has more 50% GDP share, strongly determine the overall growth rate of the regional economy.

Figure 4.1.Trend of regional real GDP growth rate



Source: Planning and Development Commission of Oromia regional state, 2022

Significant proportion of the regional GDP growth is sourced from agriculture, which has about 80% of the relative growth contribution in the previous two decades (See table 4-1). The relative growth contribution of the regional service sector is a bit stronger than the actual average share in the total GDP. Based on the decomposition result presented in Table 4-1 the significant variability

[1] Annual report of Oromia Plan and Development Commission in 2016.

in the regional economic growth is sourced from the variation in the agricultural sector. Hence, every additional effort in agriculture could have a significant effect on the overall economic performance of the region.

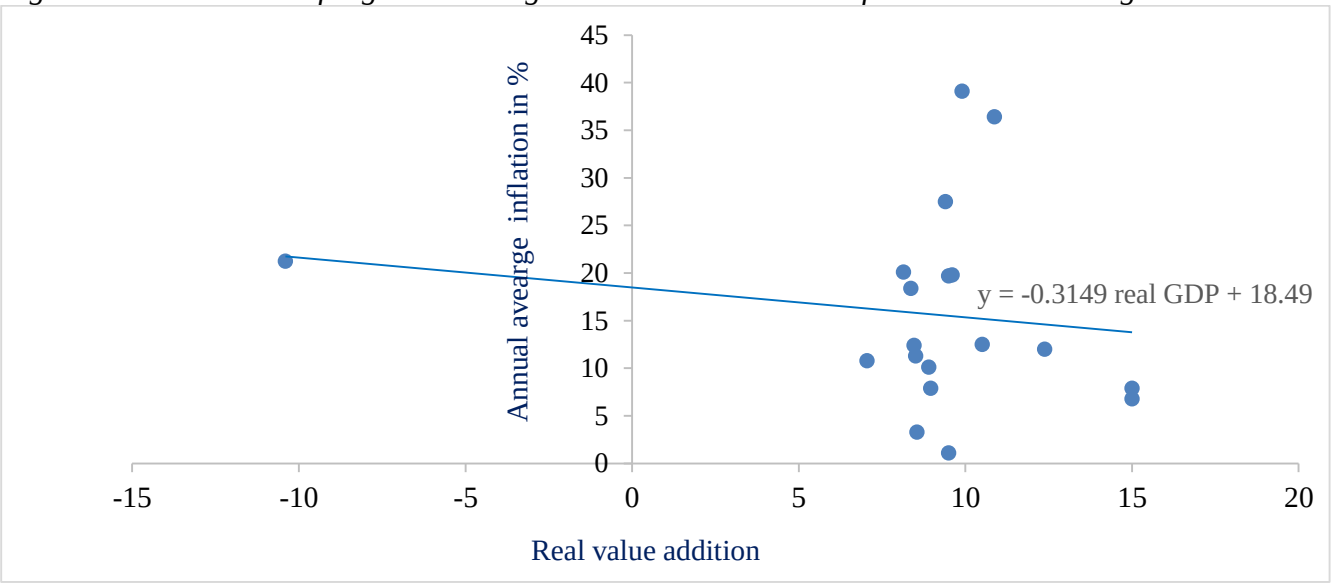
Table 4-1. Sectoral decomposition of the regional GDP growth rate (from 2000/01 to 2020/21)

Sectors	Average GDP growth share	Relative share to GDP growth rate
Agriculture	53.73	79.52
Industry	11.77	6.81
Services	43.54	13.45

Source, Own computation from OPDC data, 2023

Figure 4.2. verified that the continuous growth of the regional economy has a stabilization effect on regional inflation, although it was not strong enough. The figure presents an inverse relationship between real GDP value addition and general inflation of the region, which indicates that an additional increment in the real GDP has an inflation stabilization effect. Successive value addition of the regional economy could try to balance the demand and supply, which could try to stabilize the continuously increasing regional inflation. The figure prevails that if the regional economic growth rate is strong and stable enough, then it may stabilize the regional inflation by consistently availing the demanded amount and creating market equilibrium.

Figure 4.2. Interaction of regional GDP growth rate and annual inflation in Oromia region

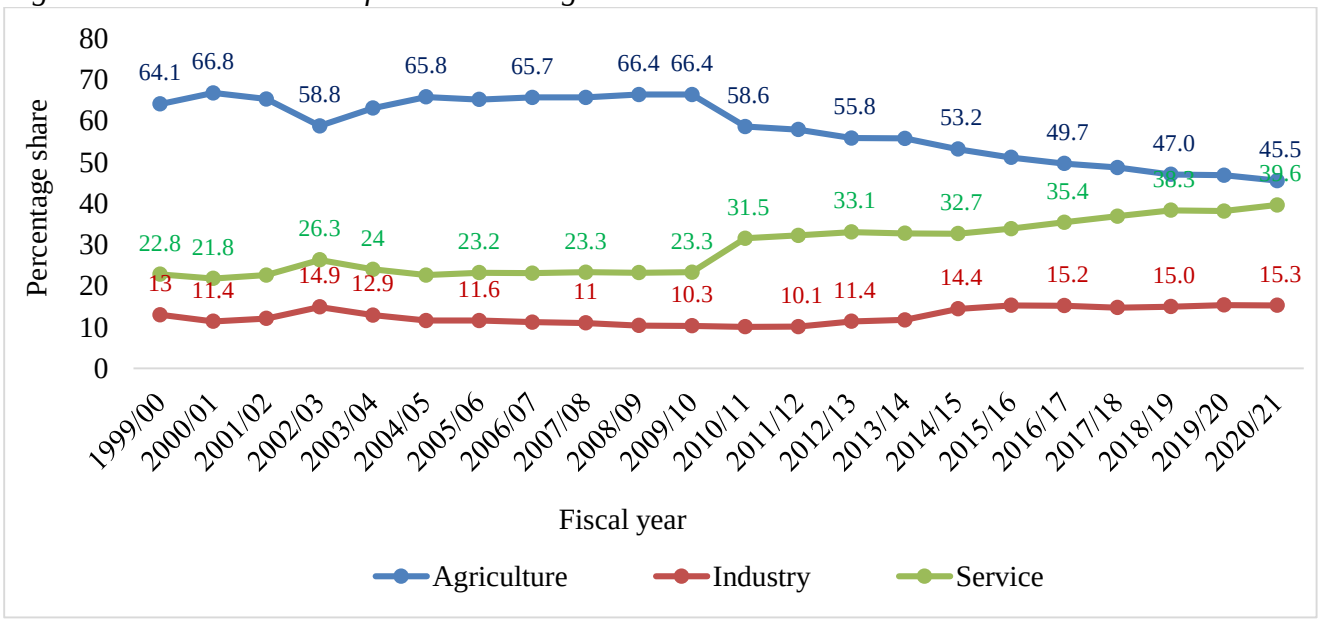


Source, Computed from NBE and OPDC data, 2023

Between 2000 and 2010 more than 60% of the overall regional GDP was sourced from agriculture, which implies that the sector had the lion's share contribution to the overall regional economic performance (See figure, 4.3.). During the time, the regional economy was by-far dominated by the supply-side, which implies that a significant proportion of the economic growth was from the agriculture and industrial sectors. Given this, between 2010/11 and 2020/21, on average, agriculture accounted for about 52% of the regional GDP. During the same period, the economy shifts gradually towards a service dependent economy. The process indicates that with the going of time, the relative contribution of agriculture to the regional GDP has been taken by the service sector.

Continuous increment of the service sector in the regional GDP share implies that the pressure of demand on inflation become stronger in recent times. Jalil (2011) argued that rapid increment of the service sector could create strong demand and inflationary pressure within an economy. This circumstance is happening in Oromia region and creating a strong imbalance between supply and demand within the regional economy that may be one reason for the continuous upsurge of inflation especially after 2016/17 (See figure 3.2). Figure 4.3. reveals that the share of the service sector is becoming stronger in the last five years, after 2014/15. In line with this, the share of the service sector grew by 21% between 2014/15 and 2020/21, which result in a drastic increment in demand within the regional economy. The relatively stronger increment in the share of the service sector may create huge demand for agricultural outputs though the latter sector was not with the capacity to fulfil the demand. This imbalance could create structural problems within the regional economy that may be a persistent cause of the inflation in Oromia region.

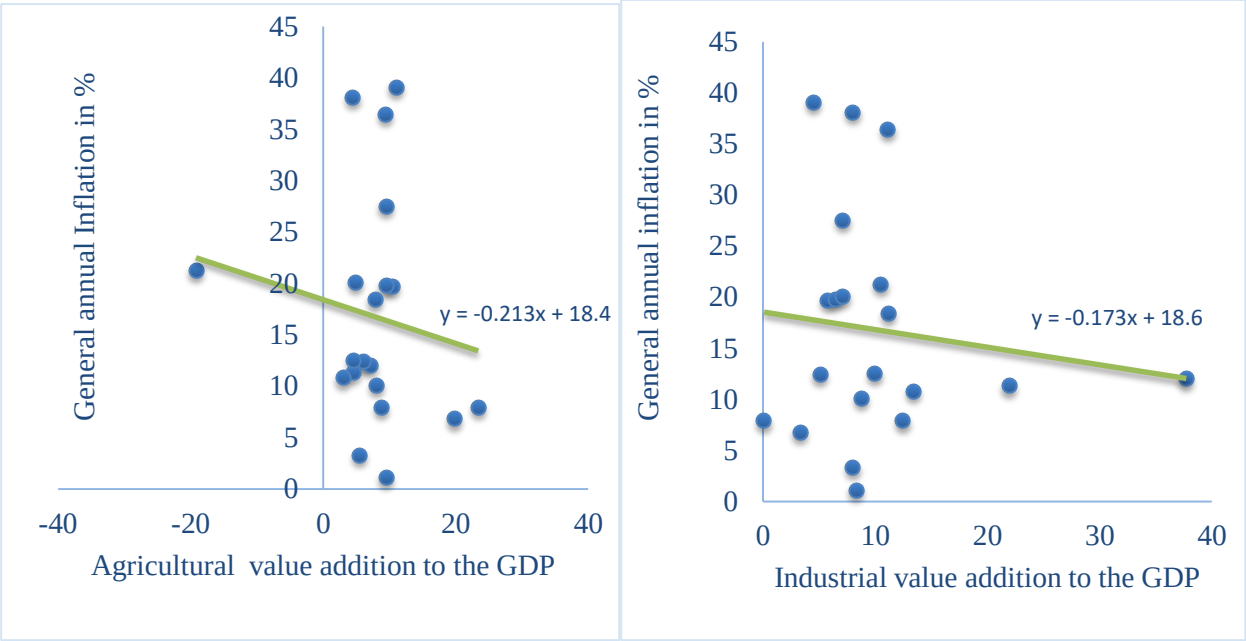
Figure 4.3. Sectoral share of GDP in the region



Source: Planning and Development Commission of Oromia regional state, 2022

Figure 4.4. shows that agricultural value addition in Oromia region has a relative inflation stabilization effect, which implies that every increment in the sectoral value addition could try to pull-down the inflation by supplying outputs to the other sectors, especially the service sector. In line with this, value addition by the industrial sector of the region also has a positive effect in lowering inflation. However, the stabilization effect was not strong enough compared to the agriculture. As to figure 4.4, the value addition of agriculture is more powerful in stabilizing regional inflation than the contribution from the industrial sector of Oromia region.

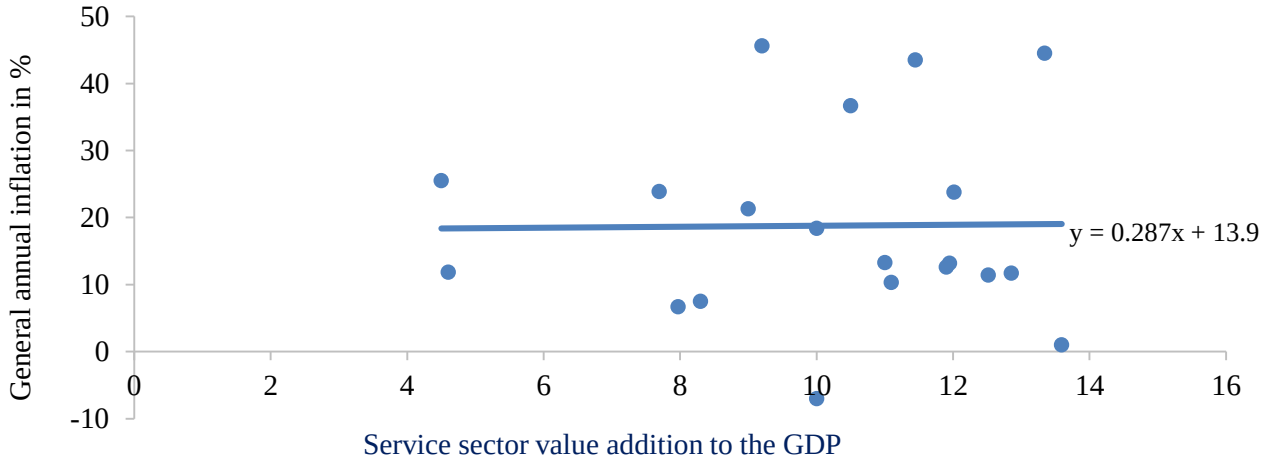
Figure 4.4. Interaction of inflation, and agricultural and sectorial value addition



Source, own computation from NBE and OPDC data, 2023

Figure 4.5 shows that services sector value addition of the region positively contributed for the continuous inflation. Successive increment in the sectoral value addition to the regional GDP could aggravate the inflation through creating additional demand within the economic system. The problem could worth more if each additional demand from the service sector is not fulfilled. Hence, the regional economy may suffer from demand-pull inflation.

Figure 4.5. Interaction of service sector value addition and the inflation in Oromia region



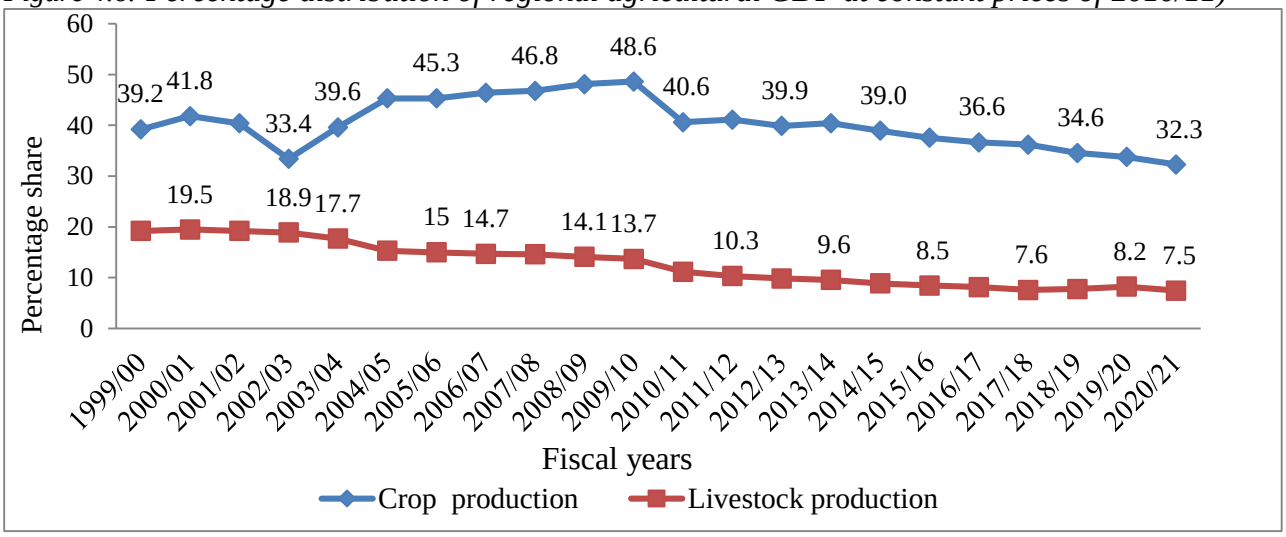
Source: Planning and Development Commission of Oromia regional state, 2022

4.1.2. Crop and livestock value addition

Crop production take significant proportion of the agricultural GDP of the region (Figure 4.6), however, share of the sub-sector subsequently reduced wherein significant reduction was observed in 2010/11. The maximum crop production share from the agricultural GDP of the region was in 2009/10. The two sub-sectors, crop production and livestock management, had more than 50% of the regional GDP share in 2010/11, however, the share significantly reduced to 40% in 2020/21. Though the percentage shares of both livestock and crop production from the regional GDP

continuously reduced, however, the reduction was faster for the share of livestock. Annual report of the region revealed that the crop production sub-sector had the highest growth rate of 12.2% in 2011/12, henceforth the rate continuously reduced and reached to 3.1% in 2020/21, which is fourfold lower than the rate in 2011/12. It may be because of the catastrophic environmental problems that directly govern the nature dependent agriculture of the country and the region as well. Similarly, the report asserted that livestock production of the region had negative growth rate in 2020/21.

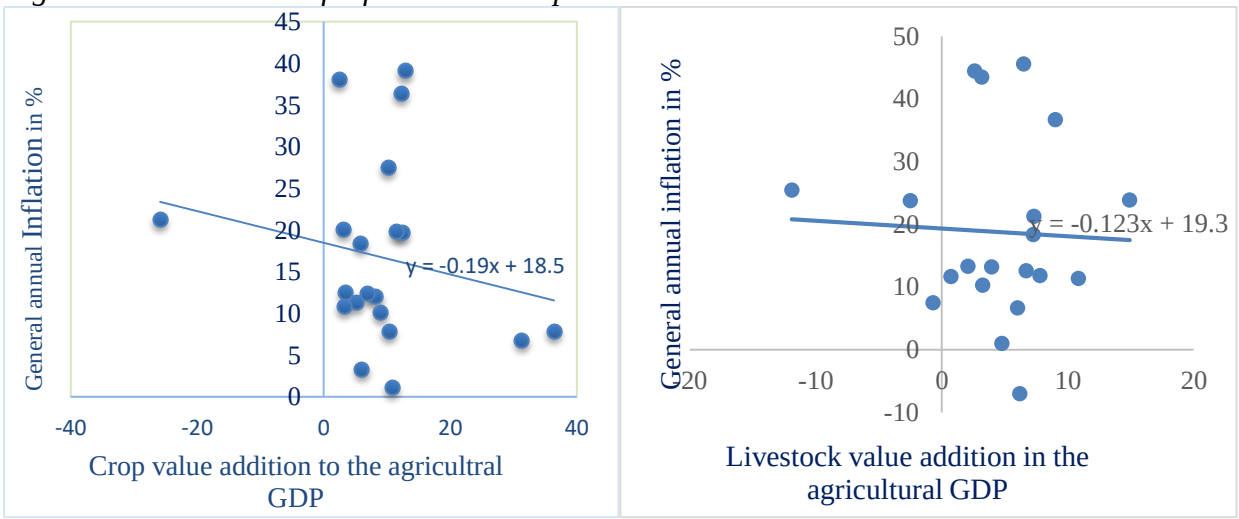
Figure 4.6. Percentage distribution of regional agricultural GDP at constant prices of 2010/11)



Source: Planning and Development Commission of Oromia regional state, 2022

Crop production and livestock management of the region have inflation stabilization effect (Figure 4.7). However, the effect from the former sub-sector is stronger, which implies that each value addition from the sub-sector has significant inflation stabilization effect in Oromia regional economy. Thus, if there are continuous efforts to enhance value addition of the sub-sector, the inflation stabilization effect may be sustainable for the regional economy.

Figure 4.7. Interaction of inflation and crop and livestock value addition

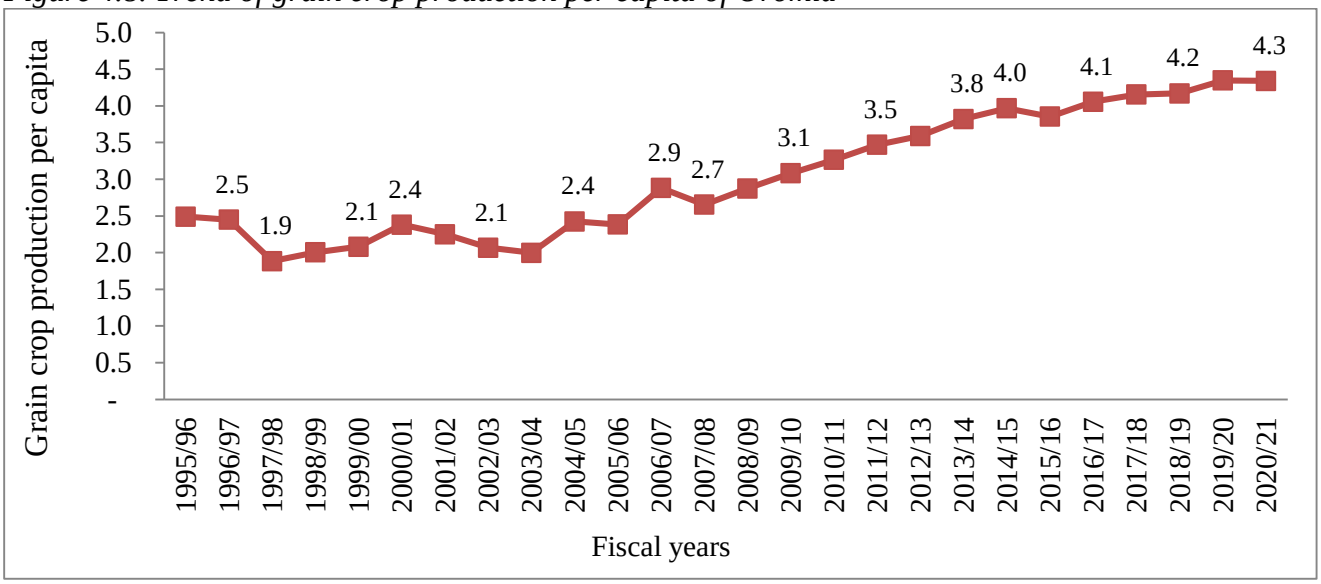


Source, Own computation from NBE and ESS, 2023

4.1.3. Grain crop production per capita

Though the rate of increment was not strong enough grain crop production per capita of Oromia region increase continuously (Figure 4.8). In recent times, per capita grain production of the region had a relatively constant trend. For instance, in the last ten years (2010/11 to 2020/21) it had about 3% growth per annum that was not far from the population growth rate (2.7 per year), which is one dimension for asserting growth in demand.

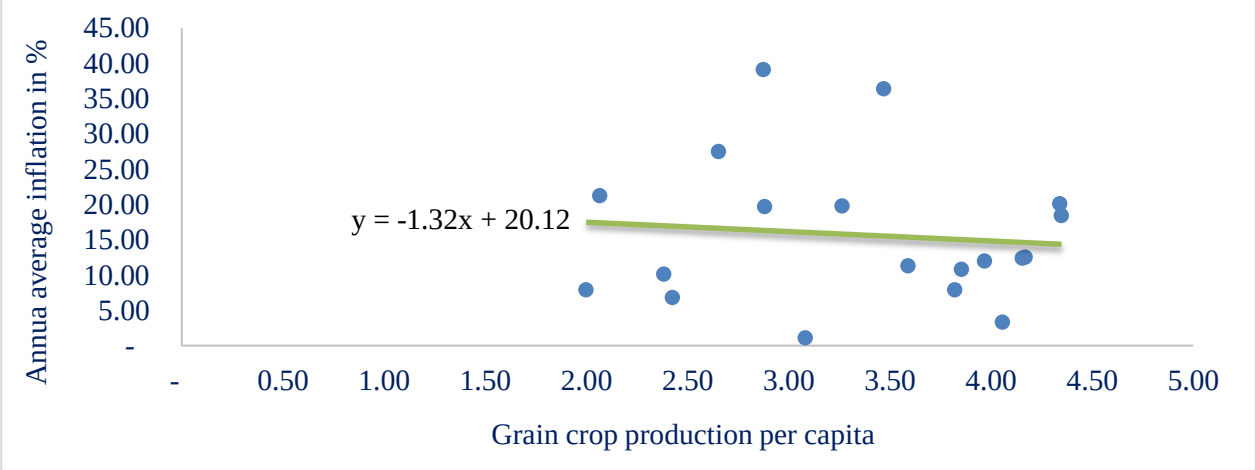
Figure 4.8. Trend of grain crop production per capita of Oromia



Source: Own computation based on ESS data, 2023

Figure 4.9 reveals that grain crop production has strong inflation stabilization effect within the regional economy. The figure reveals that improvement in grain production has a strong inflation stabilization effect, which indicates that every additional effort in the process of enhancing grain crop production could have meaningful implications to fight general inflation. Thus, it is easy to conclude that every increment in grain crop production has strong and positive stabilization effect on the overall inflation within the regional economy.

Figure 4.9. Grain crop production and inflation in Oromia region

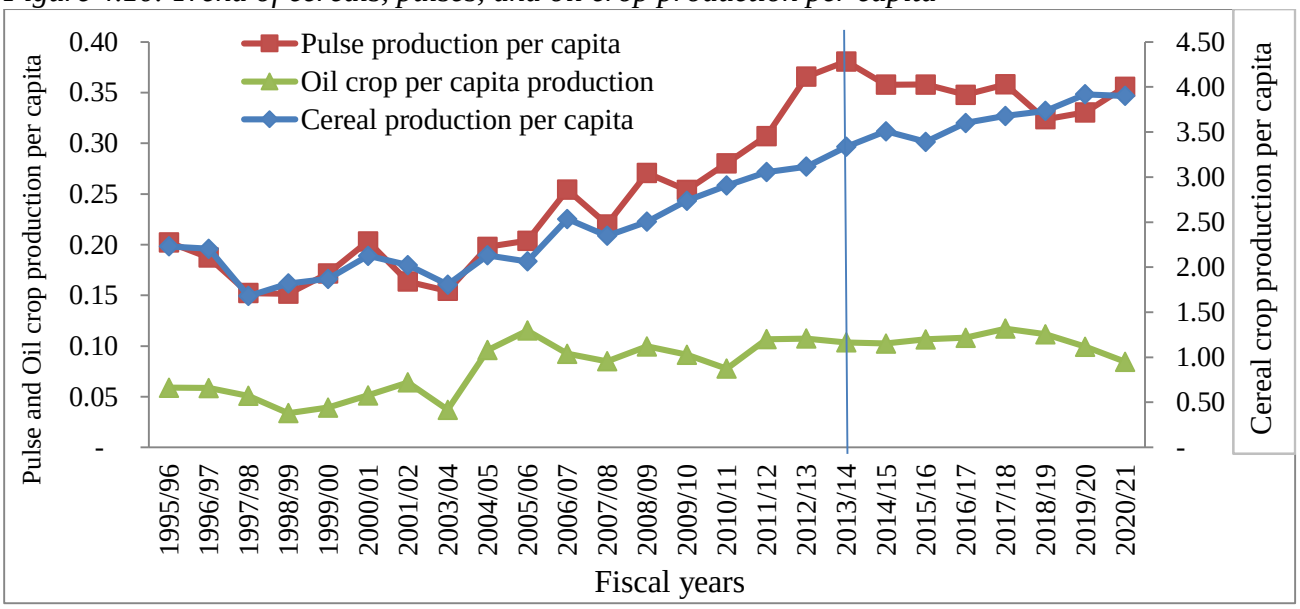


Source, Own computation from NBE and ESS, 2023

4.1.4. Cereals, pulses and oil seeds production per capita

Cereal and pulse production per capita of the region followed a similar pattern until 2007/08. Yet, per capita production of pulses had better growth before it starts to decline continuously after 2013/14 (Figure 4.10). On the other hand, cereals exhibited a continuous increment at a constant rate. Oil crop production per capita of the region started to decline after 2017/18. The subsequent reduction in per capita production of pulses and oil crops may result in significant gap between demand and supply not only in the region, but also at national level since the region accounts about 47.5% of the main season cereals, pulses, oilseeds, vegetables, root crops and fruits production (CSA, 2018).

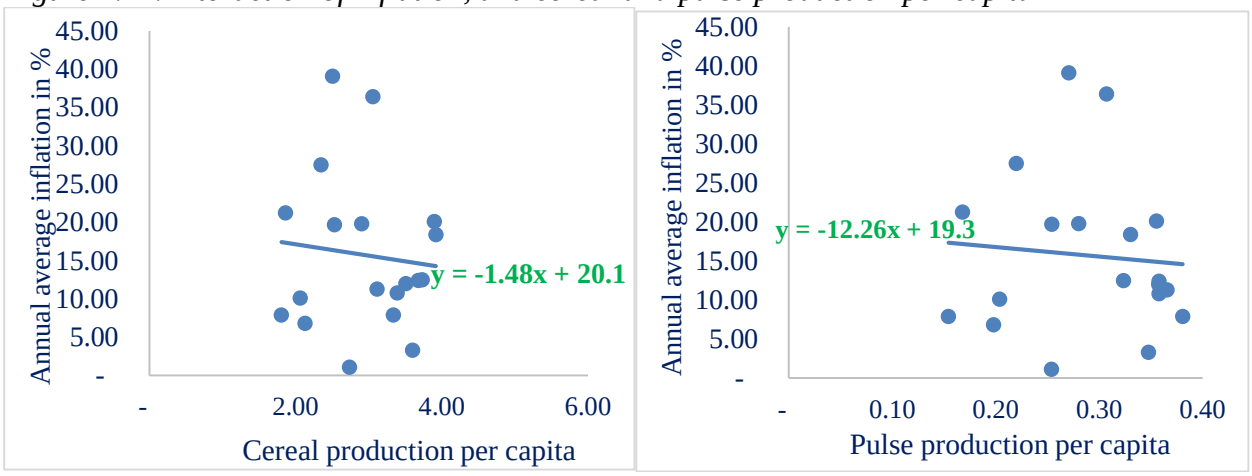
Figure 4.10. Trend of cereals, pulses, and oil crop production per capita



Source: Own computation from ESS, 2023

Figure 4.11 show that the increment in cereal and pulse crops per capita production of the region has a strong inflation stabilization effect since they are the main source of consumable items. The figure conveyed that if the regional state can enhance the production and productivity of cereals, it could significantly curve down the inflation by clearing the market that is equalizing the demand and supply within the regional economy. If the regional crop production sustainably increased, the national level repercussion in fighting inflation could be strong enough.

Figure 4.11. Interaction of inflation, and cereal and pulse production per capita

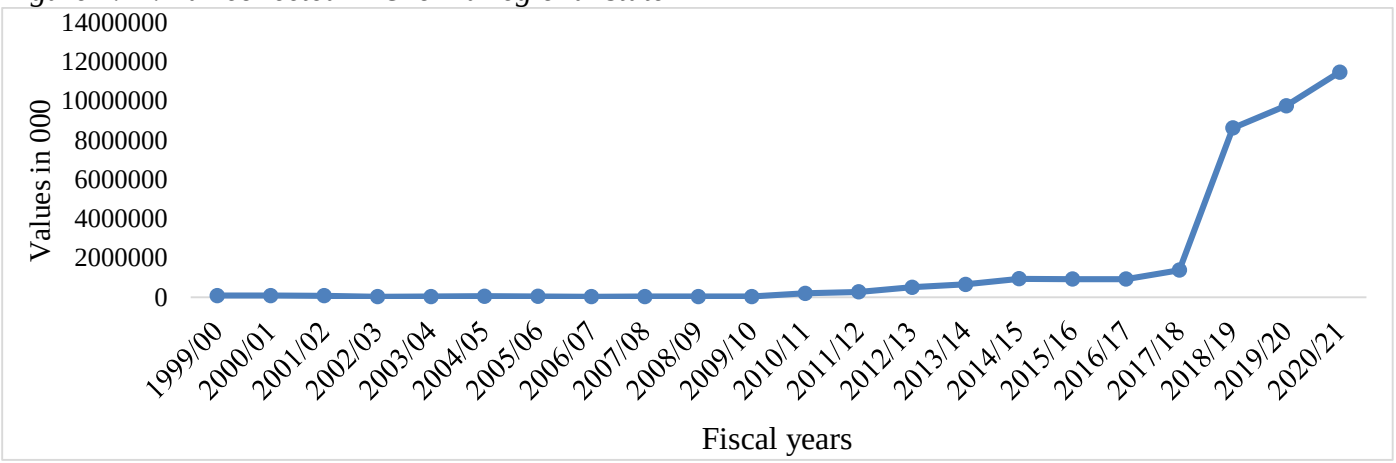


Source, Own computation from NBE and ESS, 2023

Trend of tax collection and inflation in the region

Figure 4.12 shows that the trend of inflation expressed in the form of GDP deflator and the tax collected by the regional state had a similar trend in most of the fiscal years. Both the regional GDP deflator and tax revenue collected had a strongly similar trend until 2017/18, however, the rate was also strong in recent years such as 2019/20 and 2020/21. The figure below shows that the drastic increment of tax revenue in the region in 2018/19 may be one reason for the relative increment of price in the following year, 2019/20. The tax on products increased by 526% between 2017/18 and 2018/19, which may be one reason for the 21.7% inflation in 2019/20. Cost-push inflation commonly occurred when transaction costs increased continuously. The inflation had continuity even in recent years, which has a similar trend with the taxes collected by the region.

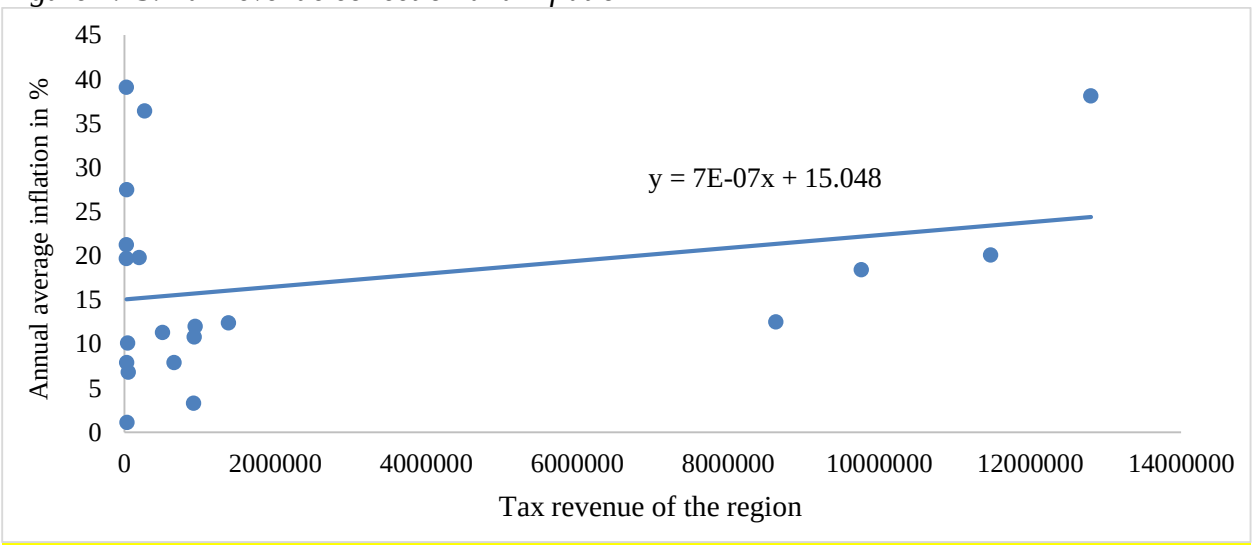
Figure 4.12. Tax collected in Oromia regional state



Source: Planning and Development Commission of Oromia regional state, 2023

Figure 4.13 shows that continuous increment of tax revenue collection by the regional state has a fuelling effect on inflation. This indicates that every increment in tax collection may increase the inflation within the region, which may be called a cost-push inflation as of continuous transaction cost increment after each tax collection.

Figure 4.13. Tax revenue collection and inflation



Source, Own computation from NBE and ESS, 2023

Key Takeaways

Significant variability in the regional economic growth is sourced from the agriculture, which implies that ever additional effort on the sector could have significant effect on the overall economic performance of the region.

If agriculture of the region is strong and stable enough, then it may stabilize the regional inflation through consistently availing the demanded amount to stabilize the market.

More specifically, the regional state be able to enhance production and productivity of cereals, it could significantly curve down the inflation through clearing the market by equalizing the supply and demand. The national level repercussion, in fighting inflation could be strong if the region continuously increased the agricultural production.

4.2. Demand Side Drivers of Inflation in Oromia Region

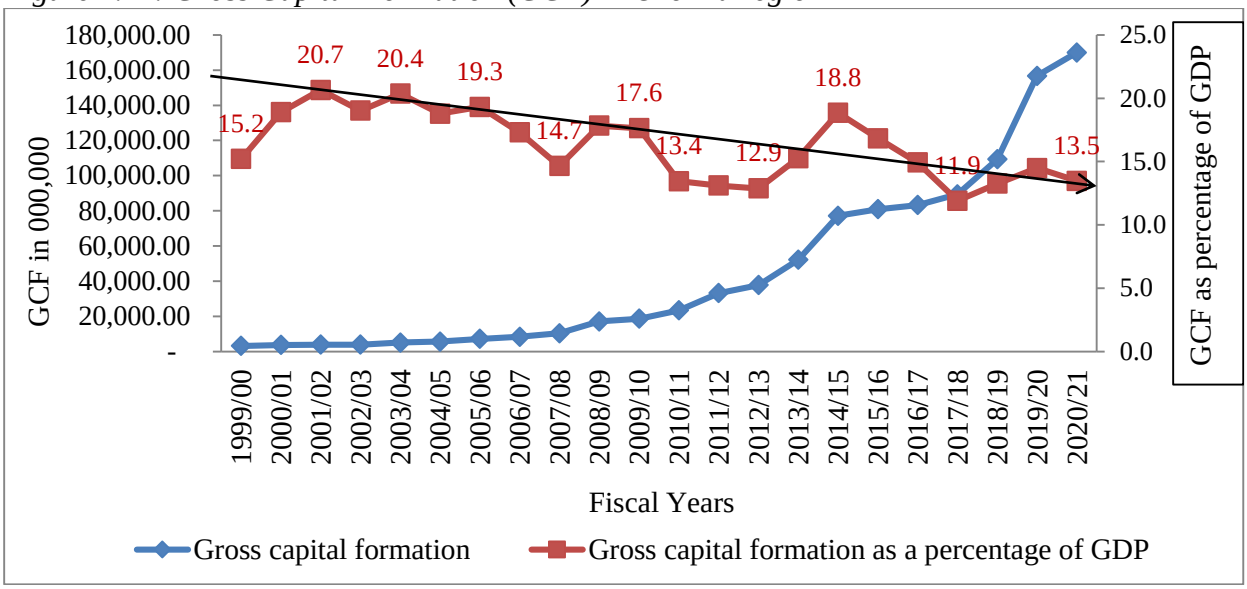
Keynesians believe that inflation is mainly caused by aggregate demand increment. The aggregate demand increment is commonly sourced from an upsurge in the money supply. The higher growth rate of the nominal money supply could directly result in a higher inflation rate. Modern quantity theorists do not believe that true inflation starts after the full employment level, which is a realistic view since there is a co-existence of high unemployment and inflation in all advanced countries. Cheap monetary policies could lead to an increment in the money supply that raises the demand for goods and services in the economy. When credit expands, it raises the money income of the borrowers which in turn raises aggregate demand relative to supply, thereby leading to inflation. This is also known as credit-induced inflation. The money supply within the economy may be because of black money flow towards the economy. The existence of black money in countries due to corruption, tax evasion, etc. increases the aggregate demand within the economic system. People spend such unearned money extravagantly, thereby creating unnecessary demand for commodities, which tends to raise the price level. When the disposable income of the people increases, it raises their demand for goods and services. Disposable income may increase with the rise in national income or reduction in personal income taxes.

4.2.1. Gross Capital Formation

Alemayehu and Kibrom (2011) argued that income growth is one determinant of inflation since its increment could create demand for goods that may finally result in demand-pull inflation if there is lagging supply within the economy. Figure 4.14 shows that the trend of gross capital formation or investment in Oromia region started to rise after 2003/04. However, the growth rate was quite different in the different fiscal years; for instance, it had drastic increments in 2008/09, 2014/15, and 2019/20. Gross capital formation of the region continuously increased though the trend of increment was inconsistent, which implies that the increment becomes sharper in some of the fiscal years, and steady in others. Contrary to this, the percentage share of gross capital formation from the regional GDP had a continuously decreasing trend, which indicates that the region is not investing as to the potential level. Though gross capital formation or investment of the region is increasing continuously with time, the formation was not as to the potential that is measured as a proportion of the regional GDP. The successive reduction in the gross capital formation as a percentage of GDP suggests that the regional economy is growing without investing as to its

potential to do so. Hence, it is easy to say that the regional economy is growing focusing on the demand side.

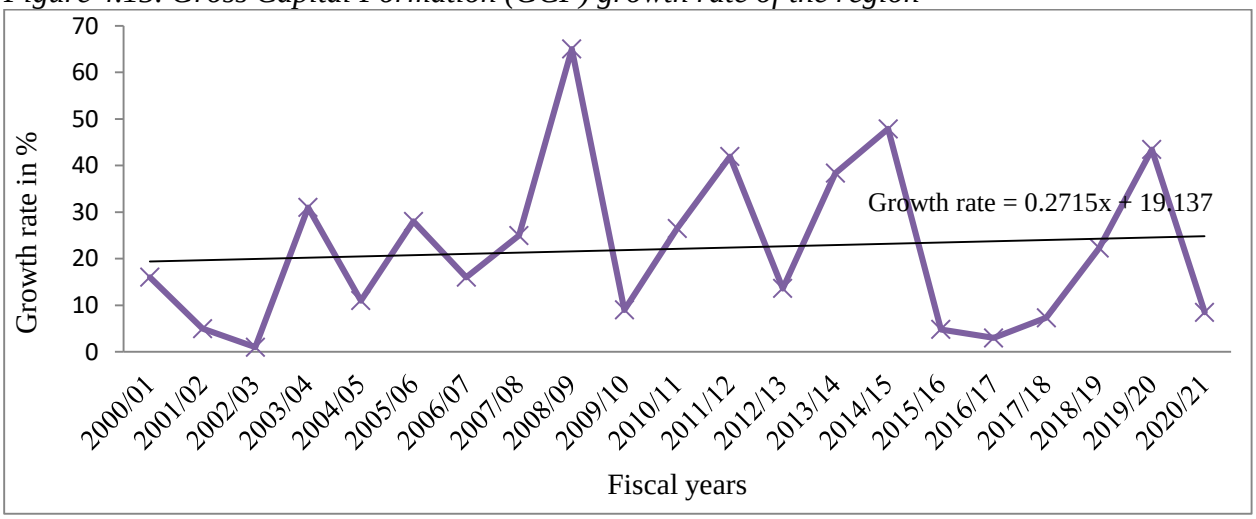
Figure 4.14. Gross Capital Formation (GCF) in Oromia region



Source, Planning and Development Commission of Oromia regional state, 2023

Though the overall growth rate of GCF in the region is positive, it was inconsistent in the fiscal years considered in the analysis. For instance, the variability was strong before 2015/16, however, in recent times it becomes relatively stable and keeps going up, which is a circumstance that may initiate the industry to produce more. Given this, for years between 2016/17 and 2019/20 capital formation of the region was increasing at an increasing rate that may enable the regional state to produce more and supply additional outputs and tried to stabilize the inflation (Figure 4.15). If the regional economy could not be able to produce and supply the demanded amount, a huge supply-demand gap may be created, which could result in successive inflation within the regional state.

Figure 4.15. Gross Capital Formation (GCF) growth rate of the region

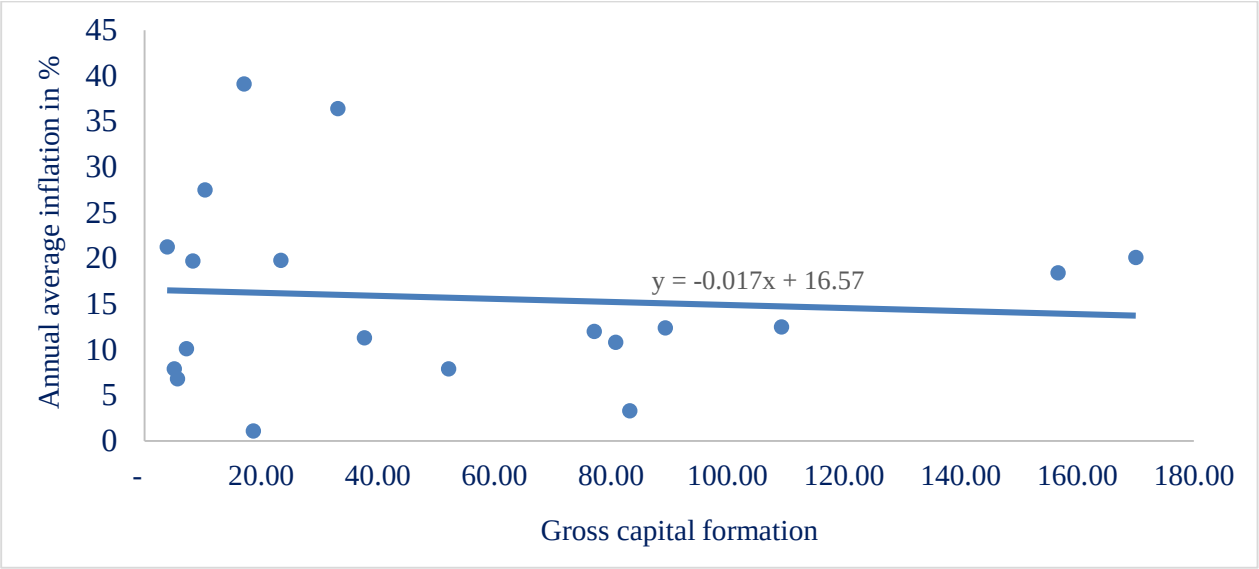


Source, Planning and Development Commission of Oromia regional state, 2023

Figure 4.16 reveals that the gross capital formation of the regional state had an inflation stabilization effect, though the interaction was not strong enough. The negative trended interaction indicates that every additional increment in the investment within the regional economy has positive contribution in the process of fighting inflation. This stabilization effect of capital

formation may be because of improvement in the supply side of the economy (agriculture and/or industry) after every additional capital formation.

Figure 4.16. Capital formation and inflation in Oromia region



Source, Own computation from NBE and ESS, 2023

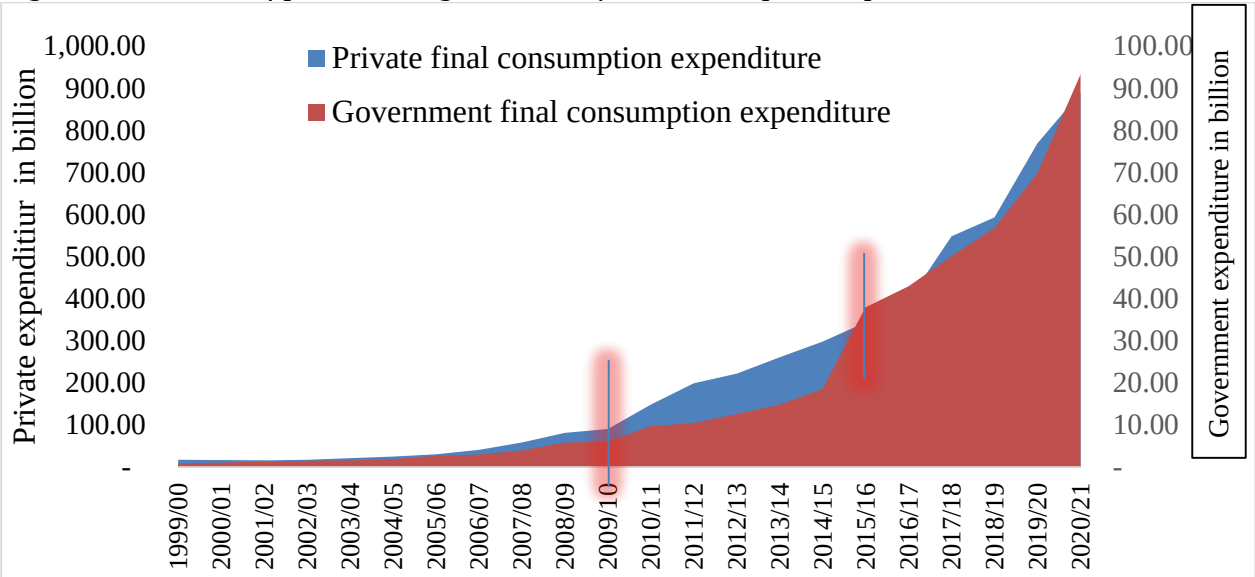
4.2.2. Dynamics of Public and Private Expenditure

Money expansion via credit, money printing, and government expenditures are inflationary monetary policies (Bane, 2018). Focusing on Egypt and Mexico, Kia and Sotomayor (2020) measure the main drivers of inflation from 1975-2015 and found that increases in government spending significantly fuelled inflation in those countries. Government activities could expand much as of the successive government expenditure, thereby raising aggregate demand for goods and services within the economic system. Scholars argue that governments of both developed and developing countries mainly provide additional facilities such as public utilities and social services, which could directly increase aggregate demand. This raises aggregate demand thereby leading to an inflationary rise in prices if aggregate supply is not in a position to fulfill the demand. Caceres *et al*. (2012) continuous consumption spending increment may cause private sector expansion, which could directly result in inflationary pressure from the demand side of the market of central African countries. The private sector expansion also tends to raise the aggregate demand. Investment increments may improve employment and income, thereby creating more demand for goods and services, but there may be a time gap for the output to enter the market, which could lead to a price rise.

Figure 4.17 shows that the consumption expenditure of Oromia region is increasing drastically, especially after 2010/11. Indicated that both private and public final consumption expenditures of the region are increasing alarmingly in the previous ten years, however, growth rate of the private consumption expenditure was by-far larger. As to the figure, government's final consumption expenditure of the region had an exponential increment after 2014/15. Proportionately, the private final consumption expenditure of the region took the dominant share from the overall final consumption expenditure in the previous two decades (2000/01 to 2020/21). The private consumption expenditure of the region had relatively a consistent increment in the previous two decades having drastic increment in 2017/18 and 2019/20. The recurrent consumption expenditure increment of the region may create additional demand within the regional economy that could have strong inflationary pressure especially if the expenditure is not productive enough to produce

additional outputs.

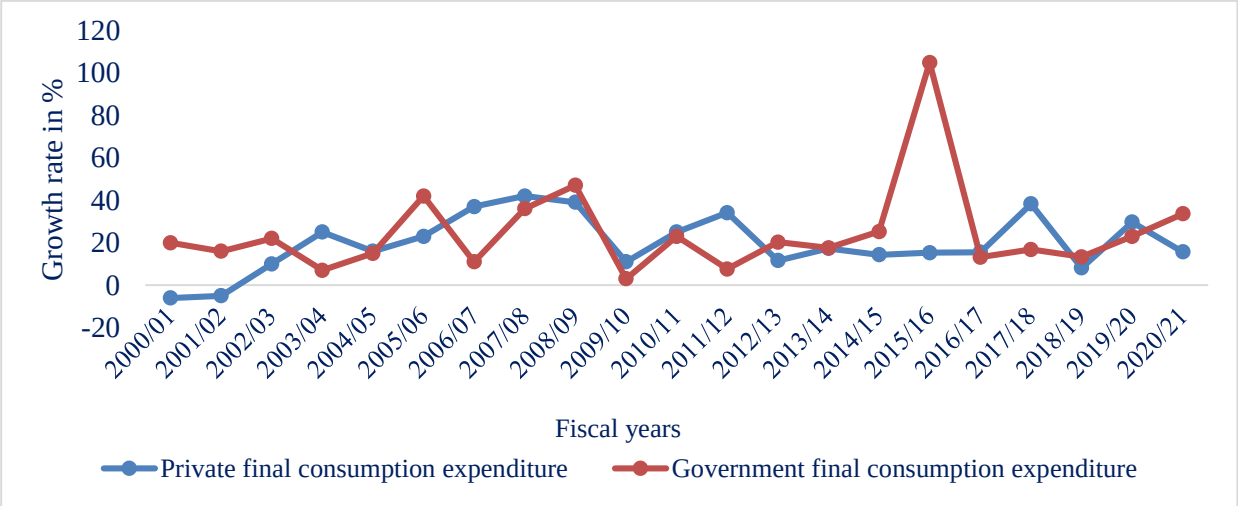
Figure 4.17. Trend of private and government final consumption expenditure



Source: Planning and Development Commission of Oromia region, 2023

Figure 4.18 shows the trend of the consumption expenditure (public and private) growth rate wherein the growth for public consumption expenditure had strong variability in all the fiscal years considered in the analysis. The regional government expenditure had more than a 100% increment in 2015/16. Starting from 2016/17 government final consumption expenditure of the region had an increasing rate of increment, while the private expenditure had a varying rate of increment.

Figure 4.18. Private and public consumption expenditure growth rate

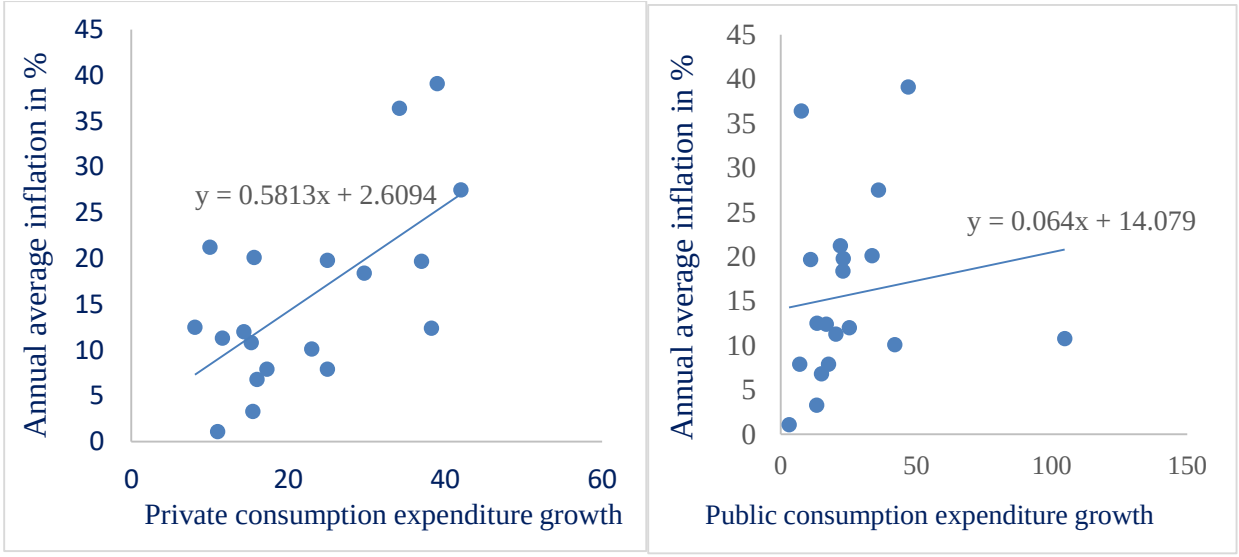


Source: Planning and Development Commission of Oromia regional state, 2023

Figure 4.19. shows that continuous increment of private and public consumption expenditure has a fueling effect on the inflation within the regional state, though, the former one has stronger power. This strong fueling effect of private consumption expenditure increment revealed that significant proportion of the private consumption expenditure was not productive enough to produce additional outputs for the economy. Fueling effect of the private consumption expenditure reveals that the spending was on the direction of creating demand within the economy. Contrary to this, fueling effect of public consumption increment was partial, which may be because of the

partial productive, through investment on capital formation practices, effect of this expenditure direction within the regional economy.

Figure 4.19. Inflation and consumption expenditure growth in Oromia region

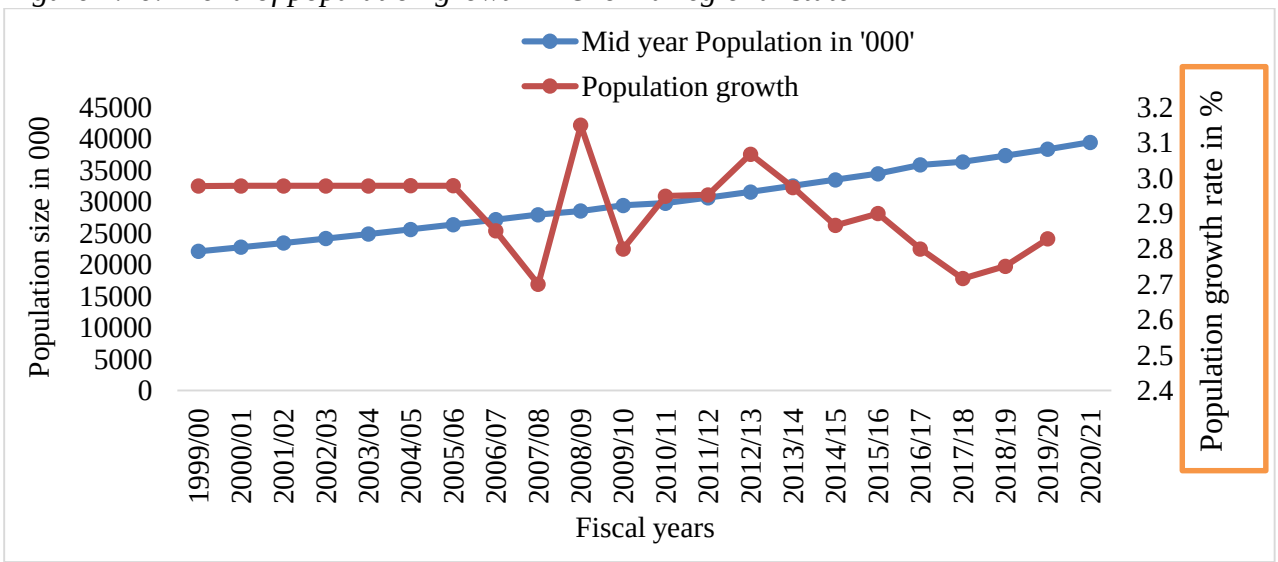


Source, Own computation from NBE and ESS, 2023

4.2.3. Population growth and inflation

The most populous region of the country, Oromia, has a continuously increasing population and currently has a total population of 39.4 million in 2020/21. The population of the regional state had an average growth rate of 2.9 per year in the previous two decades, however, the rate had a continuous reduction in recent times. Scholars argued that increasing population may be an asset or liability for the economy, which depends on how productive are the economic system. This confusion may hold for the regional economy. Sometimes population growth may aggravate macroeconomic problems. Scholars do not have a consensus regarding the impact of population growth on the link between demographics and inflation. While higher population growth increases the demand for goods and services, it also boosts the overall supply due to greater availability of labor.

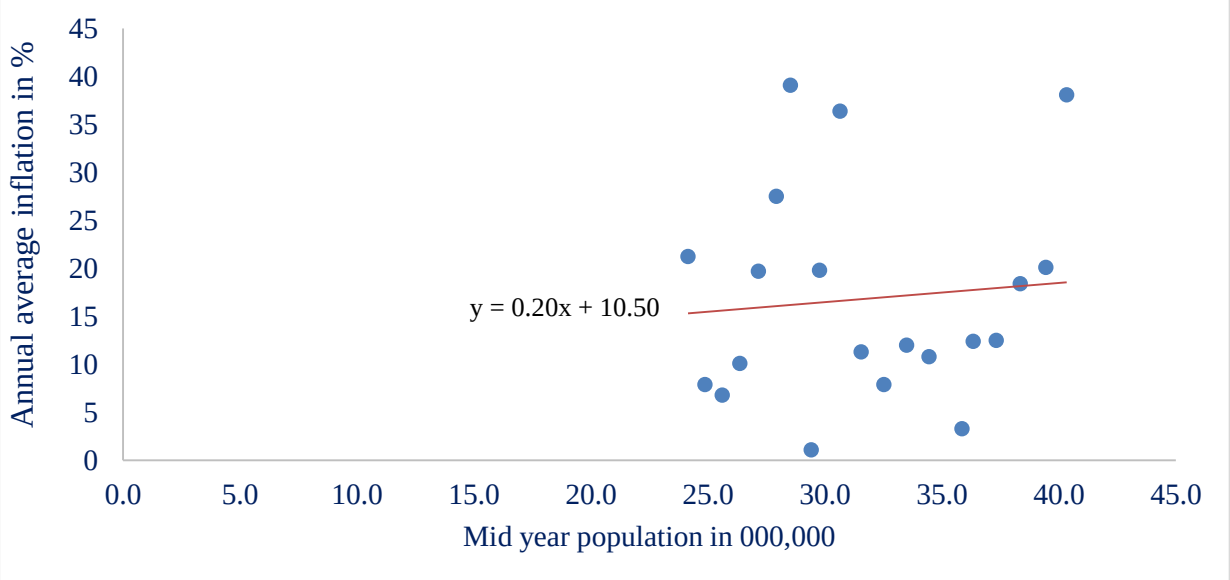
Figure 4.20. Trend of population growth in Oromia regional state



Source: Planning and Development Commission of Oromia regional state, 2023

Inflationary pressure of population growth and demographic change may arise depending on how fast and responsive is the supply to respond demand (Yihan *et al*., 2017). The scholars argued that if the continuously increasing population has a strong effect in increasing consumption expenditure, then the population growth may be a source of pressure to aggravate inflation. This problem may be severe if the supply within the economy is not in a position to respond to the demand immediately. This might be because aggregate supply adjustment could be slower than aggregate demand change in responding to demographic shocks in the short or medium run (Yoon *et al*., 2014). Figure 4.21 reveals that successive population increment has inflation fueling effect in the regional state, which may be because of an imbalance between the demand and supply needed by the growing population. Hence, in the current situation, additional population increment may aggravate the inflation within the regional economy.

Figure 4.21. Interaction of inflation and population growth



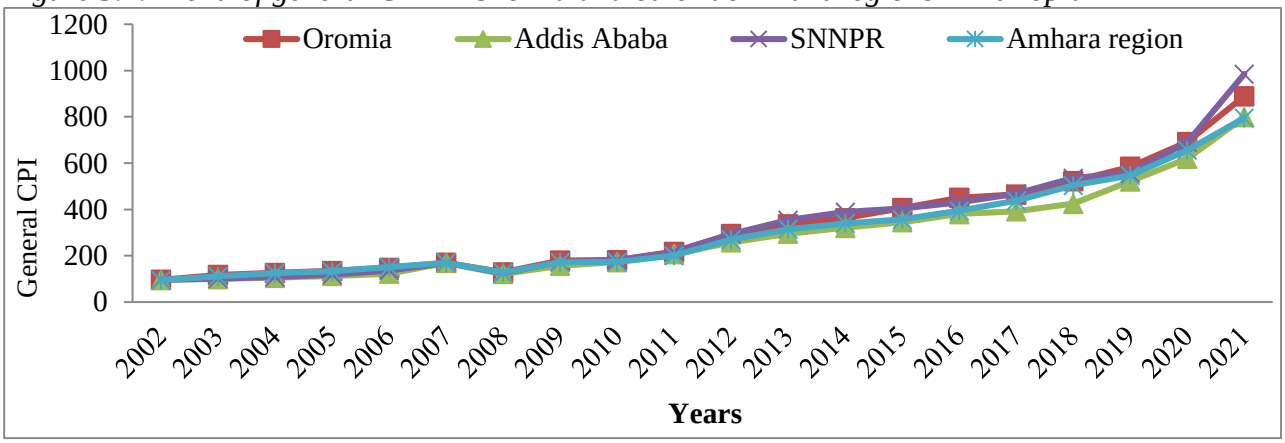
Source, Own computation from NBE and ESS, 2023

5. CROSSCUTTING ISSUES AND INFLATION IN OROMIA

5.1. Co-movement of Prices with Other Regions

The general CPI of the dominant regional states and the capital, Addis Ababa, had similar trend, though there were some variabilities in a few of the fiscal years (Figure 5.1). However, after 2011 the general price index of Oromia region was higher than the others. Starting from 2011 the general CPI at Oromia and SNNP took the lead compared to Addis Ababa and Amhara region. In most of the fiscal years considered in the analysis, Oromia and SNNP regions had similar trends, which may prevail causation in price movement as of their geographic proximity and better trade interaction. The similarity also indicates that the markets in the two regional states may have strong interaction; a change in one may significantly change the price in the other. As to the figure, the successive price increment in Oromia and SNNP had a pull effect on the price in Addis Ababa. The lower inflation gap among the regions indicates that every price change in one of the regions may cause an immediate increment or reduction of price in the other regions or the capital of the country.

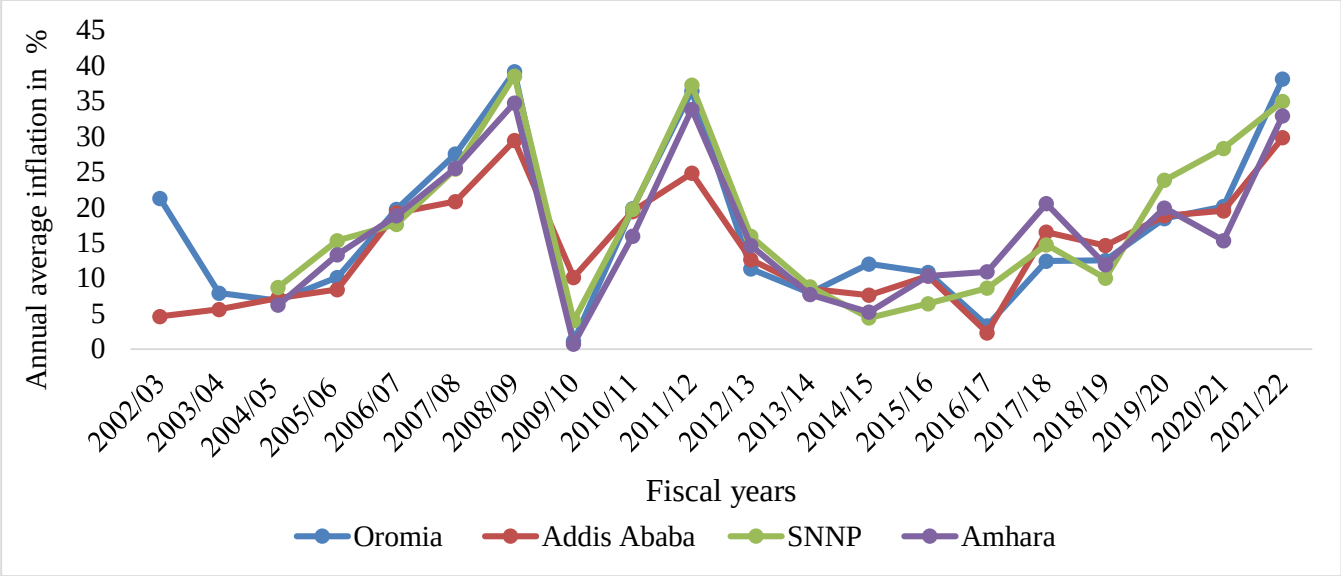
Figure 5.1. Trend of general CPI in Oromia and other dominant regions in Ethiopia



Source; Own computation from ESS data, 2023

In most of the fiscal years, Oromia regional average annual inflation had strong co-movement with the SNNP and Amhara regions. Extreme reductions and increments of inflation among the regions happen in the same fiscal year (Figure 5.2). After 2016/17, the inflation in the dominant regional states and Addis Ababa had similar and continuous increments. Oromia regional state had a relatively smooth increment of inflation after 2018/19, which indicates that the region has a year-to-year severe inflation burden. Moreover, the inflation in the regional state had a strong co-movement with the inflation in Addis Ababa after 2017/18.

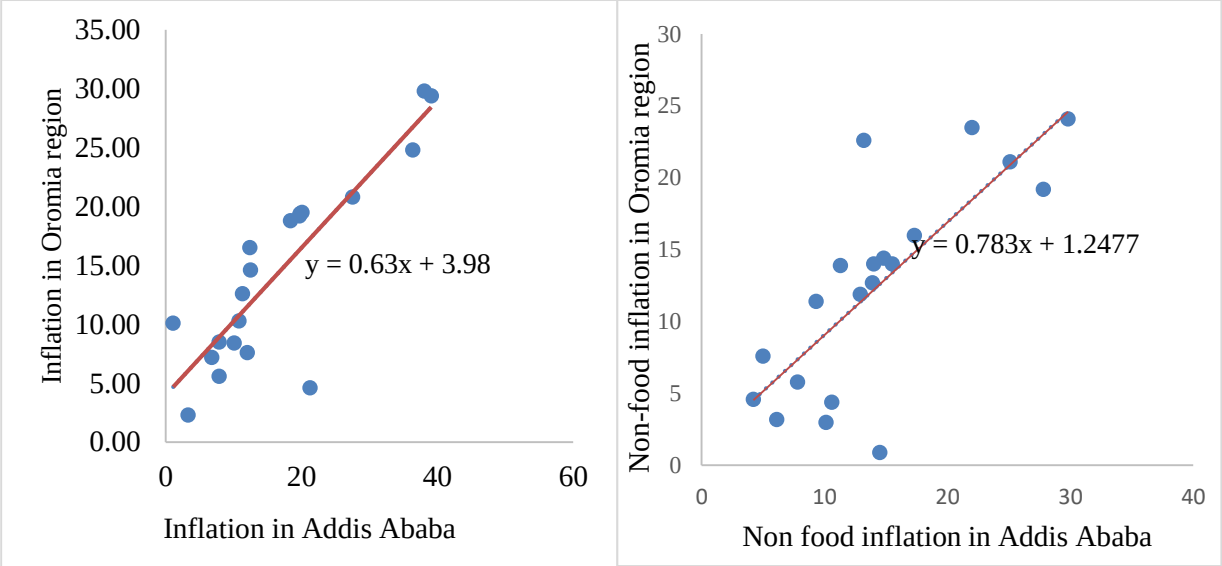
Figure 5.2. Annual average inflation in the dominant regions



Source, Own computation from National Bank of Ethiopia, 20223

The scatter plot diagram on Figure 5.3 shows that the general inflation in Addis Ababa and Oromia region has strong interaction, which indicates that increment of the inflation in either of them may directly pull the inflation in the other. Successive increment of inflation in Oromia region has a fuelling effect on the inflation in Addis Ababa, and the reverse may also be true. The non-food item inflation interaction of Addis Ababa and Oromia regional state was stronger compared to the general inflation interaction. The strong dependency of the regional state on merchandises sourced from Addis Ababa may be the reason for the stronger interaction between the non-food inflation.

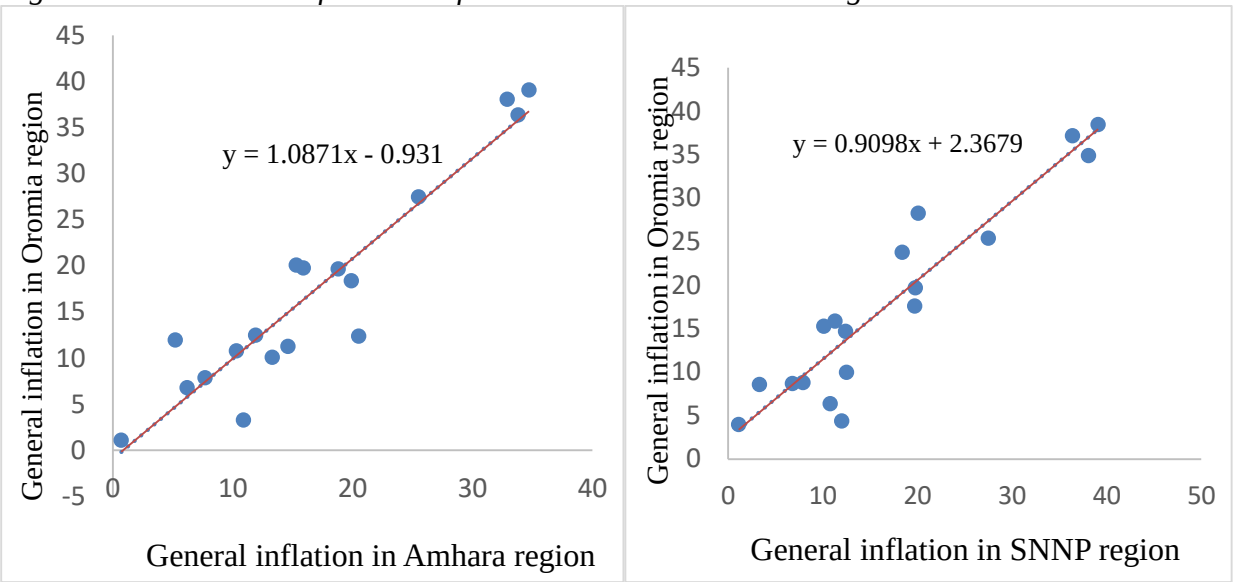
Figure 5.3. Interaction of inflation Oromia region and Addis Ababa



Source, Own computation from NBE and ESS, 2023

Figure 5.4. shows that the annual average general inflation in Oromia region has strong interaction with the inflation in Amhara and SNNP regions, wherein the interaction with the former region was by-far stronger. The geographic proximity, which may allow for easy transaction and market interaction and finally strong co-movement of inflation among regions.

Figure 5.4. Interaction of annual inflation in Oromia and other regions



Source, Ethiopian Statistical Service (ESS), 2022

5.2. Domestic Policy Measures and the Regional inflation

The annual inflation rate soared from 18% before the war over the Tigray region to 34.2% in October (Samari, 2021). In line with this, food prices spiked to 40.7% to a 10-year high, threatening the living standards and food security of Ethiopians, which further exacerbate poverty and unemployment that is went above 17%. The soaring inflation rate can be attributed to the government's increasing military spending, which caused a budget deficit while tax revenues dropped to less than 9% of the GDP. Additionally, the security situation affected agriculture and industries across the country and disrupted essential food supplies (Samari, 2021).

Though inflation has been generally higher in all regional states in Ethiopia, some variations were observed across regional states. For instance, food inflation hit the highest year-on-year increase in Afar (38.2%), followed by Beneshangul (36.2%), Gambella (34.6%), and Oromia (33.1%) (World Food Program (WFP), 2022). Such variations in the levels of inflation can partly be explained by the evolution of region-specific and national policies. A rise in market prices may be generally related to the increased money supply, reduced interest rates, and increased public spending, higher wages, and high prices in international markets.

In this section, the role/effectiveness of short-term policy measures taken by the federal government in stabilizing or fueling inflation is examined through a review of documents and KII. Moreover, the inflationary pressure of policy measures such as the removal of fuel subsidies is highlighted. Region-specific policies are generally aligned with national policies under the Ethiopian federal system, where each region is given some autonomy to formulate its policies within the framework of national policy directions. For this reason, the study emphasized the implications of policies taken at the federal/national level for inflationary pressure in the Oromia regional state.

5.2.1. Inflation targeted national policy measures

The government of Ethiopia has implemented several policy measures targeting inflation, particularly since 2020/21. Broadly seen, the policy actions include monetary, fiscal, and structural measures to limit the rising inflation levels in food items. Though several policy measures were put in place to curb inflation, this section reviews the effectiveness of some of the most vital policy

measures implemented at the national level. These include exemption of import tariffs and taxes, subsidies on imports, market price controls, import substitution, and implementation of other fiscal and monetary policy instruments.

i. Tariff and Tax Exemptions

In September 2021, to control inflation and stabilize the market, the GOE removed customs tariffs and value-added taxes levied on imports of essential food commodities. Taxes and tariffs imposed on wheat, edible oil, sugar, and rice were lifted. Value-added tax on eggs, macaroni, and spaghetti has also been exempted (USDA, 2022). This practice of the government was expected to increase the food supply in the country, bridge the local supply gap and stabilize the domestic market. Nonetheless, basic food shortage in the market is still a daily experience for ordinary Ethiopians, and prices of edible oil and other basic food items have remained high and rising amidst the policy measure. This suggests that this national level short-term policy measure was not effective in stabilizing prices.

ii. Import Subsidies

The government has been exerting considerable effort to bridge the gap between production and demand by importing massive amounts of food items (Tafesse *et al*., 2021). The GOE imports food commodities including wheat, sugar, rice, and cooking oils using public coffers to bridge the local supply gap and stabilize the domestic market. These imported food commodities are distributed through local consumer associations and cooperative unions at subsidized prices (USDA, 2022). In 2020/21 cereal imports were US$ 1.34 billion, 59% higher than the imports in 2019/20, and imports of 'other foods such as cooking oil in 2020/21 reached US$ 843 million, 56% higher than the previous year) (Tafesse *et al*., 2021).

Notwithstanding tariff exemptions and import subsidies, food prices and overall inflation in the regional state remained generally high and, in some cases, even soared in 2022. A case in point is the soaring price of edible oil in the region amidst the import subsidies provided by the government to stabilize the prices of essential food items. For instance, the price of five liters of edible oil increased to Ethiopian Birr (ETB) 980 at retail stores in 2022, an increase of about 63% compared to its price (ETB 600) in 2021 (Zewdie, 2022). Inferences about the effect/effectiveness of this policy measure on inflation in the Oromia region demand employing some form of quantitative assessment, such as impact evaluation, and econometric modeling. Here the impact of import subsidies on inflation is not empirically evaluated. However, the high and rising prices of basic food items, such as cooking oil signal that the policy measure has not achieved its goal. Alternatively, though the contribution of import subsidies towards price stabilization is not disentangled empirically, the direction of the movement of prices suggests that the policy measure was not effective, or its effect has been insignificant, at best.

iii. Franco-Valuta Scheme

Since April 2021, the GOE put in place the Franco-valuta scheme to ease the escalating food inflation by issuing special import permits for food products such as wheat, sugar, cooking oils, rice, and powder milk (USDA, 2022). This short-term strategy expected to curb inflation is also reportedly found to be ineffective. The Ministry of Finance relaxed the Franco Valuta privilege to importers of basic food items including edible oil, wheat, sugar, baby milk, and rice, which allowed importers that have their own foreign currency to import these items free of tax. However, the National Bank of Ethiopia recently pointed out that the opening up of the Franco-Valuta privilege has already posed another unintended repercussion on the foreign exchange market. Instead of using their own foreign currency, the parallel market became a major source of forex for Franco-Valuta importers, which is purported to have led to the spike in the parallel exchange rate of Birr

against major currencies abruptly. Experts suggest that, although goods are available in the market because of the Franco-Valuta privilege, their prices are very high because of the expensive forex acquisition costs and increasing global prices (World Food Program (FAO), 2022). As a result, contrary to the government's expectation, the price of imported goods escalates exponentially as the importers pass on the higher rate in the parallel foreign exchange market to the consumers, making it an ineffective strategy to stabilize the inflationary pressure.

The severe shortage of foreign currency has led to a shortage of commodities in the market. One of the short-term measures taken to address the shortage of goods was allowing Franco valuta import of essential food commodities where importers source forex through their own means. The Ministry of Finance and Economic Development of Ethiopia reported that this measure is a great policy measure, which make goods at least accessible to the consumers. In the second quarter of the fiscal year, Franco-valuta imports amounted to 1.8 billion birr, representing 42% of total imports and 56% annual growth, according to a report from the National Bank of Ethiopia. Although goods are available in the market, their prices have been exorbitant, resulting from expensive forex acquisition costs and increasing global prices.

iv. Price Controls

To curtail the inflationary pressure, the government regulates the local market by enforcing price caps on essential food items including sugar, wheat flour, and edible oil, and non-food products such as petrol. However, notwithstanding such measures, the prices of basic foods continued to increase at national and regional levels.

v. Import Substitutions

To stabilize prices and boost local production capacity, the government of Ethiopia follows an import substitution strategy of basic food items. The strategy particularly aims to expand local production of wheat and edible oil. Ethiopia annually imports a substantial volume of wheat and palm oil from abroad. The government is striving to substitute imports through locally produced wheat using irrigation farming (USDA, 2022). Similarly, large-scale edible oil plants have also been erected to expand domestic production and substitute edible oil imports (Zewdie, 2022).

In 2020/21, the government initiated a program aimed at substituting wheat imports with domestic production within three years (Tafesse *et al*., 2021). The government has embarked on an effort to fully substitute wheat imports through the expansion of summer wheat production in the country. The program intends to enhance the production of wheat through the provision of irrigation schemes, better input supply, and mechanized farming in the lowland and central parts of the country. The Ethiopian government has also hinted that the country may start wheat exports by next year (World Food Program, 2022). Since the lack of an increase in the marketable surplus from smallholder production has been an important supply-side factor for food price inflation in the country (Tafesse *et al*., 2021), the strategy underscores the importance of addressing supply-side factors and boosting marketable surplus through cluster farming of wheat.

In this strategy, Oromia regional state is the leading region in terms of the size of wheat cultivated land and production. In the first year (20/21), the government has largely been able to increase the share of land under irrigation beyond '*Meher'* (the major production season) and produced 15 million quintals of wheat (Tafesse *et al*., 2021). Notwithstanding this effort, the strategy was not effective in increasing marketable surplus from smallholder farmers and curbing the inflationary pressure in the region. For this reason, the strategy has lowered neither the price of wheat nor the price of flour and bread in the Oromia region. Evidence rather suggests that the prices of wheat, wheat flour, and bread are still high and surging both in the region and nation.

vi. Sunday Markets

Since October 2021, local authorities are expanding Sunday markets where major food products are available at discounted prices by linking producers and consumers directly. The Sunday market initiative aims to bolster the local market by removing intermediaries in the supply chain and lowering food prices to consumers by up to 30% (USDA, 2022).

vii. Other Monetary and Fiscal Policies

Ethiopian government took monetary and fiscal policy measures to reduce inflation and stabilize the market. Some of the policy measures include demonetization of currency, raising the minimum reserve requirement for banks from 5% to 10%, doubling the statutory reserve requirement for commercial lenders, and increasing the amount of foreign currency that banks must remit to the central bank (USDA, 2022; Zewdie, 2022).

A vital domestic shock that contributed to the recent soaring inflation rate in the country is believed to be the government's increasing expenditures to finance the war in northern Ethiopia. This can be taken as 'fiscal policy shock.' In general, increased government expenditures and money supply growth tend to contribute to inflation. However, depending on the nature of the fiscal policy pursued (expansionary vs. contractionary), the effect of government spending on inflation may differ (Goshu *et al*., 2022). Moreover, the inflationary effect of rising government spending depends on financing sources and the purpose for which the expenditure is used (unproductive vs. productive spending).

War/conflict financing by increasing government spending and diverting government spending from productive activities to military spending is observed to contribute to a larger budget deficit, which in turn fuels inflationary pressure in the country. Following the war, the Ethiopian Parliament approved a $1.7 billion additional budget for defense in 2021/22. According to McGerty (2023), Ethiopia more than quadrupled its defense budget from USD 0.38 billion in 2021 to USD 1.58 billion in 2022 after the government resumed its conflict with the Tigray People's Liberation Front[2]. Moreover, the share of national defense spending in the country's budget increased from 6.4% in 2021/22 to 14.9% in 2022/23(UNICEF, 2023).

Goshu *et al*. (2022) observed that the growth pattern of government final real consumption expenditure exhibits a negative but weak relationship with annual inflation in Ethiopia. According to Gebremeskel (2020), however, one of the key sources of inflationary pressure in Ethiopia is deeply rooted in the government's financing of budget deficits. To finance the growing budget deficit, the government has been borrowing heavily from domestic sources, reportedly from the National Bank of Ethiopia through printing money, and also reallocated funds by halting major projects. According to UNICEF (2023), compared to 2021/22, domestic borrowing has increased from 66.8 billion birr to 266.1 billion birr in 2022/23, which is a nearly four-fold increase. While other forms of financing may be of modest effect, direct financing from the National Bank of Ethiopia (*i.e*., the printing of money) is usually inflationary.

Data from ESS show that the annual inflation rate in the Oromia region soared from 18.4% in 2019/20 before the war with the Tigray region to 38.2% in 2022 that was more than doubled. The situation was worst, the conflict has resulted in production reduction and supply disruption notably in the three regions most affected by the war (Amhara, Tigray, and Afar). The rising government spending compounded by production reduction has obviously contributed to the inflationary pressure in the country as well as the Oromia region. Evidence from ESS shows that the regional

[2] Available at https://www.iiss.org/online-analysis//military-balance/2023/02/global-defence-spending-strategic-vs-economic-drivers

food price inflation spiked to 43.5% amidst the war in 2021/22 and 34% in January 2023 from 23.8% before the war in norther part of the country in 2019/20. In fact, instead of playing a stabilizing role, fiscal policy, notably the war-induced increment in government spending and the government's financing of its budget deficit from domestic borrowing may have further exacerbated the inflationary pressure. The rising food price inflation in the region may appear to suggest that the growing government spending, which we may call 'fiscal policy shock', coupled with other domestic and global shocks tend to contribute to the rising and high inflation in the regional state.

5.2.2. Inflation fueling national policy measures

i. Lifting fuel subsidies

Inflation-targeted policy measures of the federal government were mostly impotent to stabilize the inflation in the country. On top of this, other policy measures taken recently at the federal-state level have rather fueled inflation at national and regional state level. The most important one is the removal of fuel subsidies since 2021. On account of soaring prices of fuel in the world market and budgetary implications of fuel subsidy, in mid-February 2021, the government has been forced to revise retail prices of petroleum upwards with the Ethiopian Ministry of Trade and Regional Integration announcing a price increase and lifting subsidies except for public transport (Zewdie, 2022). The government decided to raise the price of fuel by 25% as part of a plan to gradually reduce subsidies to fuel prices. Following this measure, prices increased by up to ETB 3 per liter for main petroleum products. The government has made price revisions in 2022 and 2023.

Lifting fuel subsidies by the government are contributing to the rising food inflation levels (USDA, 2022). Evidence for the Oromia region also shows that lifting fuel subsidies entails a higher inflation rate in the region. According to Ethiopian Statistical Services data, the fuel and electricity CPI increased from 198.8 in February 2022, to 266.5 in January 2023. This suggests that the general prices of fuel, electricity, and related items grew by over 34%. During the same period, the CPI of transport also increased from 259.7 to 289.7, a growth of 11.5%. Moreover, food and non-alcoholic beverages CPI increased from 287.1 in February 2022 to 365.2 in January 2023, with prices up by 27.2%.

Rising fuel prices exerted additional upward pressures and increasingly exposing local populations to high living costs (Economist intelligence, 2022). The report also asserted that fuel price increases could raise transport costs, with a knock-on effect on general consumer prices where market supplies depend on road transport from and to urban centers as well as imports. Since agricultural products must be transported from rural areas to major markets, fuel price increment could contribute to the high transport costs of commodities along the supply chain, that could increase the final selling prices of goods. In this way, the rise in fuel prices ripples outward from the transportation sector and accelerates the already galloping inflation within the country and respective regions. Perhaps, with fuel and electricity accounting for about 10% of the CPI in Ethiopia, the inflationary effect of the policy measure in Oromia region is expected. Moreover, inflationary effect of fuel subsidies cut appears to be more severe as the measure is taken during the time of global fuel price hikes. To sum up, the removal of fuel subsidies increased the prices of petroleum products, costs of transportation and production, and food prices, which could finally exacerbate the inflation in the region. Respondents in the key informant interview (KII) asserted that many of the merchandises have a skyrocketing price increment immediately after the government had cut the price subsidy. The participants emphasized that there should be evaluation of succeeding outcomes of policy measures in connection to inflation within the regional economy.

ii. Devaluation of the birr

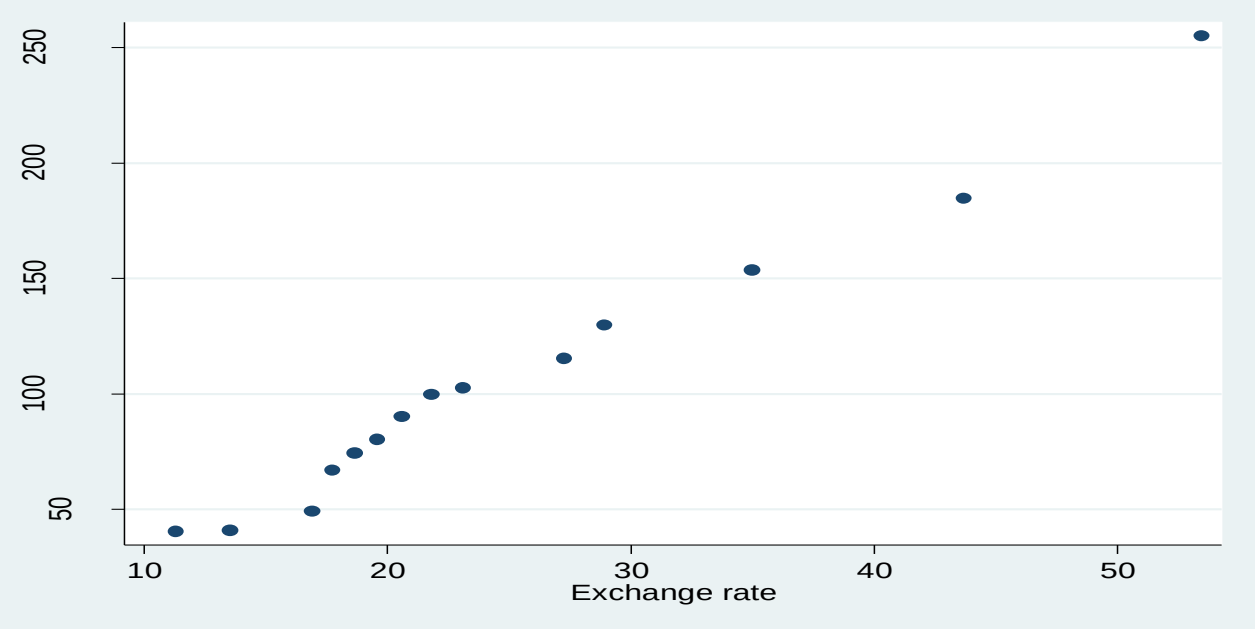
Prices may sometimes engender by devaluation (Wilson, 1976). Daniel (1987) argued that the effect of devaluation on the price level is felt for at least three years. The author argued that the inflationary impact of devaluation is mild and it differs among countries. Haile (1999) argued that devaluation would help improve the current account balance but would be stagflationary. Devaluation was a policy measure taken by the government in hopes of addressing the forex shortage by reducing the gap between official and parallel exchange rates and increasing export revenue and foreign investments. Devaluation is a policy measure often promoted by international financiers, primarily the World Bank and IMF.

In 2010/11 National Bank of Ethiopia reported that the devaluation of birr in September 2010 was one critical reason for the upsurge in non-food inflation in the first quarter of the fiscal year. World Bank research studying the causes of inflation in Ethiopia suggests in an economy facing foreign exchange constraints, a devaluation can miss its target and set off an inflationary spiral. Under tight foreign exchange reserve constraints and dependence on imports, inflation can indeed offset some of the intended benefits of devaluation. The World Bank in 2010 concluded that a key reason why the 17% devaluation of the birr in 2010 did not yield the desired outcomes since "inflation 'ate up' most of the positive real exchange rate gains".

The devaluation of the Ethiopian birr is another domestic shock that has fueled inflation. Since 2018, the government has been undertaking a major devaluation to stimulate exports and address the critical foreign exchange shortage. The value of the Ethiopian Birr has fallen against a number of major currencies, notably the US dollar. In the past four years, the value of the birr has dwindled by 126% against the US dollar (Dadhi, 2022)[3]. As a small, open economy, Ethiopia is susceptible to devaluation, raising the prices of imported commodities. This has had a ripple effect on the prices of goods and services in the country, exacerbating inflationary pressures. Following the government's devaluation of the local currency, there have been upward inflationary trends. Evidence suggests that between 2018 and 2022, the inflation rate more than doubled in the country increasing by about 121%. Likewise, relative to the CPI in 2016/17 (pre-devaluation period), the regional CPI grew by a staggering 148.4% in 2021/22. This may appear to suggest that there is a co-movement between devaluation and inflation in the regional state. The scatter plot in Figure 5.5 also demonstrates that inflation is strongly linked to the devaluation of the currency.

[3]https://www.google.com/search?q=Hyperinflation+in+Ethiopia+is+the+product+of+cascading+missteps&sourceid=chrome&ie=UTF-8

Figure 5.5. Scatter plot of inflation in Oromia region and exchange rate



Source, Own construction from NBE data 2023

Empirical investigations also confirm that devaluation is inflationary in Ethiopia. Using the CGE model, Woldie and Siddig (2019) reported that devaluation is found to have an inflationary impact over the long term in a developing country like Ethiopia. Using data from Ethiopia and Kenya, Durevall and Sjo (2012) found that inflation rates in both countries were driven by exchange rates and world food prices in the long run. In the short run, the supply and movement of exchange rates are one of the determinants of inflation in Ethiopia (Geda and Tafere, 2008).

Moreover, a recent study by Ndikumana *et al*. (2021) also suggests that in an economy facing foreign exchange constraints, a devaluation can miss its target and set off an inflationary spiral. As is the case for Ethiopia, the exchange rate also plays an important role in any economy that is import-dependent. Under tight foreign exchange reserve constraints and dependence on imports, inflation can offset some of the projected benefits of devaluation. This observation has led some to consider the policy move as a major “wrong turn” in the country’s policymaking. In this regard, the World Bank concludes that a key reason why a similar policy attempt of devaluing the birr (17%) in 2010 did not yield the desired outcomes is that inflation "ate up" much of its positive gains.

Instead of stimulating exports and addressing forex shortages, the recent massive devaluation of Ethiopia’s currency is blamed for fueling inflation. This is because, in the event of a devaluation, the weakening of the domestic currency raises the cost of imports, which in turn increases the domestic price level. Moreover, in an economy facing foreign exchange constraints, it is indicated that a devaluation can set off an inflationary spiral whereby devaluation causes domestic prices to rise, causing an appreciation of the real exchange rate which discourages exports. Further devaluation aimed at preventing the deepening of the trade deficit can ignite other rounds of domestic price increases while raising expectations of further exchange rate devaluation (Ndikumana *et al*., 2021).

Devaluation of the birr has been one of the driving forces of inflation across the country, with the Oromia region being no exception. The Oromia regional state has a strong linkage with the central

market and depends on importable. The loss in the value of the Birr makes the price of imported goods and industrial inputs/materials more expensive. This may increase the cost of production, which could result in cost-push inflation, especially for industrial products. The indirect effect may be strong for the domestically produced goods that used imported inputs.

Evidence shows that devaluation has also impacted prices in the Oromia region. According to Ethiopian Statistical Services data, the rate of increment in the regional CPI was particularly higher since 2017/18. The regional CPI increased dramatically from 102.65 in 2016/17 to 184.6 in 2020/21 and to 255 in 2021/22. This reveals that overall prices in the region have been growing at an alarming rate in the post-devaluation period, suggesting that the regional state is not immune from the country-level inflationary effects of devaluation. At a regional level, Ambachew *et al*. (2012) reported that a rise in exchange rates or devaluation is also found to impact food price inflation in the short run in Eastern Ethiopia.

Moreover, apart from the inflationary consequences of devaluation, the country has also been grappling with a critical shortage of foreign currency. The depletion and severe shortage of foreign currency have led to a shortage of commodities in the market, which in turn inflate the prices of goods in the country and regional state. This suggests that devaluation, among others, has contributed to the inflationary trend in the region.

5.3. Market Chain and Food Price Difference in Oromia Region

5.3.1. Cereal market chain analysis

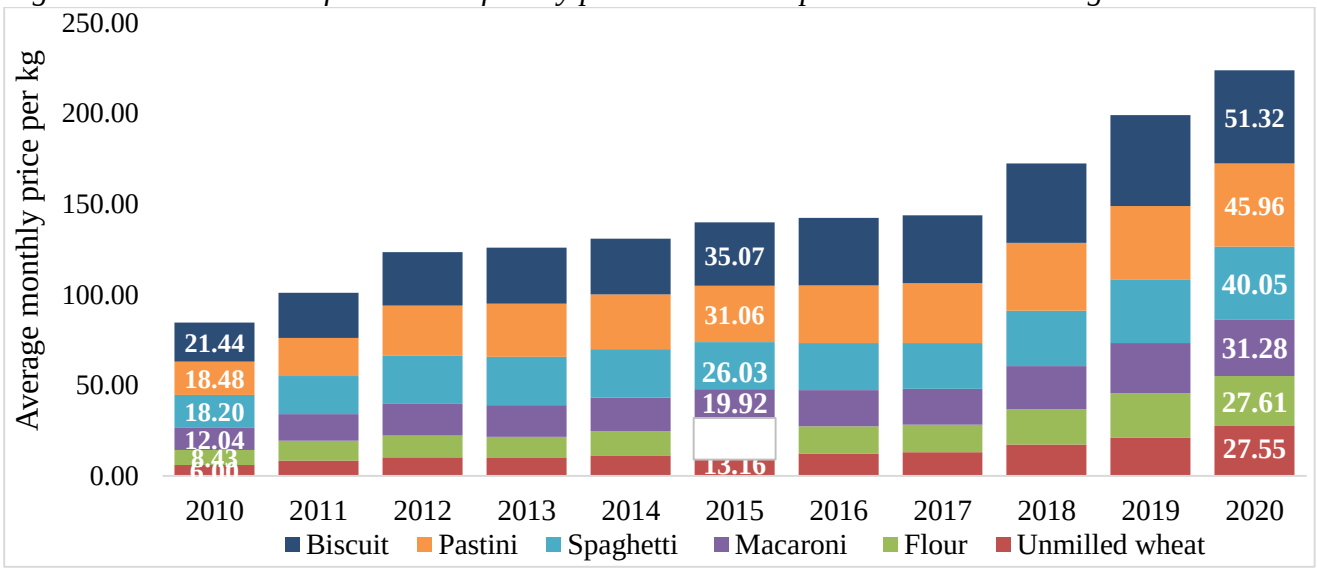
Brokers are typically knowledgeable individuals who have strong and high-quality information at the *kebele* level of farmers and the crops they have for sale as well as connections with wholesalers. Brokers use this information to connect farmers to wholesalers via cell phones. Brokers provide market information and advice to wholesalers and are key players in price discovery and setting. The wholesalers or buyers typically arranges for the transportation of the produce and pick up at the farm gate. The brokers collected up to 30% commission on each sale, which could increase the price of merchandises with no value addition. Brokers provide an easy way for farmers to market their produce, albeit at lower prices than the farmers can get at terminal markets. Brokers sometimes also play the role of financiers to farmers (Feed the Future, no date).

The wheat marketing starts from the farm gate wherein assembly is done by farm gate aggregators and collectors. Wholesalers are big enough to supply wheat to millers. Thereafter, small traders act as retailers and directly sell to final customers. The marketing is dominated by brokers who add no or limited value but have the upper hand in determining the daily market prices. The Ethiopian Trading Business Corporation (ETBC) is active in trading wheat for the domestic market targeting market stabilization, for instance in 2017 it traded 200,000 quintals of wheat. The ETBC reports that wheat purchased meets the quality requirements and there is an increasing understanding of the importance of quality among farmers. The enterprise is also making quality-based payments. However, there are some instances of wheat flour being adulterated with maize flour by traders. Linking farmers to millers and ETBC for sustainable supply based on contracts could be profitable for farmers. Illegal operators may manipulate commodity prices through fraud, collusion, and hoarding, which may be ones directly responsible for price increases in agricultural products (Liu *et al*. 2015).

Figure 5.6 shows that the price gap between unmilled wheat and flour was relatively consistent and constant with a minor increment after 2018. Moreover, the gap between the raw product (unmilled wheat) and the first value addition (processing the flour) was smaller compared to the

price gap in the second level value addition (Macaroni, spaghetti, Pastini and Biscuit)). However, the price gap between the first (flour) and second level value addition was quite different in the different fiscal years of the analysis. The second level processors had a relatively larger share in the value addition and profit margin. The finest product (Pastini and Biscuit) producers had the largest share in the value addition and price margin of wheat in Oromia regional state. Figure 5.6 revealed that the value addition on wheat in the regional state had different final values depending on the product type. This indicates that the market share of the different agents takes a different share, which increases for the participants at higher levels that try to refine the wheat product.

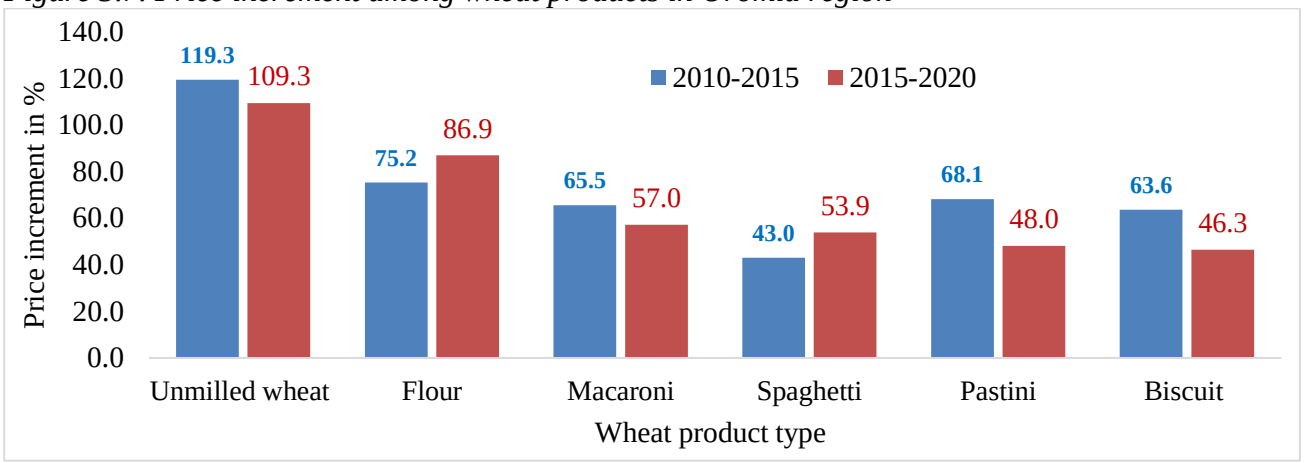
Figure 5.6. Price trend of wheat and factory processed wheat products in Oromia region



Source; Own computation from ESS data, 2023

Figure 5.7 shows that in the previous ten years (2010 to 2020) a significant proportion of price increments has been observed in unprocessed wheat. Contrary to this, processed products, especially refined ones, had relatively lower price increments in the aforementioned time interval. Thus, the overall price increment in wheat products is directly and strongly determined by the unprocessed wheat price increment. The overall price trend and direction of wheat products is strongly related to the price movement in unprocessed/unmilled wheat. Problems in the production and marketing of unprocessed wheat may be the critical problems that cause drastic price increments.

Figure 5.7. Price increment among wheat products in Oromia region

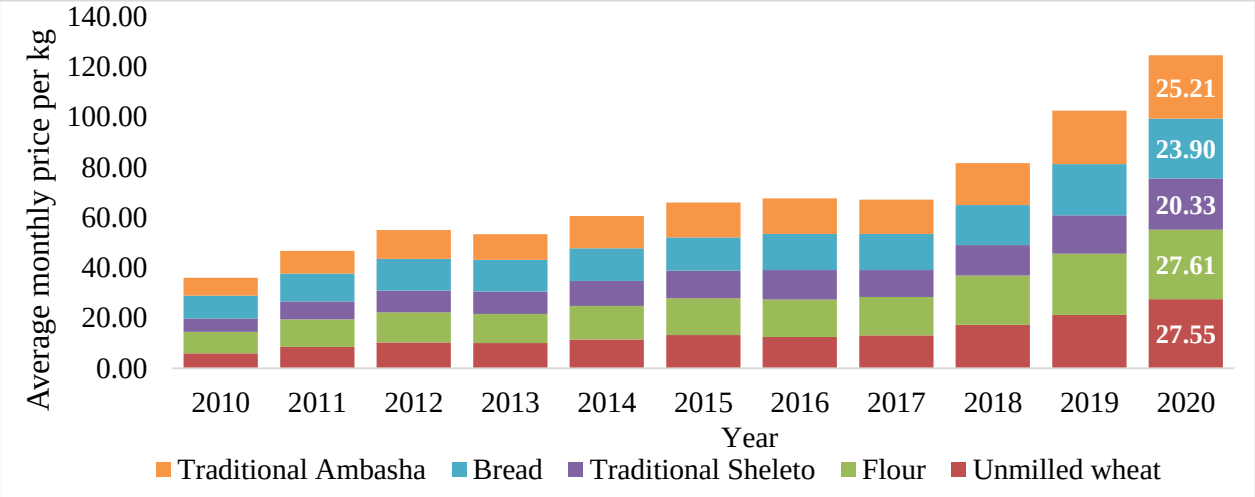


Source; Own computation from ESS data, 2023

The value addition based on home-processed wheat products was lower as compared to the value addition and price increment based on factory processed products. The high price gap between factory processed and homemade products of wheat may be because of quality and the additional cost of production in processing the wheat products. However, the price gap in the two modalities revealed that consumers may have consumable products at a lower price if they are going to process items locally. Value[4] addition of wheat and wheat-products when the products are processed at home the overall value of the products is lower compared to the factory processed ones (Figure 5.8).

Most recently, the supply of multiple food chains such as *teff*, vegetables, and dairy has not been keeping up with demand, thus increasing inflation (Tamru *et al*., 2022). Demand-side factors that are additive to inflation include money growth and public sector borrowing (Ndikumana *et al*., 2021). Yet, the disequilibrium caused in the short-run also causes inflationary pressure from agricultural supply while long-term monetary implications are mixed (Durevall *et al*., 2013). In addition, since Ethiopia is heavily import dependent on grain, this also has to be taken into account as a possible short and long-run cause (Demeke and Tenaw, 2021).

Figure 5.8. Trend of average price of wheat and homemade wheat products in Oromia region



Source; Own computation from ESS data, 2023

The market chain and intermediaries play a crucial role in driving food prices. Perhaps, **a**nother major cause of high food prices in Ethiopia is the presence of market intermediaries in the supply chains. To assess the role of this supply-side factor in driving inflation, this section looks at the price variations for select commodities along the supply/market chain. Moreover, we also analyze the share of farmers and intermediaries/middlemen in the final price of a commodity and highlight the role of intermediaries in the marketing process. Comparing prices at the farmgate to the prices paid by the consumers (*i.e.*, retail prices) is instrumental to gauge the role of intermediaries in the price hike.

Table 5-1 shows the price difference of cereals at different stages of the market chain. In the first three stages of the market chain, the rate of increase in the price of wheat was considerably lower. A price increase was seen particularly in the third-level collectors/wholesalers and retailing stages of the market. The stage of the market chain where barley's price increased most was discovered to be the first-level collectors' stage. It appears that these two intermediary markets have significantly impacted the increase in consumer prices of cereal.

[4] It has been computed considering the average price of homemade products in 2020 in Oromia region

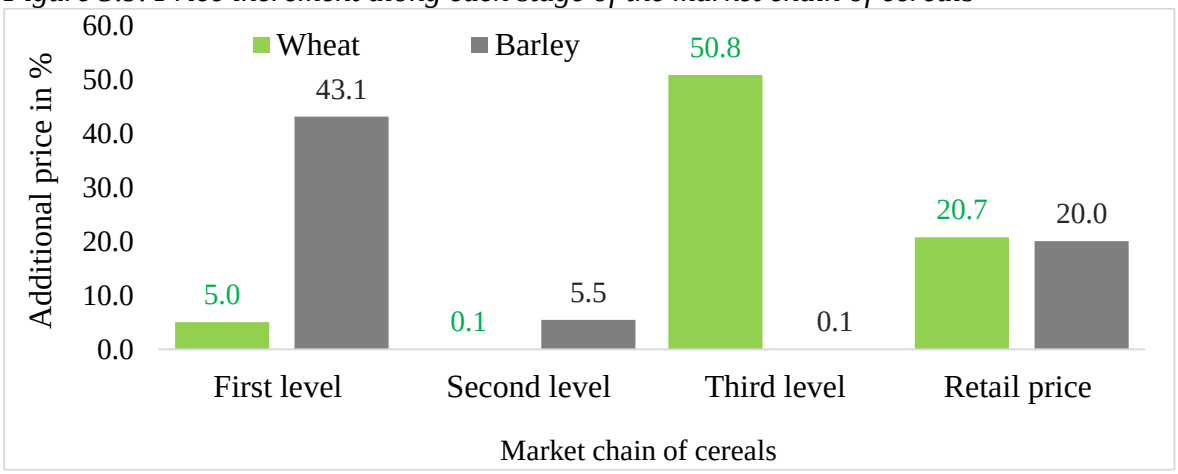
Table 5-1. Price of cereals (birr per quintal) along the market chain

Cereal type	Farmgate price	1st level collectors	2nd level collectors	3rd level collectors	Final consumer price
Wheat	3,129.50	3,285.50	3,290.00	4,960.36	5,989.30
Barley	2,485.30	3,556.25	3,750.00	--	4,500.00

Source: Own computation based on survey data, 2023

Wheat's average per quintal price rises from ETB 3,129.5 at the farmgate to ETB 5,989 in the retail markets, indicating that consumer prices are nearly double the farmgate price (Figure 5.9). In other words, compared to buying the product directly from the producers, consumers pay around 91% more in the retail market. The wheat market chain analysis reveals that around 82% of the urban retail prices went to third-level collectors. This demonstrates that among the wheat market intermediaries, processors are shown to have a substantial market share in the commodity's market chain, indicating that they have a significant influence on the market price of wheat.

Figure 5.9. Price increment along each stage of the market chain of cereals

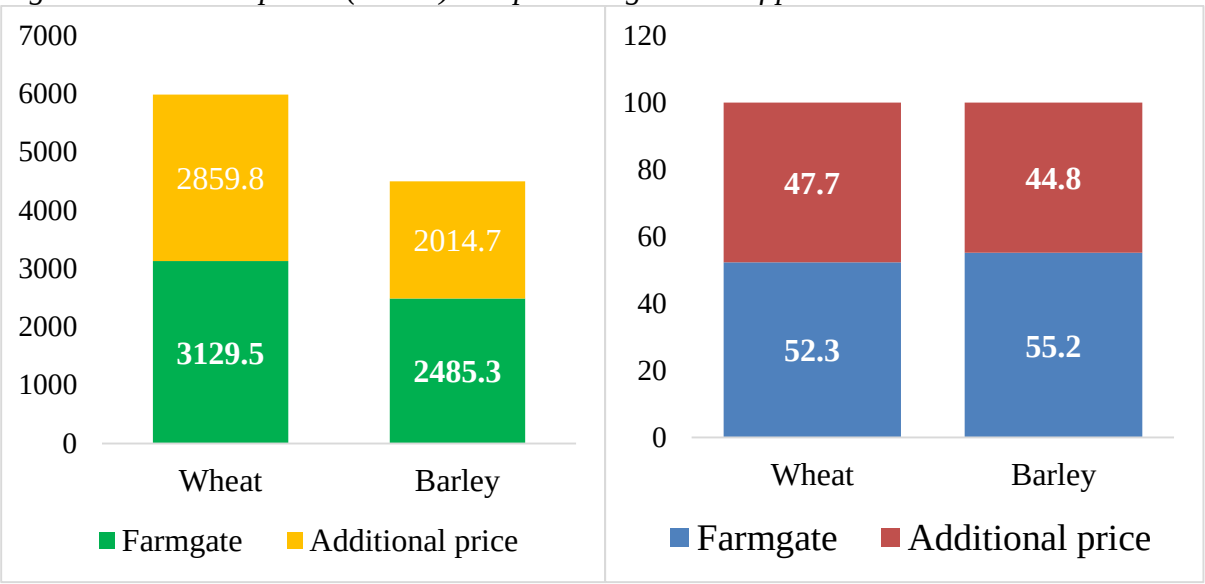


Source: Own computation based on survey data, 2023

Figure 5.10 displays the price increase (in %) for cereals at each stage in the market chain. The largest price increase for barley (43%) was observed at the first-level collectors' stage of the market chain at the district level. On the other side, the third level/stage of the market chain is where wheat prices increase at the highest rate. The third-level collectors/processors raised the price of the commodity by more than 50% relative to the wholesale price prevailing at the zonal level. This data reveals that the first and third-level collectors, who served as intermediaries, got the lion's share of the final urban cereal price. This may appear to suggest that the rising price of cereals and the resulting food price inflation in the region is partly driven by the inefficiency in the market chain, middlemen, and the considerable margin taken by intermediaries.

Figure 5.10 shows the price collected by the cereal producers as a farmgate and the additional price paid by the intermediaries and final consumers in the Oromia region at the time of the survey. During the survey, the average farmgate price of wheat was ETB 3,129.5 per quintal while the final retail price was ETB 5,989 per quintal. As a result, the farmgate price share of wheat was 52.25%, and the remaining 47.75% was collected by other participants (Figure 5.10). In relative terms, middlemen receive a small share of the final price for both wheat and barley.

Figure 5.10. Actual prices (in birr) and percentage share of producers and intermediaries



Source: Own computation based on survey data, 2023

Apart from the role played by middlemen/market intermediaries, the size of marketable surplus plays a key role in determining the pattern of commodity prices. The survey data show that the marketable surplus of wheat is only 33.6% while the remaining share of production is consumed by smallholders. For barley, the marketable surplus is also small, farmers supplied only 32.9% of their produce to the market. The marketable surplus of cereals in the Oromia region, albeit small, is higher than the national average. Nationally, in 2020, producers marketed 22% of their wheat produce, 16% of barley, 30% of teff, and 13% of maize. This indicates that the largest share of production is still auto-consumed by the smallholder producers that account for about 95% of overall grain production in Ethiopia (Tafesse *et al*., 2021).

What is more challenging is that the share of marketable surplus for the major staples has shown little change over time (Tafesse *et al*., 2021; Tamru *et al*., 2022). The limited volume and sluggish growth of marketable surplus have obviously contributed to the higher and rising prices of cereals and possibly intensified food inflation. It is due to this reason that the government has been importing cereals (notably wheat) to close the growing gap between domestic supply and demand. In summary, the higher and rising price of cereals, which in turn drove food price inflation in the region, can thus possibly indicate a lack of marketable surplus, the presence of a larger marketing margin, and the overall inefficiency in the market chain.

5.3.2. Market chain analysis of vegetables and fruits

Market intermediaries cause a wedge in price between the farm gate price and the price paid by the consumers (Hirvonen *et al*., 2021). Table 5-2 presents the price difference for some fruits and vegetables at different stages of the market chain. There is a considerable increment in the price of commodities along the market chain and intermediary markets are creating a wedge between the producer price and the consumer price.

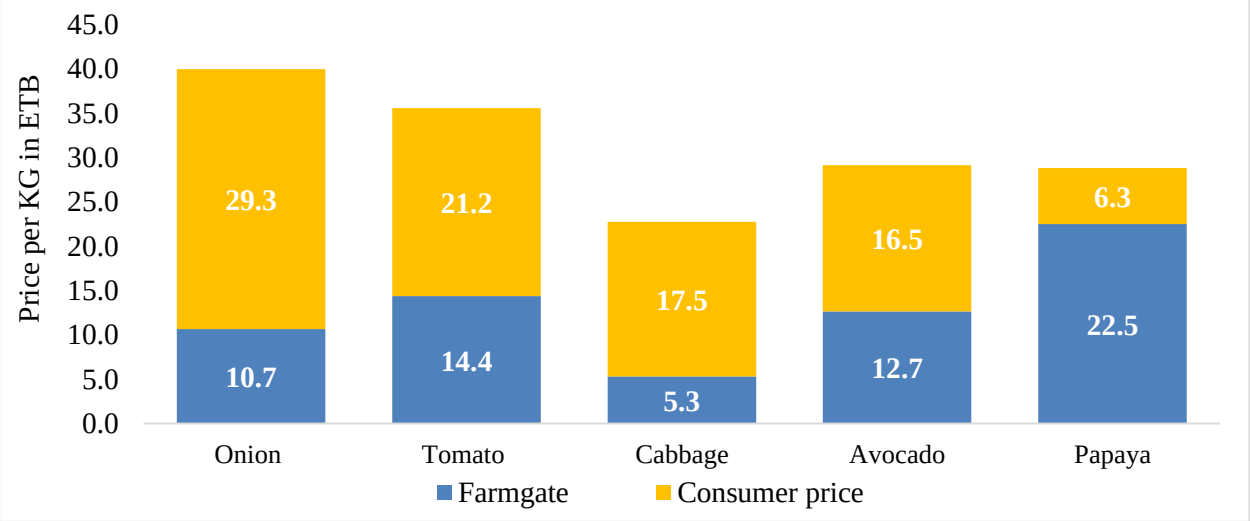
Table 5-2. Price of fruits and vegetables (birr per kg) along the market chain

Vegetables	Farm gate price	First-level collectors' price	Second-level collectors	Third-level collectors	Final consumer price
Onion	10.66	--	--	32	40
Cabbage	5.32	--	19.4	--	23.35
Tomato	14.4	24	--	--	35.6
Avocado	12.66	--	25	29	29.16
Papaya	22.5	--	--	28	28.83

Source: own computation based on the survey

During the survey, the average farmgate price of onion was 10.6 birr per kg while the consumer price was 40 birr per kg. The retail price of onion at 40 birr is about four times higher than the farm gate price. Likewise, for cabbage, the retail price of 23.4 birr per kg is more than four times relative to the farm gate price. The substantial increment in retail price compared to the farm gate value for both onion and cabbage is due principally to the presence of middlemen in the marketing of these commodities (Figure 5.11). As a result, the marketing share of onion and cabbage was 73.3 and 77.3%, respectively (Figure 5.11).

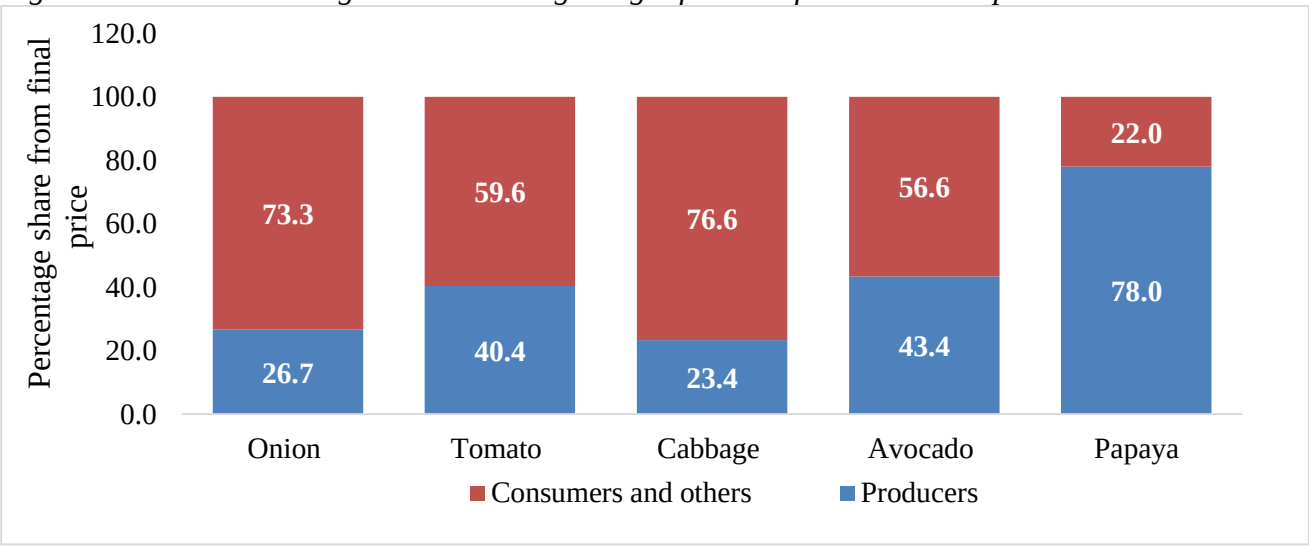
Figure 5.11. Farmgate and final consumer price in birr/kg for selected fruits and vegetables



Source: Own computation based on survey data,2023

The market chain analysis (Figure 5.12) reveals that the average farm share for fruits was 60.7% while the marketing share stood at 39.3%. Farm share, on average, is considerable for fruits. At 78%, the highest farm share is observed for papaya. This may suggest that the market chain of fruits is more efficient relative to vegetables. This is in line with Tamru *et al*. (2022) who suggest that food supply chains of some commodities are more efficient than anticipated, with farmers receiving a relatively high share of urban prices.

Figure 5.12. Fruits and vegetable marketing margin from the final consumer price



Source: Own computation based on survey data,2023

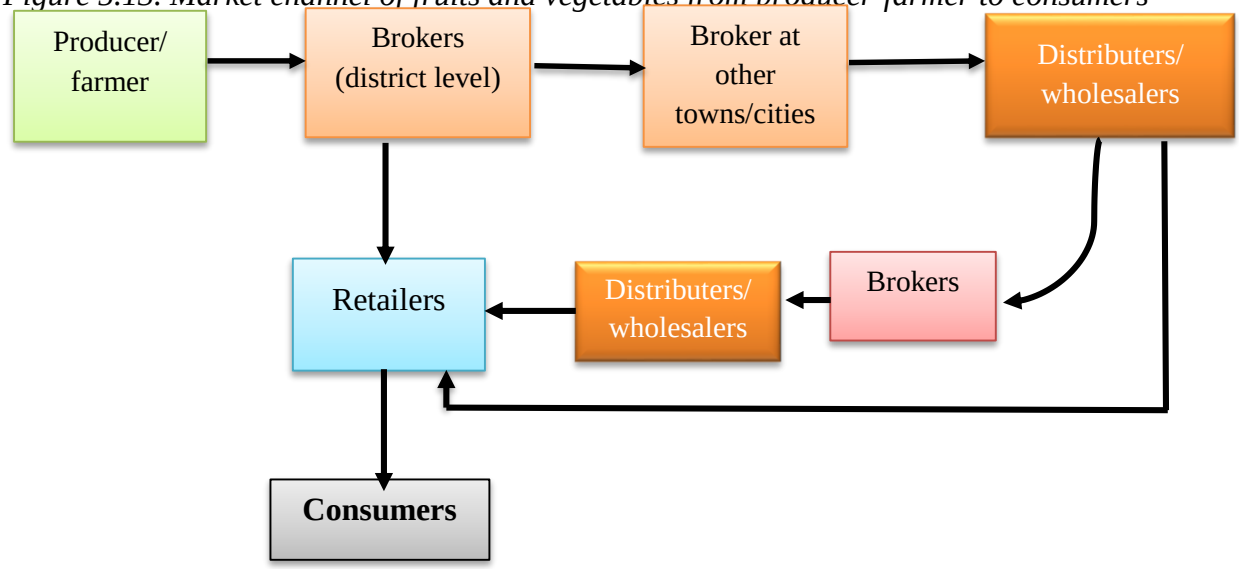
It should be noted that both farm gate prices and marketing shares are in gross terms and thus, they do not indicate net revenues received by the market chain actors. On the other hand, the market chain analysis of vegetables shows that farmers are receiving a relatively smaller share of final consumer prices. The average farm share was only 32.5% while the marketing share stood at 67.5% in the regional state (Figure 5.12). The marketing share for cabbage and onion is as high as 77 and 73%, respectively. The relatively larger marketing margin of such vegetables in the region suggests the prevalence of a less efficient market chain. The data show that the large marketing margin is driven principally by high retail cost margins, not by wholesale margins. The literature argues that, for vegetables, the retail margins can be quite high depending on the location of the wholesale markets relative to producing areas. For example, roughly three-quarters of vegetables are produced in the Rift Valley where the current Addis market is conveniently located. Moreover, high loading charges are also a factor, at times comparable to the total transport cost (Hirvonen *et.al*. 2021; Tafesse *et al*., 2021).

To explore whether farmers consider that middlemen have power in influencing prices in the market, we elicit the opinion of producers regarding the role played by middlemen in influencing prices. The data indicate that 67% of the farmers reported that middlemen influence the price of fruits and vegetables. It is such observations that led the government to resort to measures aiming at the reduction of market intermediaries. One of the measures was the expansion of Sunday markets by local authorities where major food products are available at discounted prices by linking producers and consumers directly. This measure targets removing intermediaries in the supply chain and lowering food prices to consumers by up to 30% (USDA, 2022).

Moreover, apart from middlemen, the practice of hoarding may drive prices up. However, the survey data indicate that none of the farmers growing vegetables and fruits practice hoarding with the expectation of higher prices in the future. The market chain analysis may appear to suggest that the high retail prices of commodities and the attendant food price inflation in the region can partly be attributed to intermediary markets, notably high retail margins. From this, it can be inferred that the presence of intermediaries/middlemen along the market chain and considerable marketing margin has definitely contributed to the rising prices of fruits and vegetables, with ramifications for food price inflation. The following figure reveals that there are both short and longer approaches of marketing of fruits and vegetables. However, either of the two are not free

from intervention of brokers, which hinder the transaction intended to be made between producers and consumers. It is known fact that the lengthy marketing process could directly.

Figure 5.13. Market channel of fruits and vegetables from producer-farmer to consumers



Source; Own construction based on survey data, 2023

5.3.3. Market chain analysis of milk

Table 5-3 shows the prices of milk and butter at different stages of the market chain. Relative to farmgate price and the price of butter, the rate of increment in milk price was considerably lower and steady at each stage of the market chain. Substantial growth in the price of butter has begun in the wholesale market by collectors at the zonal level. The stage of the market chain where the prices of milk and butter increased most was found to be the retail market. Therefore, the consumer price of milk and butter rises due to the large retail margin.

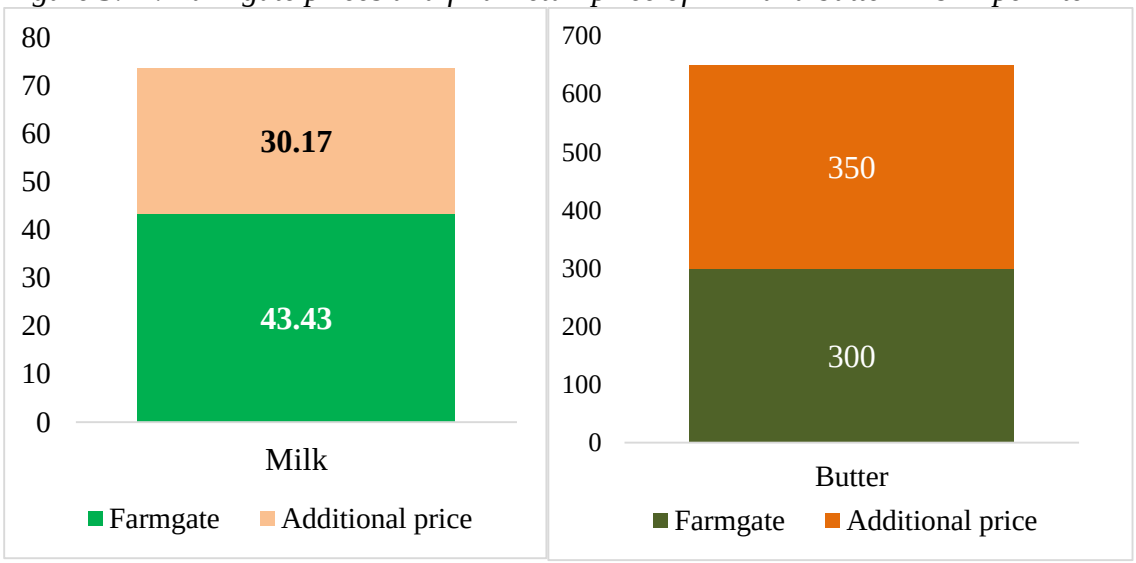
Table 5-3. Price of milk (birr per liter) and butter (birr per kg) along the market chain

Milk products	Farmgate price	1st-level collectors' price	2nd-level collectors	3rd-level collectors/ Processors	Final retailers' price
Milk	43.3	47.5		52	73.6
Butter	300	400	460		650
Price increment along each stage of the market chain*					
Milk		9.37		19.73	69.5
Butter		33.33	53.33		116.66

* Price increments are computed at each stage relative to the farmgate price
Source: Own computation based on survey data

Figure 5.14 shows the final price of milk paid by consumers in the Oromia region at the time of the survey. The average farmgate price of milk was ETB 43.4 per liter while the final retail price was ETB 73.60 per liter. Hence, producer's share from the total market price of milk was 59%, and the remaining 41% had been collected by the market participants including the retailers (Figure 5.14). This shows that, in relative terms, producers receive a larger share of the final price and the role of market participants was lower in the market chain.

Figure 5.14. Farmgate prices and final retail price of milk and butter in birr per liter



Source, Own construction from survey data, 2023

Figure 5.15 shows that smallholder producers of milk are receiving a relatively larger share of urban prices (59%). In Ethiopia, food supply chains, including dairy, are more efficient than expected, according to a recent analysis, with farmers obtaining a disproportionately high share of the urban price (and less for middlemen than is typically thought) (Tamru *et al*., 2022). This suggests that there are few actors between rural producers and urban retailers of fresh milk. For fresh milk, the role of middlemen is minimal as 60% of urban retailers directly purchase from rural producers and/or their own farms. In 30% of the cases, the value chain involves only one middleman, and about 10% involves two middlemen. This is a sign of a well-functioning value chain (Minten *et al*., 2020). Nonetheless, in relative terms, butter in the area has a higher marketing margin (around 54%). This implies that middlemen control a larger portion of the market while farmers receive a lesser proportion of the urban retail prices of butter.

Figure 5.15. Farmers and marketing margin as percentages of the final consumer price of milk

Source; Own computation based on survey data, 2023

KEY TAKEAWAYS

In the period between 2010 and 2020 significant proportion of price increment have been observed on the unprocessed wheat. Contrary to this, processed products, especially the refined ones, had relatively lower price increment in aforementioned time interval. Thus, the overall price increment in wheat products is directly and strongly determined by the unprocessed wheat price increment. Problems in the production and marketing of unprocessed wheat may be the critical problems that cause drastic price increment.

The market chain analysis shows varying degrees of market margin which indicates the role played by middlemen in the price rise. Farmgate share of fruits and milk was better than the expected. On the other hand, it is very low for vegetables and cereals, wherein intermediaries have strong power in the marketing process and collect significant part of the market margin. Besides to the high price, intermediaries strongly disturb vegetables and fruits marketing and result longer supply chains, which commonly result in exploiting the final consumers. In other words, high food prices are driven partly by the presence of (many) intermediaries in the supply chain, creating a substantial gap between producer and consumer prices, which significantly influence food prices of the region.

Takeaways from the FGDs

Regarding on cereal production and marketing

Currently, the market in the cereal producing areas is highly distorted. In particular, the **price ceiling introduced** by the government to collect wheat for the export trial strongly initiate a **Black market** for wheat. Wheat producers argued that the government only considered the accounting costs in the price ceiling process. Discussants argued that the price ceiling should rather consider the opportunity costs and future purchases and other related issues.

This intervention is creating massive direct and indirect effect on the overall marketing and price of merchandises. For instance, the price ceiling on wheat directly result in **drastic *teff* price increment** as well as cost of inputs sourced form labour and other inputs costs for factories.

The **price ceiling practices** of the government strongly distorted the normal operation of cereals marketing. It affected the overall marketing process of cereals and other merchandises as of **repercussion effect**. The market-chain starting from producers to the final retailers have been distorted after the government intervention.

The price ceiling practices result in **hoarding** of wheat by producers, which was commonly practiced by the traders at different level before intervention of the government. Currently, the smallholder farmers are also hoarding their produces and retreated to supply as of the price ceiling, which is below the true and logical price as to the view of smallholders.

Moreover, the price ceiling and government intervention in the cereal marketing is creating **illegality** and **corruption** in connection to transporting, loading and unloading of wheat and other cereals. These problems are strongly disturbing marketing process of cereals.

The **wrong expectation**, **perception** and **panic to purchase today** is pushing cereals price upward drastically. Consumers have developed a behaviour of preferring the current price increment than the uncertain tomorrow in deciding to purchase merchandises. Combination of this problem and the unexpected government intervention are strongly distorting the normal cereal marketing process.

The forceful actions and measures of the government especially in deciding what to produce is creating a **long-lasting problem** on the overall productivity and market chain of cereals.

Takeaways from the FGDs

Regarding on fruits and vegetables marketing

Production of fruits and vegetables is commonly irrigation-based. In most cases, irrigation is done by motor-pump but farmers are facing both supply shortage and **high price increment of fuel**, and this forced the producers to increase selling prices.

Continuously **increment of production input prices** is going beyond the capacity of smallholders to use the inputs as to the recommended level. Thus, production and yield increment could be going with strong uncertainty. Due to capital shortage farmers, especially those who have low capital are going out of the production system, which may result in fruits and vegetables supply shortage in the future.

Due to the forced intervention of the government to produce wheat, most irrigated farms are obliged to **convert the fruit and vegetable land to wheat** and hence, this could drastically affect supply of these commodities, which may fuel consumer prices.

The other critical issue raised by the discussants is that **conflict** and **instability** are affecting both the production and marketing processes. Primarily, farmers are not producing to their potential level due to instabilities and chaos (fear for their life and property), supply shortage and lack of timely delivery of inputs. In some areas (around Meqi area), some farmers are leaving the area due to the security problem. In some places, matured produces are left on the field due to serious instabilities. The instability completely changed the market chains and systems in some areas. For instance, in Boset district, no fruits and vegetable are delivered to wereda town. Hence, supply to Woreda town is from Adama market.

The respondents from Meqi and Batu towns argued that prices for major fruits and vegetables were determined at Meqi for all cities and towns at national level. However, in the last two years, the marketing system is highly disturbed due to the instabilities and conflicts.

The commonly observed problem in fruit and vegetable marketing is strong involvement of **brokers and/or middlemen**, which create information gap between producers and traders. The producers are price-takers, and the middlemen commonly set the price. There are two ways of marketing: **farmgate marketing** wherein the brokers directly go to the farm and estimate both the produce and prices and communicate to other brokers to harvest and transport. Alternatively, the farmers harvest their produces and transport to the market places and transfer it to the brokers, who directly collect the produces (with no payment and disclosing price) and sell the produce and payback the price to the farmers after deducting their commission. In one or the other way consumers cannot access fruits or vegetable directly from the producers.

5.4. Domestic Conflicts and Inflation in the Oromia Region

Demeke and Tenaw (2021) identified that corruption and political instability are the main actors in affecting inflation. The new political macroeconomic views on inflation argued that non-economic factors such as institutions, political processes and cultures are crucial in the process of inflation. Hence, there are arguments, which support interaction of the timing of elections, the performance of policymakers, political instability, policy credibility and reputation, and the inflation within an economic system. Elbahnasawy and Ellis (2021) argued that the political and economic structures can highly contribute to the inflationary pressure in the country, which was a finding considering about 156 countries. The authors identified that political instability and less democratic nations have higher pressure of inflation. Ethiopia has been ranked in the top three countries with a high number of new displacements, for instance, in 2018 3.2 million people were displaced; of this 90.6% were displaced because of conflict and the proportion made the country the 1st in the world (Berihu, 2021). The author also identified that 77.78% of the total displaced 1.8 million people in 2019, were because of conflict and this proportion ranked the country 3rd in the world. This internal conflict is the source of the huge displacement of productive labour in the country. The recurrent conflict has a two-dimensional effect on inflation in Ethiopia: The producers who were productive enough became beggars who wait for the donors, which means additional demands have been created. Secondly, the instabilities and conflicts blocked the smooth transport and movement of merchandises from surplus areas to the areas where there is shortage. These two effects could come together and aggravate the inflation within the country and Oromia region.

About 44% of the conflicts, which have occurred in the previous two decades within the country, were in Oromia region. This indicates that a significant proportion of the conflicts and instabilities were from this regional state. Besides the mass demonstrations and violence against civilian, the country was suffering from the devastating war in Tigray in 2020. The Armed Conflict Location and Event Data Project (ACLED) (2021) ranked Ethiopia the 1st in the world in 2021 as of the recently aggravated conflicts and instabilities. The country's crises have been deepening steadily since 2016, but conflict and inter-communal violence escalated significantly and spread to new areas in 2018, triggering millions to displace, four times the number in 2017. The dynamics of the violence and conflict in the Oromia region are mainly armed clashes and violence against civilians in the previous four years (2018 to 2022). Active "hotspot" areas of conflict within the region include West and Kellem Wollega, West Guji, and East and West Hararge as to the report of Ethiopian peace observatory. The report mentioned that about 1241 political violence happened in between 04 February 2022 and 10 February 2023 in Oromia region (Table 5-4). There were 6,613 fatalities from political violence and 2638 total fatalities from civilian targeting. ACLED reported that over 230 incidents of civilian targeting were reported in Ethiopia during the first six months of 2022, resulting in more than 1,220 fatalities, and 66% of these fatalities were from Oromia.

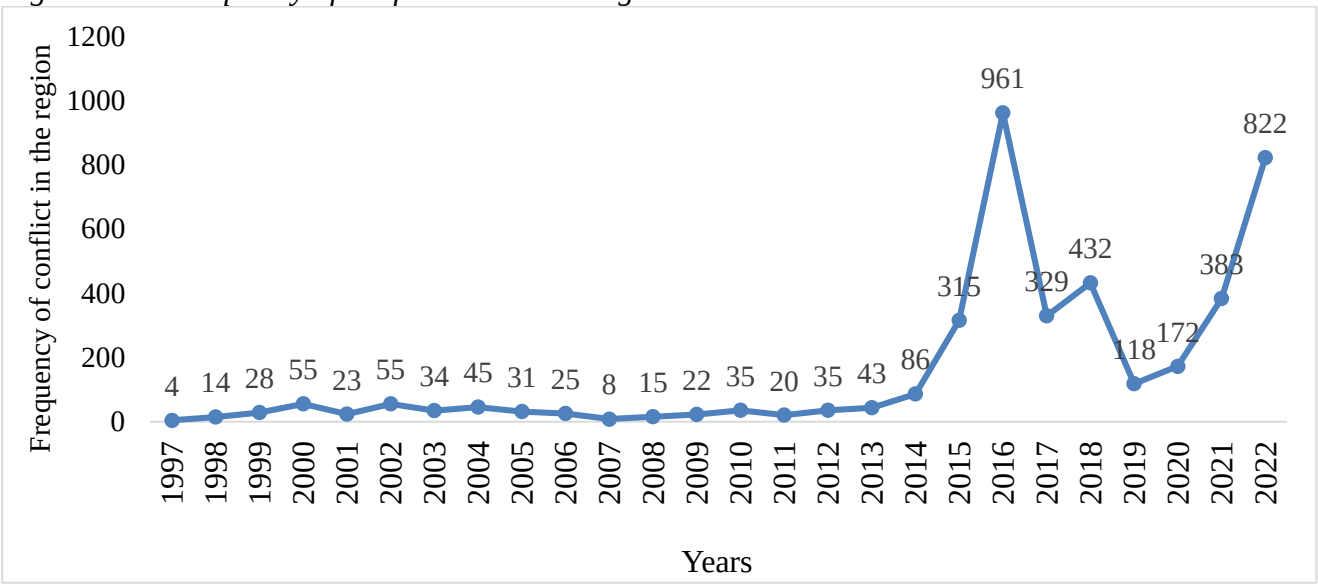
Table 5-4. Political violence and protest events in Ethiopia from 01/01/1997-17/02/2023

Regions	Number of conflicts	National level share
Oromia	4,213	43.79
Amhara	1,526	15.86
Tigray	1,214	12.62
Somali	991	10.3
Addis Ababa	437	4.54
Afar	334	3.47
SNNP	232	2.41
Benshangul	226	2.35
Gambela	165	1.71
Dire Dawa	97	1.01
Sidama	81	0.84
South West	55	0.57
Harari	50	0.52
Total	**9,621**	**100.00**

Source, The Armed Conflict Location & Event Data Project (ACLED), 2023

Figure 5.16 reveals that the frequency of conflict and instability in the Oromia region was relatively similar between1997 to 2013. However, the problem became more frequent after 2014 when peaceful protests were common in the regional state as to the report of ACLED. The frequency and area coverage of the problem reached a peak in 2016 in which 73% of the conflict and instabilities were related to peaceful protests. However, in recent times the common source of instability and conflict in the region are armed clashes and violence against civilians, which could have a strong fueling effect on inflation by deterring the production, transportation, and marketing of merchandises.

Figure 5.16. Frequency of conflict in Oromia region

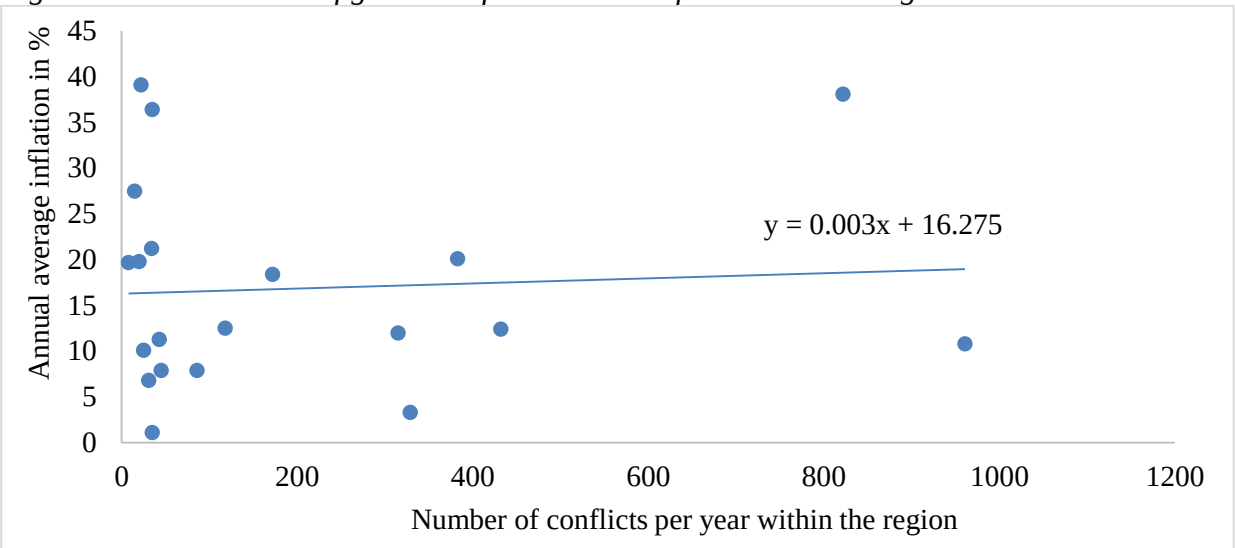


Source, Own construction from ESS and ACLED, 2023

The on-going conflict, instability, and the full-scale war aggravated inflation by daunting the production, marketing, transporting, and altering the public and private expenditure. The conflict

may force the country to drain billions for the non-productive expenditures that may be inflationary. The government attempted to finance many of the expenditures for conflicts and instabilities through domestic borrowing and budget reappropriation through cutting on capital projects. Figure 5.17 reveals that the recently aggravated conflicts and instabilities in the regional state have a fueling effect on the general inflation of the region. Positive association have been observed between conflicts and general inflation in the Oromia region. This positive association between them indicates that the frequent outbreak of conflicts and instabilities within the region may create physical and administrative barriers that could directly or indirectly aggravate the already existing inflation. The frequent outbreak of conflicts and instabilities may result in additional transaction costs for the production and/or marketing of merchandises that could proportionately increase the general inflation.

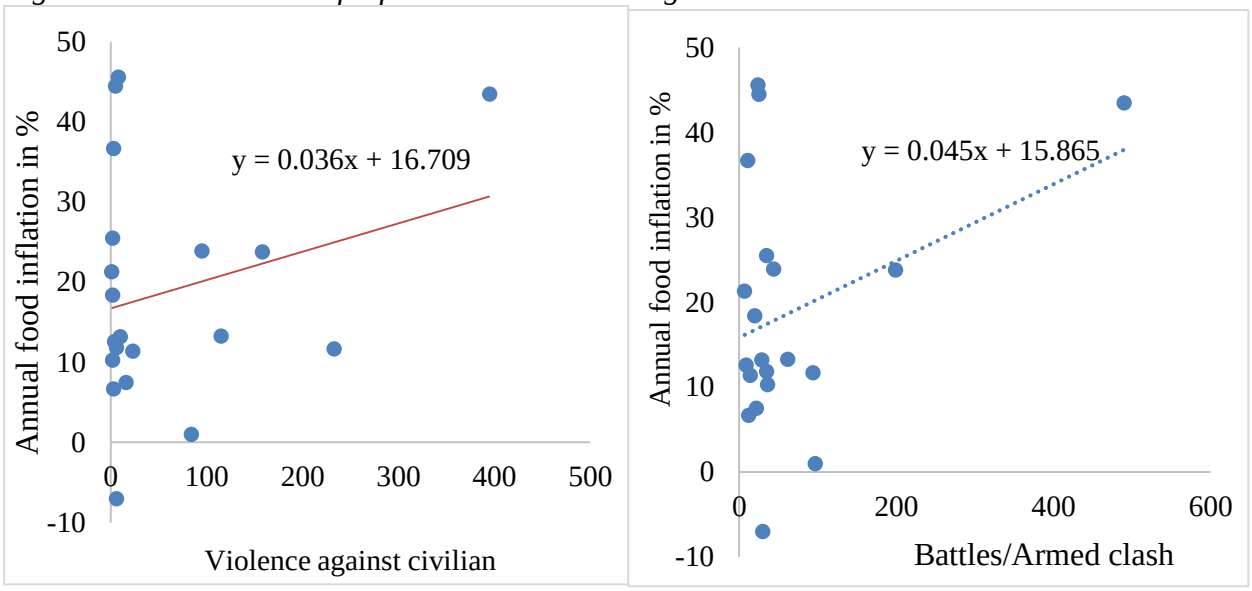
Figure 5.17. Interaction of general inflation and conflict in Oromia regional state



Source; Own computation from ESS and ACLED, 2023

Figure 5.18 shows that outbreak of violence against civilians and armed clashes within the region has a strong fueling effect on the regional food inflation. The association between armed clashes and food inflation is stronger than the interaction of food inflation with violence against civilians. This strong interaction indicates that the physical and administration related barriers and costs sourced from armed clashes are larger than violence against civilians. Moreover, the strong fueling effect indicates that the production and/or marketing processes of food items have been strongly interacted with and affected by violence against civilians and armed clashes within the regional state.

Figure 5.18. Interaction of inflation with violence against civilians and armed clashes



Source; Own computation from ESS and ACLED, 2023

5.5. Inflationary Pressure of National and International Shocks

Gabriel and Fernando (2021) estimated that an external shock in the international agricultural commodities prices exported by Argentina engenders a pass-through of 10%, vis-à-vis a shock in the nominal exchange rate with a pass-through of 25%. The study explains this result highlighting the relevance of the conflicts as a key inflationary transmission mechanism, in line with Post-Keynesian-Structuralist conflicting claims models of inflation. These empirical results pose significant challenges for economic policy design, particularly pondering the adoption of measures that aim to decouple the potentially disruptive effects of these external shocks on inflationary pressures in Argentina.

Alemayehu and Kibrom (2011) argued money supply, inflation expectations, and international food prices are the main factors that determinants of inflation in Ethiopia. One of the biggest issues within the country and in turn the region, is the multiple shocks that occur within consecutive periods. Conflict, changes in prices, or supply disruptions cumulatively play a strong role, but how each one does so individually have not been examined. The Russia-Ukraine war might affect Ethiopia equally but the Northern conflict might play a bigger role in the Amhara and Tigray regions, and Oromia and the nation as whole. In this objective, the inflationary effect of shocks on fuel, transport, and fertilizer should be checked considering international data and price increments in the regional state. Importable items do have a strong effect on inflation in the regional state since the regional state has strong interaction with the central market. Foreign currency shortage and devaluation impact should be reconsidered since the devaluation may increase the cost of production, which could result in cost-push inflation, especially for industrial products. The indirect effect may be strong for the domestically produced goods that used imported inputs. Illegalities are also the main problem drivers of inflation in the regional state and the country. Domestic and local factors should be also checked to measure the effect of inflation within the regional state. How do misused policies and advocacies have a strong impact on inflation within the country?

In recent years, Ethiopia has experienced periods of high inflation, affecting its economic growth and development. Inflation has become one of the biggest macroeconomic challenges in the

country, with the Oromia region being no exception. The country has been exposed to both domestic/national and international shocks that have contributed to inflationary pressures. This section explores the role of national and international shocks in fueling inflation in Ethiopia with a particular focus on the Oromia region. Understanding the sources of inflationary pressures and the role of domestic and global shocks is vital for policymakers to develop appropriate measures for stabilizing the economy.

i. National/domestic Shocks

Domestic shocks and factors have been identified as significant contributors to inflation in Ethiopia. National shocks refer to events that occur within the country/region and affect the economy in general and overall prices in particular. To structure our review, the major domestic shocks considered in the analysis include agricultural supply shocks (drought), violence and conflicts, devaluation of the Ethiopian birr and shortage of forex, and policy shocks. Several studies have examined the effects of domestic shocks on inflation, highlighting the roles of supply-side factors, devaluation, policy shocks (rise in government spending), and other domestic determinants.

A**gricultural supply shocks (drought)**

Birru *et al*. (2009) argued that in the short-run supply shocks in agriculture and inflation inertia create disparities when compared to long-run prices. Agricultural supply shocks are one of the major national shocks that have fueled inflation. The Oromia region, like Ethiopia, is an agrarian economy, with agriculture serving as the foundation of the local economy. However, frequent droughts and other natural disasters pose major threats to the region's rain-fed smallholder agriculture and food availability. Drought impacts on agriculture include crop losses, lower yields in both crop and livestock production, reduced land under cultivation, increased land degradation and soil erosion (World Food Program, 2023). The country's dependence on shock-prone agriculture, which is vulnerable to recurrent droughts and weather-related shocks, have resulted in a shortage of food supply and thereby contributed to high food prices.

Evidence shows that while inflation was generally low in the pre-2003/04 period, major inflationary episodes have occurred only during drought and conflict. For instance, annual average inflation in Ethiopia reached a record of 18.2% during the 1984/85 drought, and again 15.5% during the 2003 drought (Loening, Durevall, and Birru, 2009). Ethiopia experienced drought in 2002/03 which led to high food inflation, and in turn, meant high general inflation given the substantive weight of food in household expenditure (Tamru *et al*., 2022).

The country's agriculture is susceptible to the vagaries of nature. In the recent past, Ethiopia has experienced three major episodes of drought in 2011, 2016/17, and 2020-2022. These shocks were closely linked to inflationary movements. For instance, Ethiopia was the worst affected country by the drought in 2011, "the worst in 60 years", that hit the entire East African region. According to assessments of the economic impact of the 2011 shock, following the drought, staple food (vegetables, grains & seeds) prices were at 68% over the five-year average, including increases of up to 240% in southern Somalia, 117% in south-eastern Ethiopia, and 58% in northern Kenya (Mohammed *et al*., 2011). In Ethiopia, this contributed to a 50% food inflation in the third-quarter of 2011 (World Food Program, 2023). Regarding its impact on inflation at the regional level, Ethiopian Statistical Services data show that inflation in the Oromia region reached a staggering 36.4% during the 2011/12 drought. In 2022, since the food price inflation spikes has coincided with the recent drought in the country, food price inflation in the Oromia region reached a record high of 43.5%.

Analysis of the price effect of three spells of drought shows that such weather shocks were inflationary in Ethiopia. Following the 2016/17 drought, maize prices increased by 35-55% in Ethiopia. During 2011, 2016/17, and 2020-2022 drought periods that affected the eastern Horn of Africa, spikes in food inflation occurred due to rising food prices (World Food Program, 2023). This suggests that agricultural supply shocks, notably drought have the potential to significantly influence the movement of inflation rates in the Oromia region.

Country-level empirical investigations suggest that dependence on shock-prone agriculture appears to explain the inflationary pressure in Ethiopia. According to Geda and Tafere (2008), limited food supply due to weather shocks is one of the major drivers of inflation in Ethiopia in the short run. Agricultural supply shocks had short-to-medium run effects on inflation rates in Ethiopia and Kenya (Durevall and Sjo, 2012). Likewise, Durevall, Loening, and Birru (2013) also found that the short-run movement in food inflation is affected by shocks to agricultural output. At a country level, Bane (2018) also concluded that inflation is driven by shocks to the real sector/agricultural sector.

Hill and Fuje (2020) quantified the impact of drought on local prices using data on monthly grain prices and district-level weather shocks in Ethiopia. They find that the impact of the weather shock on grain prices is largest immediately following harvest in January. On average a 1 in 5-year moderate drought caused grain prices from January to May to increase by 9%. However, they reported that from May to October the impact of the rainfall shock on grain prices gradually decreases. Moreover, droughts along with other domestic supply shocks and bottlenecks have contributed to the sluggish growth of agriculture. Agriculture was found to be growing at a lower rate compared to the service and industry sectors. It is indicated that one of the primary supply-side causes of inflation in Ethiopia is the slow growth of agriculture (Goshu *et al*., 2022). Durevall, Loening, and Birru (2010) find that agricultural supply shocks affected food inflation in Ethiopia in the short run, leading to significant departures from long-term price trends. Therefore, mitigating the effects of weather shocks, and boosting the growth of agricultural output and marketable surplus are expected to fill the supply shortfall and stabilize consumer prices in the region.

Violence and instabilities

Another vital domestic shock that has exacerbated the inflation pressure in the region is domestic violence and conflict. Political violence and conflicts targeting civilians are the most common conflict events in Ethiopia. The incidence of conflict events was very low until 2015. However, evidence documents that incident representing political instability show a significant escalation in the post-2015 period due to the protests and transition (Tafesse *et al*., 2021; Goshu *et al*., 2022). The number declines in 2019 with relative stability despite remaining high (Tafesse *et al*., 2021) until the conflict/war in northern Ethiopia, which is reportedly the costliest war witnessed in the recent history of the country.

Violence and conflicts have been identified as significant contributors to inflation in Ethiopia. Political instability and conflicts lead to inflation and high volatility in prices (Aisen and Veiga, 2008) through various channels. Firstly, violence and conflicts particularly adversely affect aggregate supply by interfering with the production, distribution, supply, and marketing of products and services. If the incidence of conflicts in a country occurs widely and frequently, they cause inflation (Tafesse *et al*., 2021; Goshu *et al*., 2022).

Secondly, to worsen the situation, the war has resulted in a drop in foreign aid and loan from bilateral and multilateral donors. Though Ethiopia received USD 5.3 billion in foreign aid in 2020, making the market the world's third largest recipient of foreign aid, the flow of assistance (grants, loans) fell by one-third in 2020-21 since the outbreak of the war in Northern Ethiopia (World Food

Program, 2022). This intensified the depletion of the country's limited foreign exchange reserves. That is, the war and deficit financing along with the depletion of foreign exchange reserves exacerbate the inflationary pressure in the country.

In 2021 alone, the number of political violence was surprisingly raised to 1529, while conflicts targeting civilians were increased to 424. These domestic conflict events have adversely affected the domestic supply of goods and services and pushed prices up since 2015 when inflation was highly pronounced (Goshu *et al*., 2022). Importantly, the impact of armed conflict in northern Ethiopia along with severe drought in the eastern parts of the country and weak domestic market supply is exerting upward pressure on food prices (USDA, 2022). Reflecting such underlying factors, inflation in Ethiopia reached a staggering 35.1% in November 2022 compared to 18% in 2020. Past trends also suggest that major inflationary episodes were experienced during periods of conflict. For instance, annual average inflation reached a record high of 21.1% in 1998/99 at the peak of the war with Eritrea (Loening, Durevall, and Birru, 2009; USDA, 2022).

According to Tafesse *et al*. (2021), the number of incidents representing political instability continued to increase in the country between 2010 and 2018. In particular, the incidence of events such as violence and conflicts started with continuous protests in the Oromia region dubbed the 'Oromo Protests'. Regionally, the Oromia region witnessed the majority of events amounting to 471 in total in the past ten years. This is expected since the majority of the political incidents that occurred during the period considered were organized by the Oromo Protest movement" (Tafesse *et al*., 2021). The inflationary effect of the prevalence of such events is expected to be substantial in the Oromia regional state.

Before 2015, inflation in the Oromia regional state was relatively low. Computations based on regional CPI data from Ethiopian Statistical Services reveal that inflation in the regional state increased from a single-digit rate of 7.9% in 2013/14 to a double-digit rate of 12% in 2015. In the post-2015 period, inflation rates remained at double digits. The surge in prices has been somewhat explosive, particularly after 2018, reaching a record high of 38.1% in 2021/22. This was a period associated not only with violence and conflicts but also multiple external and domestic shocks such as a hike in global commodity prices (food, fuel/energy, and fertilizer prices), and a dwindling in the value of a local currency due to devaluation. These shocks along with conflict and weak domestic supply capacity explain the hike in inflation in the regional state.

Empirically, using the difference-in-difference method, Tafesse *et al*. (2021) find that political instability and related factors significantly influence food prices. In their estimates, the occurrence of an event, for example, increased the price of teff by Birr 6.50 per kilo. This represents more than 10% of the then price of teff which was around 60 Birr/kg, the price of wheat by Birr 5.73 (about 25% of the price), the price of maize by 6.35 Birr (about 30% of the price) and the price of barley by Birr 6.47 (about 40% of the price)" (Tafesse *et al*., 2021).

The significant positive price effect of violence and conflicts have contributed to the rising food price inflation in the region. The Ethiopian Statistics Service's data show that, in the Oromia regional state, inflation in food products reached an all-time high of 43.5% in 2022. This is considerably higher than the food inflation in Ethiopia, which was 32.9% in January 2022. Because the war disrupted vital food supplies in addition to affecting the nation's industries and agriculture, its after-effects may be more severe. This is because political unrest affects not only the delivery of food to households but also the supply of crops to central markets. This increases the likely impact of events on the prices of food items in the region (Tafesse *et al*., 2021).

Notwithstanding the positive effects of the prevalence of events on food prices, Tafesse *et al*. (2021) reported that the prices in regions with many events (such as the Oromia regional state) have not been exceptionally higher than in other regions. That is, the inflationary effect of political instability on prices in the Oromia region is comparable to other regions with a small number of events. This suggests that the localized price impacts of political instability factors were found to be minimal in the region. This is argued to be explained by disruption to supply routes to the main markets that have been leading to price increases rather than purely localized price impacts.

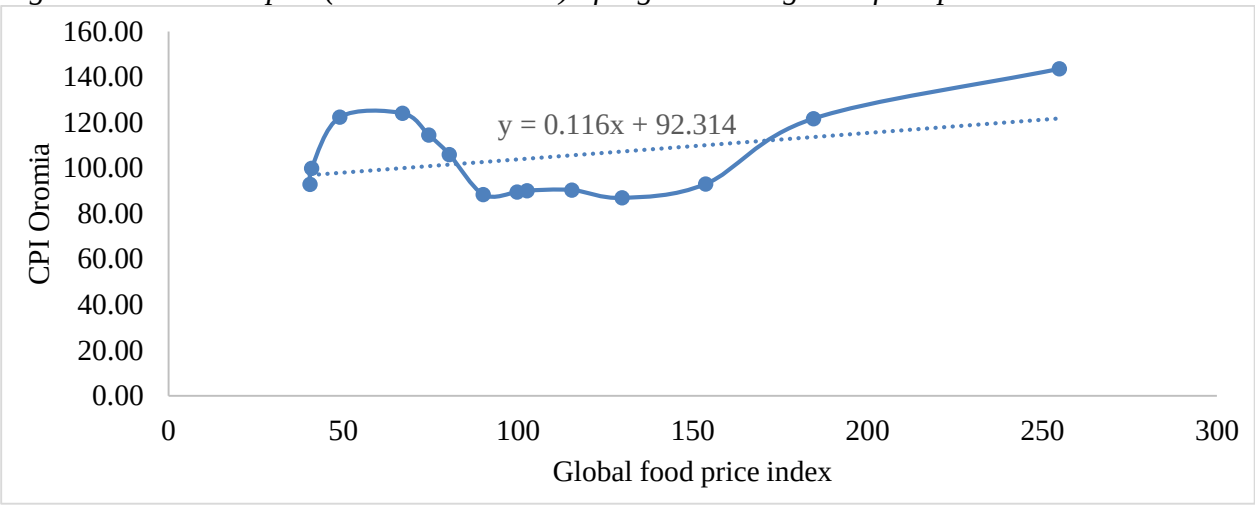
ii. **International/Global Shocks**

International shocks refer to events that occur outside the country but have socioeconomic impact on other countries and thereby regional economy. External factors play an important role in fueling domestic inflation, notably through imported food and energy products as well as exchange rate movements (*Ndikumana et al., 2021).* Apart from domestic shocks and policy problems, the rising global prices of commodities, notably food, fuel/energy, and fertilizers are aggravating the inflationary pressure in the country. A recent analysis of supply-side drivers of inflation shows that international price arbitrage plays a major role in determining domestic food inflation in Ethiopia (Tafesse *et al*., 2021). Since the Oromia regional state interacts closely with the central market, soaring global prices of imports are anticipated to have a significant impact on regional inflation. Here the role of global price shocks in importable (hikes in the prices of fertilizer, fuel, and food) in driving regional inflation is highlighted. Using trend analysis and the literature, we specifically examined whether there is a co-movement between the pattern of regional CPI and external shocks.

Yet with increasing globalization, more and more scholars begin to emphasize the effects of external impacts on a country's inflation. They think that as global economic relations grow closer, the prices of foreign primary commodities will directly affect the inflation level of a country. The strengthening of trade and financial cooperation will also change the dynamics of a country's inflation (Borio and Filardo, 2007).

The spike in global food prices is among the most significant recent global shocks. The World Bank's commodities price data show that global food price inflation increased from 7% in 2020 to 30.8% in 2021. Figure 5.19 illustrates that regional inflation has been moving in tandem with global food inflation. The data from the ESS on both food inflation and overall inflation in Oromia region hit record highs of 43.5% and 38.2% in 2022, respectively, up from 23.8 and 20% the year before. Past trends also suggest that inflation rate in the region was as high as 39.1% during the 2008 global food price crisis. This association has been particularly stronger since 2020/21. This demonstrates how tightly tied regional and national inflation are with changes in global food prices. The region's food price inflation has likely been exacerbated by the worldwide shocks to food prices. The impact is likely significant since food and beverages make up roughly 54% of the region's consumption basket, with poor agricultural production growth, supply constraints, and other factors. Moreover, along with rising fuel and fertilizer prices, the lack of sufficient marketable surplus from smallholder farmers, which frequently forces the nation to rely on food imports to close the local supply-demand gap, likely exacerbates the inflationary contribution of global food price hikes in the Oromia region. Using regional data, Ambachew *et al*. (2012) also reported that, in the long run, international food and oil price hikes increase domestic food inflation in Eastern Ethiopia.

Figure 5.19. Scatter plot (with smooth lines) of regional and global food price index



Source: Own computation based on Ethiopian Statistical Services and World Bank

Because food prices are the main cause of inflation in the region and since the local food supply is growing slowly compared to domestic demand, the effects of global food price shocks can be easily passed on to domestic inflation. In summary, it appears that the inflationary effect of global food price hikes in the region is exacerbated, among others, by domestic supply-side constraints and the slow growth of marketable surplus in the nation. Country-level analyses for Ethiopia also suggest that one of the main factors determining inflation in Ethiopia is international food and goods price shocks (Loening, Durevall, and Birru, 2009).

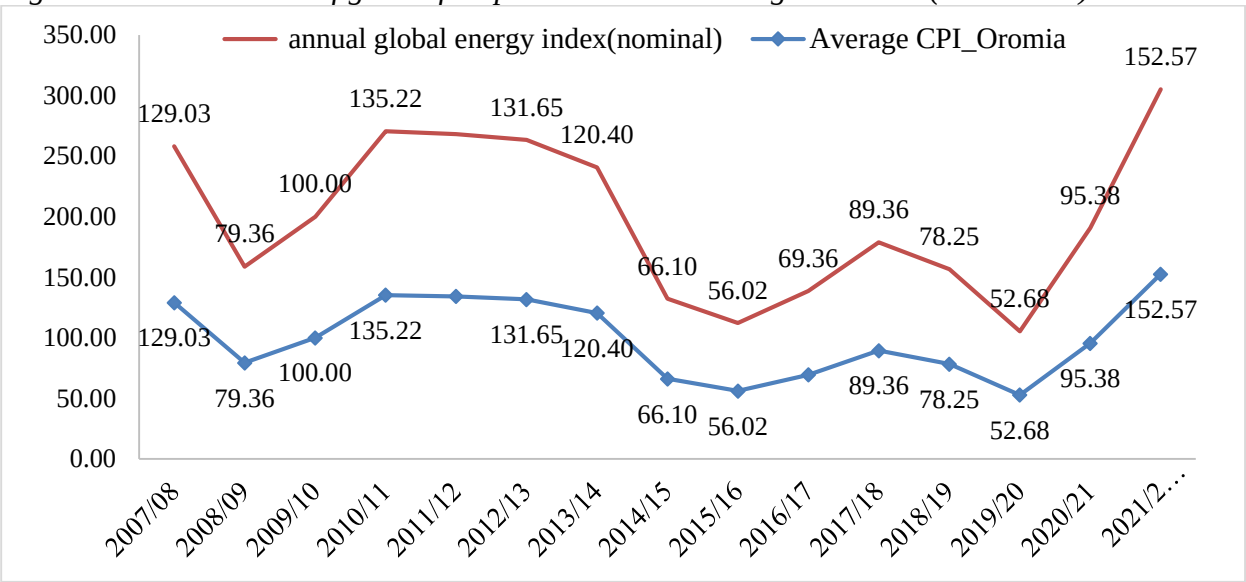
Movements in international food and goods prices tend to determine the long-run evolution of domestic prices (Durevall, Loening, and Birru, 2010). In particular, rising world food prices and the global food crises exert upward pressure on food prices (Durevall, Loening, and Birru, 2013). According to Ndikumana *et al*. (2021), inflation, among others, is driven by the prices of imported goods (*i.e.*, grains, oil, and non-food items) in the short run. Likewise, in the short run, changes in global prices along with salaries/wages, supply and movement of exchange rates, and limited food supply are major drivers of inflation (Geda and Tafere, 2008). Alemayehu and Kibrom (2011) also report that food inflation, in the long run, is determined by international food price hikes, a rise in money supply/credit expansion, and inflation expectations. In the long run, international food and oil price hikes increase domestic food inflation.

One of the other vital international shocks that have contributed to inflation in Ethiopia is the rising price of fuel/oil in the world market**.** This channel of external pressure on domestic prices manifests itself through increasing the price of imports of petroleum and related products, which represent 10-20% of Ethiopia's total imports (Ndikumana *et al*., 2021). According to the World Bank's commodity price data, in nominal terms, the price of crude oil in the international market increased by 40.6% in 2022 compared to the price prevailing the previous year. World Bank's Energy Price Index also went up by nearly 60% in 2022, following last year's 80% surge. Following this, there has been a hike in fuel prices in East Africa rising by 17-75% in April 2022 year-on-year, the steepest increase observed in Burundi, Somalia, Kenya, Ethiopia, and South Sudan (World Food Program, 2022). Given its dependence on fuel imports, the country is therefore exposed to the vagaries of international energy prices which filter through the domestic cost of production of goods and services, ultimately fueling inflation (Ndikumana *et al*., 2021).

Domestically, to make the situation worse, the government has lifted fuel subsidies. In the third-round revision of fuel prices, the per-litre prices of diesel and benzene have been revised upward

to 67.3 and 61.29 in 2023, an increment of 13 and 7%, respectively. Such higher fuel prices are pushing up transportation and production costs. Consumer food inflation will eventually rise as a result of higher transportation costs. This is because increases in fuel prices add to the transport costs of food along the supply chain, adding to the prices at which the good is sold (Zewdie, 2022[5]). Moreover, with fuel and electricity accounting for 10% of the CPI in Ethiopia, an increase in fuel prices can easily translate to a direct rise in headline inflation (World Food Program, 2022).

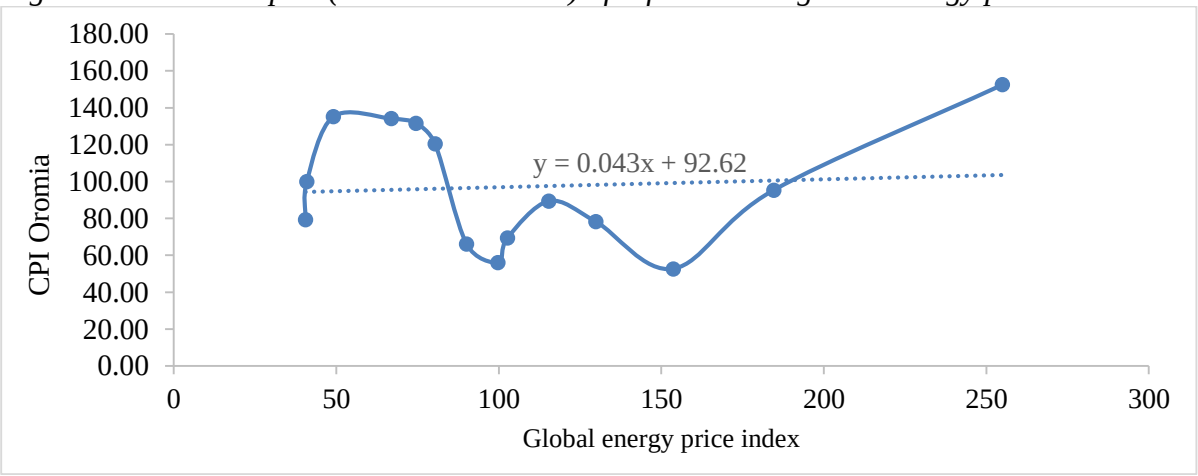
Figure 5.20. CPI trends of global fuel prices and Oromia regional state (2008-2022)



Source: Own computation based on Ethiopian Statistical Services and World Bank

Ethiopia is heavily reliant on imported oil, and the increase in oil prices has led to a direct increment in transportation costs, which has had a significant impact on the prices of goods and services in the region. The spike in regional CPI typically follows the global fuel price hike particularly since 2020 (Figure 5.21). The regional CPI's movement fueled by the global energy inflation. The inflationary tendency in the region and its association with the movement of the global energy price index appears to be particularly high since 2020.

Figure 5.21. Scatter plot (with smooth lines) of inflation and global energy price index



Source: Own computation based on Ethiopian Statistical Services and World Bank

[5] https://www.gainhealth.org/media/news/story-8-spiking-food-prices-ethiopia-put-pressure-consumer-access-nutritious-foods

It appears that global fuel price shocks significantly add to the inflationary pressure in the regional state because the price hike affects many sectors and has also multiple effects. This is because, according to the World Food Program (2022), fuel is essential to many economic sectors, manufacturers and traders may pass along their fuel costs to consumers, which might have a second-order inflationary effect on the price of food and non-food items. Food production and distribution costs are intrinsically linked to fuel prices, thus there is little choice but to pass some of the cost increases on to consumers. In general, the domestic policy change (removal of the fuel subsidy) combined with the external price shock intensifies the inflationary impact of the oil price hike in the Oromia region.

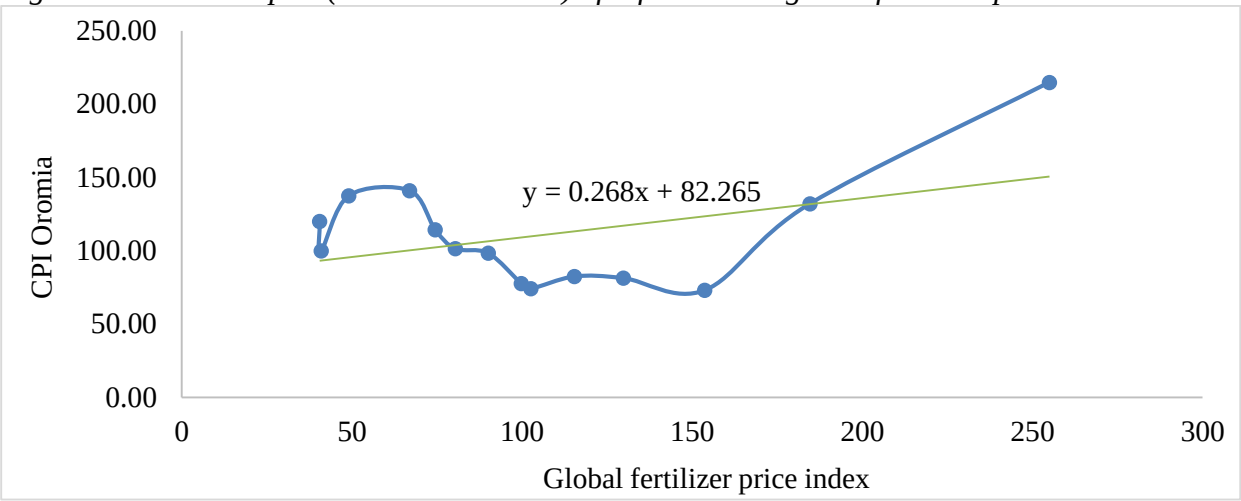
Another international shock that has contributed to inflation in Ethiopia is the rising prices of fertilizers in the world market. Fertilizer prices have also reached all-time highs both in the global and domestic markets. World Bank's commodity price data show that the global fertilizer prices of DAP and Urea, in nominal terms, have risen by 147% and 205.5%, respectively, between 2020 and 2022. Following this global price shock, fertilizer prices increased two-fold (more than doubled) from their levels a year ago in East Africa within two months of the Ukraine invasion (World Food Program, 2022). In particular, in Ethiopia, fertilizer prices have almost doubled since the Russian invasion of Ukraine, while at the same time, the volume of fertilizer imported declined by almost five million quintals (0.5 million tons) compared to 2021. Smallholder farmers are struggling to purchase the amount of fertilizer that would be needed to maintain current yields (Zewdie, 2022).

Figure 5.22 shows that there was no clear/marked pattern between the global prices of fertilizers and the regional CPI in the pre-2020 period. The scatter plot in the following figure shows that the overall association between inflation in Oromia and global fertilizer price inflation was generally weak. However, since 2020, regional inflation typically follows the pattern of global fertilizer prices wherein higher fertilizer prices were followed by higher rates of inflation. World Bank's Fertilizer Price Index went up by 62.6% in 2022, following last year's 81% surge. Ethiopian Statistical Services (ESS) data also reveal that regional food and overall inflation soared to 43.5% and 38.1% in 2022, respectively. The high and rising food inflation is acceptable as higher fertilizer costs are a key reason behind rising food prices. Fertilizers are an essential ingredient in the food-production process and prices of major fertilizers have been going up sharply[6] (Barua, 2022).

Owing to the rising price of fertilizers, World Food Program (2022) projected that the highest decline in cereal production will be in Ethiopia (21%), followed by Kenya (12%), and Sudan (16%). This implies that fertilizer inflation will likely magnify general inflation in these countries more than in the rest. Apart from its effect on food production, fertilizer price increment could raise food production costs, causing cost-push inflation. Thus, the current soaring price of fertilizers in the global market appears to contribute for the inflation in the Oromia.

[6] https://www2.deloitte.com/uk/en/insights/economy/global-food-prices-inflation.html

Figure 5.22. Scatter plot (with smooth lines) of inflation and global fertilizer price index



Source: Own computation based on data from Ethiopian Statistical Services and World Bank

5.6. Welfare Effect of Recurrent Inflation in Oromia Region

Past studies identified that inflationary pressure within an economy has mixed results on welfare of the society within the economy. For instance, Klugman and Loening (2007) found that the overall welfare impacts of food price changes are small and mixed effects have been observed when the observation was disaggregated. One of the key concerns regarding inflationary trends is the possible and potential deterioration of welfare of the society.

Degye *et al*. (2022) identified that inflation in Ethiopia has differentiated effects on consumption expenditure of households and regional states. The problem highly and adversely affected consumption of households in the major regional states, including SNNP (-20.3%), Oromia (-20%), Tigray (-19.9%), Amhara (-19.6%), and Afar (-15.7%). The authors identified that policy measures designed to control inflation should consider regional characteristics affecting prices. Unlike those in the higher two income quintiles, households in the lowest three income quintiles (1st, 2nd, and 3rd) were differently and adversely affected, and experienced a welfare loss ranging from 4 to 13.4%. Households in the highest two income quintiles (4th and 5th) have rather enjoyed 4 to 13% welfare gains. The analysis also showed that the inflation caused considerable redistribution of income and changes in the prevalence of relative poverty among households within the country. In this regard, relative poverty rates were increased in both rural and urban areas of the country. Over the period, changes in relative poverty rates were estimated to be higher in Gambella (23%), SNNPR and Afar (22%), Oromia (20%), and Tigray (14%). Elasticity of poverty to income growth arising from poverty alleviation measures has also been significantly reduced, thereby adversely affecting effectiveness of poverty alleviation measures within the country.

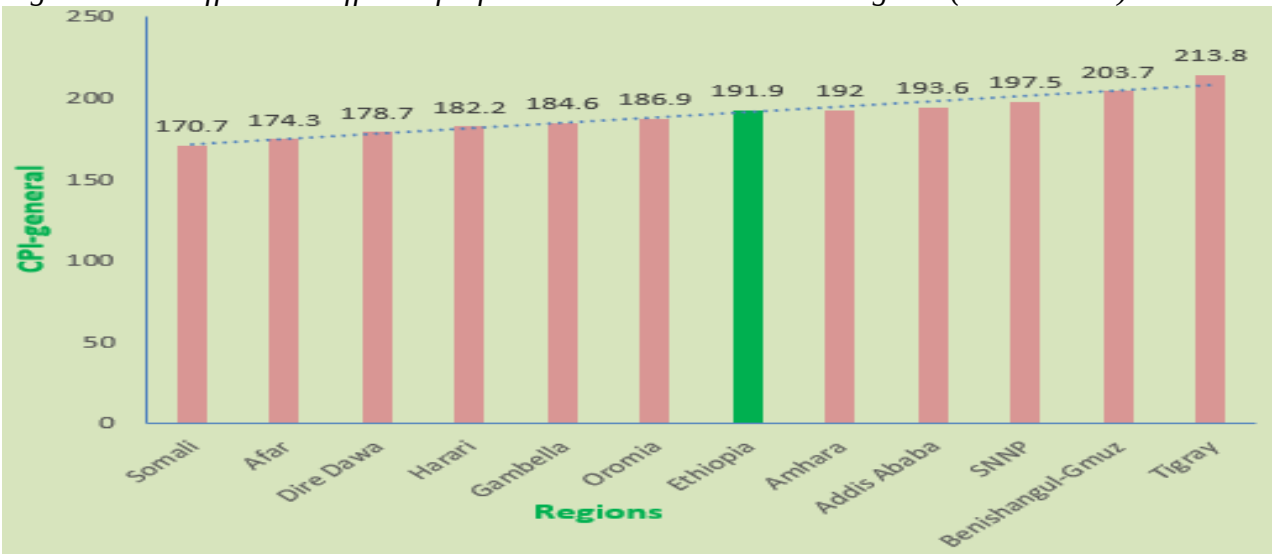
5.6.1. Consumption effects

Successive inflation could also have significant negative effect on a household's ability to increase consumption. Alem (2011) found that urban households lost around 15% of their food expenditure due to inflation and the poor households have been severely affected. The up-surge inflation forced households to reduce their subsistence. Bachewe and Headey (2017) assessed regional differences of inflation between 2007/08 and 2010/11 and found that the more populated regions in Ethiopia such as Oromia witnessed massive declines in food-expenditure. There were also differences in the food crises between the 2010/11 and 2008 as there were larger welfare impacts on households due to more rapid non-food inflation.

Inflation has differential effects on households with different income levels. Households with lower income are disproportionately affected by inflation in Ethiopia. Households in the higher quintiles have rather enjoyed increasing real expenditure due to inflation, witnessing its redistribution effects (Degye *et al*., 2022). The authors identified that there is a visible change in real consumption expenditure per capita of households in Ethiopia between 2015/16 and 2018/2019, which shows that households in the first three quintiles have experienced significant decline in their real expenditure and faced significant welfare loss. Real expenditure of households in the lowest income quintile was reduced by about 13.4% as to the findings of the authors. On the other hand, households in the highest income quintiles benefited from the inflationary trend in the country. Real expenditure of households in the highest income quintiles was increased to 13.0 percentage points over the period.

Figure 5.23 shows differential effect of inflation on consumers across regions in Ethiopia. In the third quarter of 2021, the top five regions with very high inflation were Tigray (213.8), Benishangul-Gumuz (203.7), SNNP (197.5), Addis Ababa (193.6), and Amhara (192). The CPI for these regions was higher than the national average (191.9). Regions in eastern Ethiopia (Somali, Afar, Dire Dawa and Harari) were rather relatively better off in coping up the effects of inflation. The results suggest the need for differentiated policy measures suitable to regional contexts.

Figure 5.23. Differential effects of inflation on consumers across regions (CPI in 2021)



Source: Computed from data in NBE (2020), Degye *et al*., 2022

Table 5-6 shows that the national level expenditure for total consumption reduced continuously in the previous years. The national level consumption expenditure reduced by 1.6% and 1.5% in the two respective groups of surveys 2013 to 3015 and 2015 to 2018. The lower percentage reduction in the national level consumption expenditure was because of the continuous increment in expenditure of the urban people in Addis Ababa and Dire Dawa, which tried to push up the reduction in the other regions. However, the consumption expenditure in the dominant regions continuously reduced, which indicates that the successive inflation in the country has differential effect on welfare of the society.

The inflationary trend has higher adverse effect on welfare of the society in the major regional states, including SNNP (-20.3%), Oromia (-20%), Tigray (-19.9%), Amhara (-19.6%), and Afar (-15.7%) in between 2015 and 2018. These figures imply that real consumption of households in the

aforementioned regions had declined in between 2015 and 2018. Hence, policy measures designed to control inflation should consider regional characteristics affecting prices.

Table 5-5 shows that in between 2015 and 2018 the society in Afar (26.2%), Oromia (24.0%) and Tigray (23.9%) regions suffered a lot from inflation. Moreover, the society from Amhara (19.6%), Somali (19.2%) and SNNP (17.1%) had significant reduction in their consumption expenditure. The two urban administrations (Addis Ababa (70.4%) and Dire Dawa (15.3)) include Harari region (31.0%) had significant increment in their consumption expenditure. The overall, national level, welfare lose (3.1%) was also relatively larger in between 2013 and 2018.

Table 5-5. Changes in real consumption expenditure per capita across regions

Region and urban	Real expenditure per capita (ETB)		Percentage change between 2015 &2018
	2015	2018	
Addis Ababa	6222	8629	38.7
Dire Dawa	5591	6439	15.2
Harari	5514	7349	33.3
Benishangul	3548	4730	33.3
Gambella	4562	4827	5.8
SNNP	5223	4161	**-20.3**
Somali	4563	4298	**-5.8**
Amhara	4928	3960	**-19.6**
Tigray	6037	4835	**-19.9**
Oromia	5722	4576	**-20.0**
Afar	5496	4632	**-15.7**
National	5337	5257	**-1.5**

Source: Computed from ESS in 2013, 2015 and 2018

The decomposition index presented in the following table shows that some of the regional states took the significant share in determining the national level general CPI. The two dominant regions, Oromia and Amhara, took about 70% of the general CPI decomposition at national level, however, Oromia region had stronger share in determining the national level general and food price change within the country. The region has stronger effect in determining the national level food price increment compared to the effect on the general CPI. The three regions (Oromia, Amhara and SNNPR) together took more than 83% and 86% of the power in determining the general and food item CPI of the country, respectively.

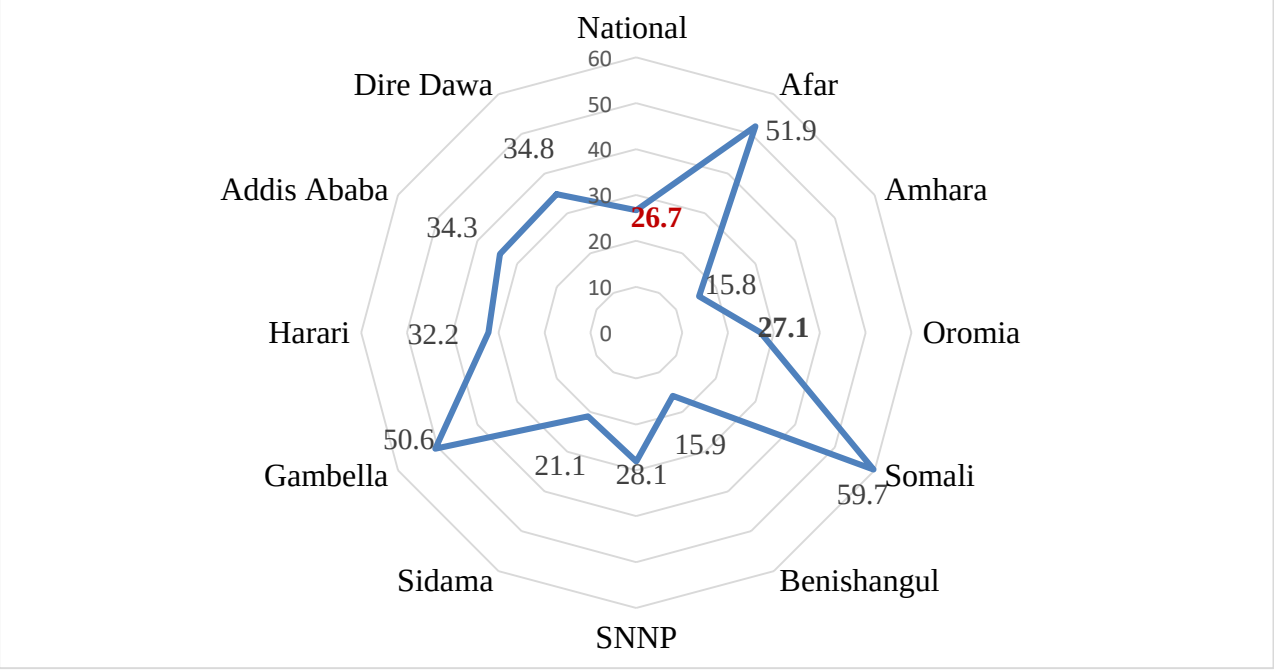
Table 5-6. Regression-based inequality decomposition of the national level CPI

Region	General CPI			Food item CPI		
	Coefficient	Contribution		Coefficient	Contribution	
		Absolute	Relative		Absolute	Relative
Oromia	**0.3813**	0.1579	0.4283	**0.4041**	0.2096	0.4382
Amhara	**0.3102**	0.1073	0.2911	**0.2624**	0.1195	0.2498
SNNPR	**0.1439**	0.0542	0.1470	**0.1983**	0.0918	0.1919
Addis Ababa	0.1016	0.0300	0.0813	0.0209	0.0081	0.0170
Tigray	0.0337	0.0113	0.0307	0.0325	0.0146	0.0304
Somali	0.0174	0.0049	0.0132	0.0348	0.0131	0.0273
Benishangul	0.0132	0.0060	0.0162	0.0025	0.0015	0.0032
Afar	0.0098	0.0023	0.0061	0.0277	0.0107	0.0223
Harari	0.0026	0.0008	0.0022	-0.0241	-0.0093	-0.0193
Gamibela	-0.0131	-0.0059	-0.0159	0.0050	0.0026	0.0055
Dire dawa	-0.0018	-0.0005	-0.0013	0.0371	0.0143	0.0299
Residual	0.0000	0.0004	0.0011	0.0000	0.00192	0.0040
Estimated inequality		0.3686			0.4785	

Source: Own computation from ESS data, 2023

The labour force and migration survey report of the Ministry of Planning and Development of Ethiopia shows that about 27% of the households in Oromia region had food shortage in 2021. The proportion was higher than the national average, but lower than some of the regional states such as Somali, Afar, Gambella, SNNP, and Harari (Figure 5.24). However, the percentage of households that suffer from the problem is quite larger compared to the actual potential of the region to produce diversified crops more than twice a year. The paradox becomes more confusing when we check the proportion of households with problem from the urban (24.8%) and rural (27.7%) areas of the region.

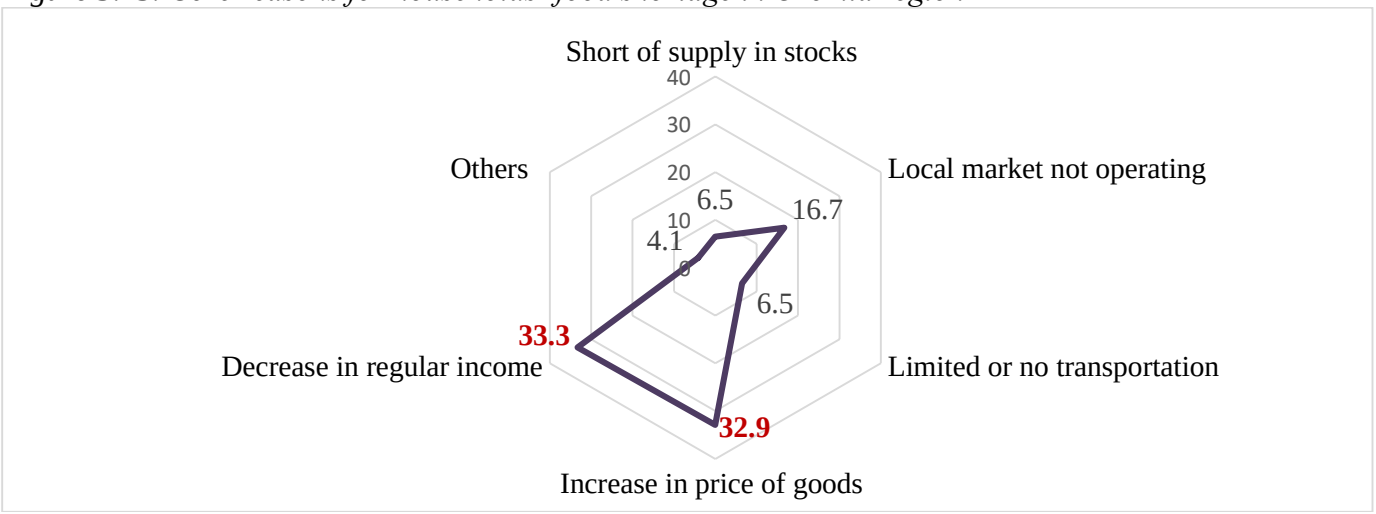
Figure 5.24. Percentage of households faced food shortage among regional states



Source; Labor force and migration survey of ESS, 2021

Figure 5.25 shows that more than 66% of the households replied that regular income reduction and successive price increment are the reasons behind food shortage. This proportion indicates that significant proportion of the households in the regional state are strongly suffering from the pressure from inflation, which could directly determine the consumption behavior. Improper operation of the local market is also one bottleneck that result in food shortage for households of the regional state.

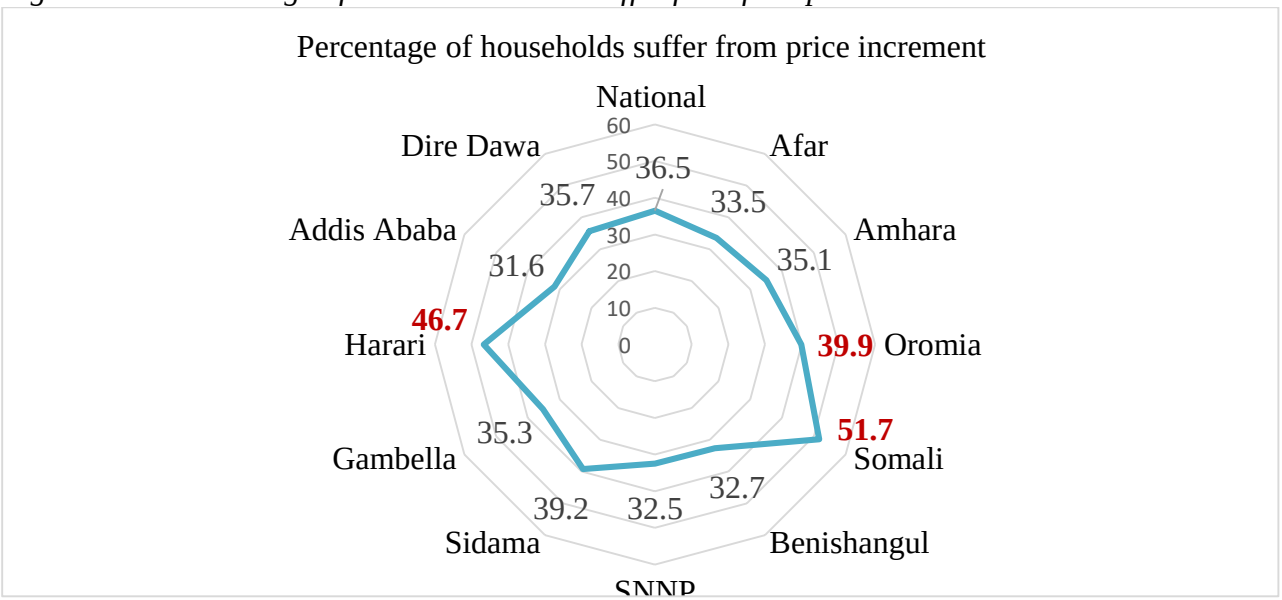
Figure 5.25. Core reasons for households' food shortage in Oromia region



Source; Labor force and migration survey of ESS, 2021

For few of the regional state continuous **increment of food price** was the critical reason for shortage of food items in urban areas of the country (Figure5.26). The problem was critical for urban people of Somali, Harari and Oromia region as to the figure below.

Figure 5.26. Percentage of urban households suffer from food price increment



Source; Labor force and migration survey of ESS, 2021

Table 5-7 reports that both the urban and rural households suffer from price increment and reduction the regular income. However, relatively larger proportion of the households in the urban areas of the region had suffered from the aforementioned problems, and they were main source of food shortage for significant proportion of households. Moreover, Table 5-7 reveals that about

20% of the households reported that the local markets did not operate properly as of different physical and administrative barriers.

Table 5-7. Reasons for shortage of food item Oromia in 2021

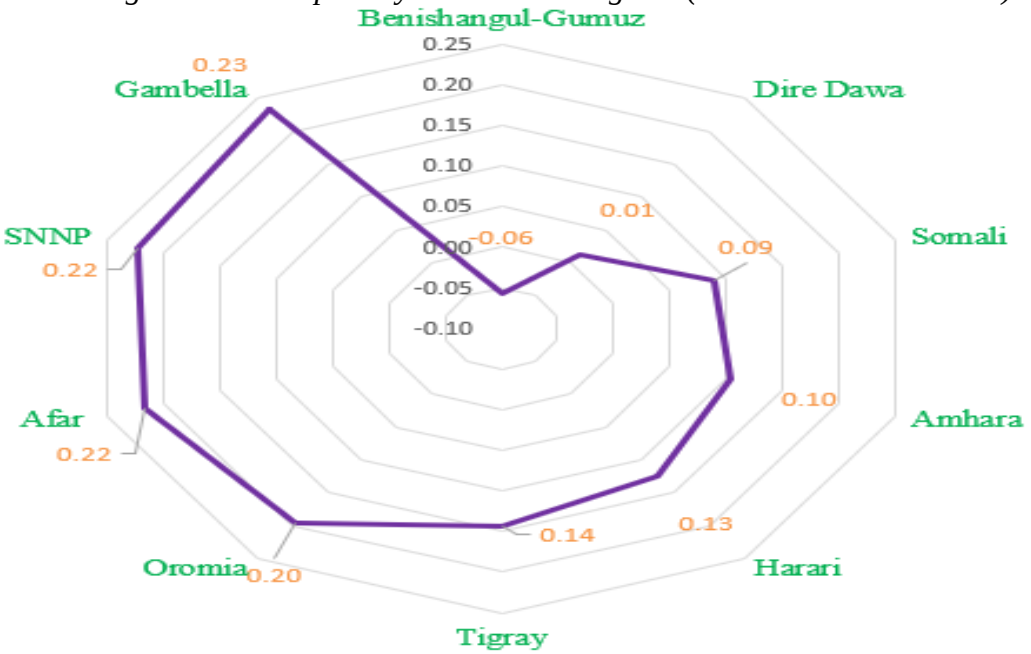
	Shops have run out of stocks	Market not operating	Limited or no transportation	Prices increment	Income reduction	Others
Total	6.5	16.7	6.5	32.9	33.3	4.1
Urban	5.5	3.6	5.5	39.9	43.9	1.6
Rural	6.8	19.8	6.8	31.3	30.7	4.7

Source, Labour force and migration survey report, ESS, 2021

5.6.2. Poverty effects of inflation

Analysis of real consumption expenditure of households revealed that inflation in Ethiopia has caused considerable redistribution of income and changes in the prevalence of relative poverty among households. Relative poverty rates were increased in both rural and urban areas of the country. Over the period, changes in relative poverty rates were estimated to be higher in Gambella (23%), SNNP and Afar (22%), Oromia (20%), and Tigray (14%). Elasticity of poverty to income growth arising from poverty alleviation measures has also been significantly reduced, thereby adversely affecting effectiveness of poverty alleviation measures. One of the major expected effects of inflation is income and wealth redistribution. This income and wealth redistribution is expected to differently affect households in different socioeconomic settings. Regional states in Ethiopia have also experienced the redistribution effects of inflation during the period (Figure 5.27). The top five regions with high relative poverty change due to income losses between 2011 and 2019 are Gambella (23%), SNNP and Afar (22%), Oromia (20%), and Tigray (14%).

Figure 5.27. Changes in relative poverty rates across regions (between 2011 and 2019)

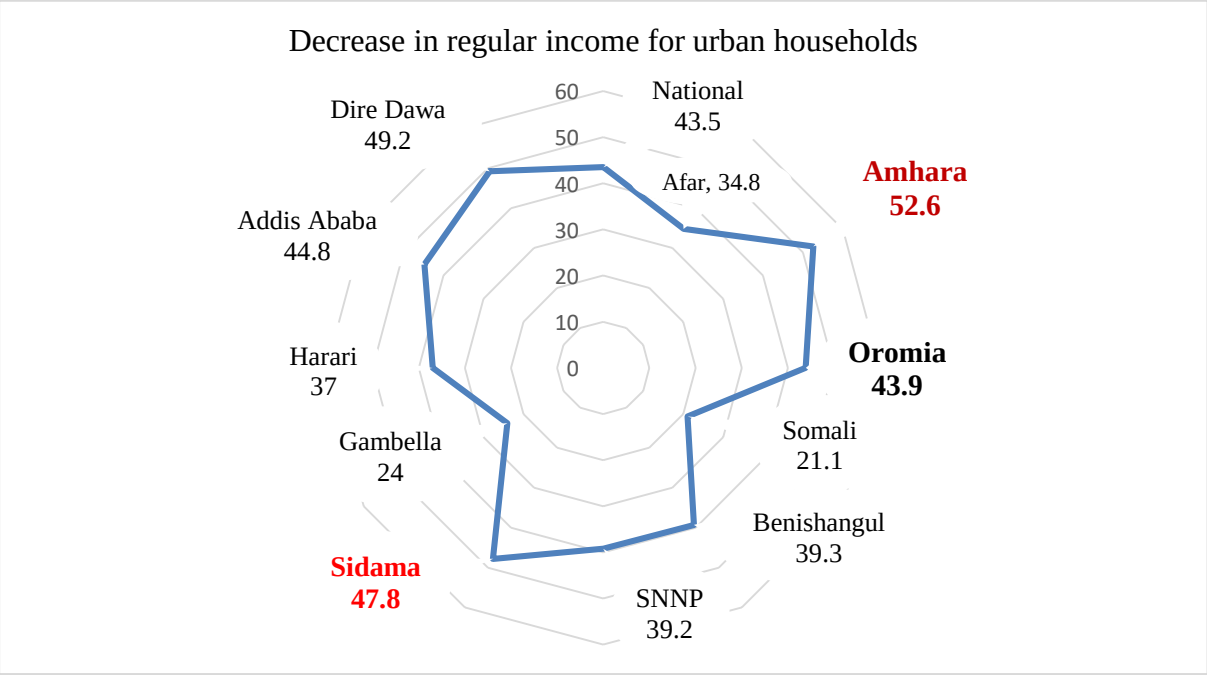


Source: Degye *et al*., 2022 computed from LSMS data in the World Bank

Figure 5.27 shows that significant proportion of urban households had suffered from regular income reduction, which was one critical reason for food shortage. This regular income reduction may be because of less performance in businesses in the urban areas of the country. Successive

regular income reduction could reduce households' purchasing power to fulfill the demanded amount of merchandises. This problem was critical for urban households in Amhara, Oromia, and Sidama though they have immense potential to produce food items. This paradox may emerge as of improper functioning institutions and markets, which could not guarantee smooth flow of food items to avail for the urban people.

Figure 5.28. Food item shortage as of low purchasing power of households among regions



Source; Labor force and migration survey of ESS, 2021

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

Oromia and Amhara regional states took about 70% of the general consumer price movement of the country, however, Oromia regional state had stronger share in determining the national level food price.

In the previous decades, food price movement of the regional state was higher than the general inflation, which implies that the gap between food and non-food price movement is becoming wider. In the regional state, food price movement took about 60% of the relative share in the general price variability, which indicates that the pressure from food price is stronger in determining the general inflation.

Variability in price of bread and cereals took about 45% of the relative share in determining food inflation of the region. Moreover, variation in the price of vegetables, and meat and meat-products had the second and third position regarding the relative contribution for food price change in the regional state.

Significant proportion of the price variability in the non-food items is sourced from housing and related utilities. House furnishing, and clothing as well as footwear price movements took the second and third position in determining the non-food inflation in Oromia region.

The recent successive increment in the service sector value addition to the regional GDP has inflation fueling effect through creating additional demand within the economic system. The problem could worth more if each additional demand from the service sector is not fulfilled from the agriculture.

Interaction of non-food item inflation in Addis Ababa and Oromia region was stronger compared to the interaction in general inflation. Strong dependency of the regional state on merchandises sourced from Addis Ababa may be the reason for the stronger interaction.

Recently, per capita grain production of the region is growing at a constant trend, which is about 3% per annum that was not far from the population growth rate (2.7% per year). This may result into significant gap between demand and supply not only in the region, but also at national level since the region accounts 47.5% of the main season crop production of the country.

Though gross capital formation or investment of the region continuously increases with time, the formation was not as to the potential, which implies that the regional economy is growing without investing as to its potential to do so.

Both private and public consumption expenditure increment have a fueling effect on the inflation in Oromia region, however, the former one has stronger power, which revealed that significant proportion of the private consumption expenditure is not productive to produce food and non-food items.

Improperly implemented national level policies such as continuous devaluation, cutting fuel subsidy, which had been practiced along with the soaring global price of fuel finally resulted in high inflation sourced from transport and production cost increment.

The overall price increment in wheat value chain is directly sourced from farmgate price. Problems

in the production and marketing of wheat may be the critical problems that cause drastic price increment. The cereal production and productivity problem may be sourced from cost of inputs especially the imported ones.

Intermediaries/middlemen along the market chain has definitely contributed to the rise of fruits and vegetables price, with ramifications for food price inflation. In the region there is no marking of fruits and vegetables without direct enrollment of broker, which implies that in every direction of marketing, brokers are always there, which commonly daunts and complicated direct exchange between producers and consumers.

The recently aggravated instabilities in the regional state have fueling effect on the general inflation of the region. The instabilities are creating physical and administrative barriers in the production or marketing of merchandises, which directly result in aggravating the already existing inflation.

Relatively larger percentage of the regional urban households suffer from food shortage, which was mainly sourced from successive food price rise and regular income reduction.

6.2. Recommendations for intervention

Both national and international natural and artificial problems trampled the national and regional economy. Despite the numerous measures of Ethiopian government to curtail inflation, but the problem is still critical macroeconomic issue. The problem is putting the life of people in difficulty and eroding their future hope, especially those in low-income group. Reports and findings showed that efforts in the regional states have significant effect in the process of combating inflation. In this regard, efforts and measures ought to be implemented in Oromia region could have significant effect to stabilize the national level inflation. Thus, the study come up with the following disaggregated recommendations intended to be implemented in Oromia region.

6.2.1. Recommendation for the regional government interventions

Marketing of Food and Non-Food Items

To promote direct marketing between producers and consumers, and reduce transaction costs, the regional government should try to reduce the strong intervention of intermediaries/brokers in the marketing of food items such as cereal, fruits and vegetables. To do this, the regional government shall:

- Scale-up the existing trials such as Cooperatives, Sunday markets, Oro-fresh and related modalities of deliveries. These modalities should be expanded to the different zonal- and district-level towns to have short and efficient marketing between producers and consumers.

- Establish specialized markets considering the different localities with the potential to produce food items in bulk. These markets should be managed by the government or wholesalers with strong government's supervision to avoid unreasonable price increments.

- Intervention of the regional government should be based on evidences and well-articulated strategies. Avoid inappropriate interventions in controlling intermediaries and managing the market chain, since some interventions are creating strong administrative barriers and problems. For instance, the trial of wheat exporting, controlling price and marketing of

construction materials resulted in black market and illegality of within the regional state.

- Rapid graduation of house to home to have easy access of houses for the urban households. Moreover, allow entrepreneurs to import and use cost-effective and efficient construction technologies to easily construct residential houses and supply low-cost housing for urban households.

Transaction and Transport Costs Reduction

- Reduce the number of check points here and there, which are becoming administrative barriers in the marketing and transporting of merchandises.

- Adopt bulk transport systems and establish warehouses in the zonal towns to reduce transport costs and deliver food items to the wholesalers.

- Introduce and establish check and balance, as well as ensure rule of law and transparency, and strengthen government institutions to avoid bureaucracies and corruptions.

Peace and Security

Ensuring peace and security is critical to price stabilization. In this regard, the regional government shall:

- Guarantee free movement of goods and the communities through addressing frequent outbreak with a coordinated effort of the regional and federal level peace and security institutions.

- Practice peaceful negotiations and dialogues frequently to reduce significant socioeconomic loses and sufferings from instabilities such as armed clashes and violence against civilians.

- Enhance the preparedness and prevention capacity of the government offices to reduce the outbreak of conflicts.

- Establish an institution that proactively follow global, domestic and regional economic situations and design strategies to have resilient regional economy that reduce welfare loss of the society within the region.

Agricultural Output Supply Increment

The regional government should have a farsighted planning regarding the structural problem of the regional economy that is led by the service sector, which continuously fuel the regional inflation. The structural transformation of the regional economy is from agriculture to service sector rather than to industry. This can cause demand led inflation pressure on the economy. In this regard, focus should be given to the agriculture and industrial sectors to reduce the demand-led inflation pressure in the region. Hence, to enhance production capacities and address the supply-side rigidity, the regional government shall;

- Enhance access to production inputs such as cropland, credit, fertilizers and chemicals for both smallholders and large-scale agricultural producers to improve the crop production.

- Strengthened the current trial of practicing irrigation and biannual production. However, government officers shall not decide the crop type to be produced by smallholders rather farmers shall be free to produce the crop of their interest.

- Initiate entrepreneurs and investors to produce organic fertilizers domestically and secure sustainable supply of the inputs for smallholders.

- Train smallholders to easily adopt new technologies and systems. To supplement and finally substitute the inorganic fertilizer, smallholders should be trained about utilization of organic fertilizer.

- Encourage and initiate businesses and producers with the motive of full package that comprise production to marketing of agricultural products.

Industrial Output Supply Increment

- Initiate industries that produce construction materials to increase supply of the materials needed for constructing urban houses.

- Reduce the administrative barriers and bureaucracies in the process of availing construction inputs such as urban land.

- There should be financial as well as institutional supports from the regional government offices to enhance the production and supply of construction materials such as Cement and iron to boost construction of urban houses and facilities.

Planning and Institutional Strength

- The regional planning and development commission should be curious about the recurrent economic structure of the region. Strong focus and efforts should be given to the agriculture to sustain the production and supply of consumable and industrial inputs.

- The regional government should try to establish an institution with a duty of market intelligence and information dissemination for both crop producers (especially for vegetables and fruits) and consumers to have updated information about price and supply. This could reduce disturbing role of intermediaries in the marketing process.

- The public and private expenditures of the region should be directed towards productive sectors and activities to sustainably curve down the inflation pressure from unproductive expenditures. This could enable to reduce inflationary pressure of the successively increasing expenditures.

- Attract and initiate industries to produce and supply construction materials for sustainable supply of houses and utilities in the urban areas.

6.2.2. Recommendations for federal government intervention

Policies and regulations in combating the national-level problems have a direct effect on regional economies. Thus, every policy measure and strategy intended to employed by the federal government should be in consultation with regional governments.

- Regional level policy practitioners should be well-aware of the national-level macroeconomic policies and strategies to facilitate the effectiveness of the policies at the regional level.

- The federal government should give attention to untimely and improper interventions, which are creating massive direct and indirect effects on the overall marketing and price of merchandises. For instance, the price ceiling on wheat directly results in wheat black market and drastic *teff* price increments.

- Decisions regarding production and marketing of agricultural products should be made in consultation with regional governments. Regional governments should be advised to produce based on their comparative advantage, '**one-size fit for all'** policies and strategies may turn out ineffective.

- Region-specific policies and structural issues should not be ignored in fighting national macroeconomic problems. Hence, effective policies frameworks that target both national and regional issues must be developed to manage inflation

- To guarantee free movement of merchandises and people, armed conflicts and violence against civilians should get attention from the federal government security offices. The frequent and recurrent outbreak of conflicts should be managed with a coordinated effort of the regional and federal-level peace and security institutions.

- Land and credit policies should be checked to allow interested entrepreneurs to engage in the agriculture.

- Design and implement population policies and strategies that could create productive labour which could sustainably reduce the inflationary effect arising from rapid population growth.

7. REFERENCES

Abdelkreem Y. and Sisay D., 2021. Dynamics of inflation and its impact on economic growth in selected East African Countries: Ethiopia, Sudan and Kenya.

Abebe A., Arega S., Jemal M. and Mebratu L., 2012. Dynamics of Food Price Inflation in Eastern Ethiopia: A Meso-Macro Modeling.

Economist intelligence, 2022. https://country.eiu.com/article.aspx?articleid=552296438

Alemayehu G. and Kibrom T., 2011. The Galloping Inflation in Ethiopia: A Cautionary Tale for Aspiring 'Developmental States' in Africa.

Amir K. and Maritza S., 2020. Determinants of Inflation in Egypt and Mexico: An Empirical Evidence.

Andres Solimano, 1990. Inflation and the Costs of Stabilization. Historical and Recent Experiences and Policy Lessons. The World Bank Research Observer, vol. 5, no. 2 (July), pp. 167-85.

Anh D.M. Nguyen, Jemma Dridi, Filiz D. Unsal and Oral H. Williams, No date. On the Drivers of Inflation in Sub-Saharan Africa.

Armed Conflict Location and Event Data Project (ACLED), 2023. Data Export Tool. https://acleddata.com/data-export-tool/

Asma Mohammed, David Batali, Bitew Genet, Modathir Zaroug, Sospeter Simiyu, 2011. The impact of 2011 drought in east Africa.

Atanafu Gebremeskel, 2020. Inflation Dynamics and Macroeconomic Stability in Ethiopia: Decomposition Approach. Ethiopian Economics Association.

Bedada T.D., Demissie W.M., Wolde E.T., 2020. Determinants of inflationary experience in Ethiopia. *Journal of Economics and Finance Analaysis.* 4(1):15–54.

Berihu Asgele Siyum, 2021. Underlying Causes of Conflict in Ethiopia: Historical, Political, and Institutional? World Conference of Social Science Studies. https://www.dpublication.com/wp-content/uploads/2021/10/N-856.pdf

Carlos C., Marcos P-R., and Darlena T., 2011. Inflation Dynamics in the CEMAC Region.

Central Statistical Agency (CSA), 2013, Population Projection of Ethiopia for all regions at Woreda level from 2014–2017.

Central Statistical Agency (CSA), 2018. Agricultural Sample Survey, Report on Area & Production of Major Crops (Private Peasant Holdings, meher Season), 2017/18).

Claudio B. and Andrew F., 2007. Globalization and Inflation: New Cross-Country Evidence on the Global Determinants of Domestic Inflation. Bank for International Settlements. Monetary and Economic Department. https://www.bis.org/publ/work227.pdf

Daniel Himarios, 1987. Devaluation, Devaluation Expectations and Price Dynamics. Economica. Vol. 54, No. 215 (Aug., 1987), Pp. 299-313. Published By: Wiley

Degye G., Arega S., Lamessa T. and Demirew G., 2022. Inflation and the Ethiopian Economy: Constraints, Derivers, Costs and Policy Options. Book; ISBN 978-99944-54-85-3. Ethiopian Economics Association. https://eea-et.org/wp-content/uploads/2022/12/Inflation-Book-with-Cover.pdf

Demeke H. and Tenaw D., 2021. Sources of recent inflationary pressures and interlinkages between food and non-food prices in Ethiopia. Heliyon. Nov. 13; 7(11): Heliyon. PMID: 34825086; PMCID: PMC8605288.

Dick D. and Bo S., 2012. The Dynamics of Inflation in Ethiopia and Kenya.

Durevall, D., and B. Sjö. 2012. The dynamics of inflation in Ethiopia and Kenya. Working Paper Series No. 151, African Development Bank, Tunis, Tunisia.

Durevall, D., L.J. Loening, and Yohanis A.B., 2013. Inflation dynamics and food prices in Ethiopia. Journal of Development Economics 104: 89–106. https://doi.org/10.1016/j.jdeveco. 2013.05.002

Elisa T., 2011. Can inflation be a good thing for the poor? Evidence from Ethiopia.

Ethiopian Peace Observatory (EOP), 2023. Oromia región. https://epo.acleddata.com/oromia/

Fantu B. and Derek H., 2017. Urban Wage Behaviour and Food Price Inflation in Ethiopia.

Feed the Future, (No Date). Assessment of the crop value chains/market systems final report. For Catholic Relief Service/Ethiopia.

Feldkircher Martin and Siklos L.P., 2019. Global inflation dynamics and inflation expectations.

Friedman M. and Schwartz A.J., 1963. A Monetary History of the United States, 1867-1960, Princeton, the Princeton University Press.

Frode Martin Nordvik, 2021. Inflation news and the poor: The role of ethnic heterogeneity.

Gabriel M.-R. and Fernando T., 2022. External Shocks and Inflationary Pressures in Argentina: A Post-Keynesian-Structuralist Empirical Approach, Review of Political Economy, Vol.34: Issue 4, Pp 789-806, DOI: 10.1080/09538259.2021.1993001.

Geda A., and Tafere K., 2011. Institute of African Economic Studies; 2011. The Galloping Inflation in Ethiopia: A Cautionary Tale for Aspiring 'Developmental States' in Africa. Working paper series No. A01/2011.

Geda A., and Kibrom T., 2008. The galloping inflation in Ethiopia: A cautionary tale for aspiring developmental states in Africa. Department of Economics, AAU.

Geda A., and Taferre K., 2011. The galloping inflation in Ethiopia: A cautionary tale for aspiring 'developmental states' in Africa. IAES Working Paper No. WP-A01-2011.

Gilbert M., 1981. A Sociological Model of Inflation. *Sociology*, *15*(2), 185–209. https://doi.org/10.1177/003803858101500203

Hawi Dadhi, 2022. Hyperinflation in Ethiopia is the product of cascading missteps. https://qz.com/africa/2185006/inflation-in-ethiopia-has-remained-above-25-percent-for-a-year

Haile Kibret Taye, 1999. The Impact of Devaluation on Macroeconomic Performance: The Case of Ethiopia. Journal of Policy Modeling. Volume 21, Issue 4, July 1999, Pages 481-496

Hill R. and Fuje H., 2020. What Is the Impact of Weather Shocks on Prices? Evidence from Ethiopia, Policy research working paper, World Bank.

Huayi Yu and Yanfen Huang, 2016. Regional heterogeneity and the trans-regional interaction of housing prices and inflation. Urban Studies. Vol. 53, No. 16 (DECEMBER 2016), Pp. 3472-3492. Published By: Sage Publications, Ltd.

Jalil Totonchi, 2011. Macroeconomic Theories of Inflation. *International Conference on Economics and Finance Research IPEDR vol.4. IACSIT Press, Singapore.*

Jalil Totonchi, 2011. Macroeconomic Theories of Inflation. International Conference on Economics and Finance Research IPEDR vol.4. 2011. IACSIT Press, Singapore.

Jema H. and Fekadu G., 2012. Determinants of the recent soaring food inflation in Ethiopia.

Jeni K. and Josef L., 2007.Welfare Impacts of Food Price Inflation in Ethiopia.

John U., Sindu W. and Zelekawork P., 2009. Impact of Soaring Food Price in Ethiopia, Does Location Matter.

Jonse Bane, 2018. Dynamics and Determinants of Inflation in Ethiopia.

Josef L. and Gbemisola O., 2008. Approximating Rural and Urban Welfare Impacts of Food Price Inflation in Ethiopia.

Josef L.L., Dick D., and Yohannes A.B., 2009. Inflation Dynamics and Food Prices in an Agricultural Economy: The Case of Ethiopia.

Kalle H., Yetmwork H., Belay M., Seneshaw T., Gashaw T.A., and Bart M., 2021. Dairy value chains during the COVID-19 pandemic in Ethiopia: Evidence from cascading value chain surveys before and during the pandemic, IDPRI, Working paper 160.

Ndikumana, L.; Nkurunziza, J.D.; Sanchez M., Miguel E.; Samuel M.; and Zerihun G.K., 2021. Monetary, Fiscal, and Structural Drivers of Inflation in Ethiopia: New Empirical Evidence from Time Series Analysis. Policy Research Working Paper; No. 9881. World Bank, Washington, DC. World Bank. https://openknowledge.worldbank.org/handle/10986/36739

Liu Yuanchun *et al*. 2015. Managing inflation China: current trends and new strategies, vol 1. Published by Enrich Professional Publishing, Inc.

Maximilien Q., Romain L., and Kubi J., 2022. Inflation-at-Risk in the Middle East and Central Asia.

McCallum B.T., 1987. Inflation: Theory and Evidence, New York, The American National Bureau of Economic Research, Working Paper No. 2312, 1987.

Michael G. and Chorching G., 2012. Ethiopia Economic Update: Overcoming Inflation, Raising Competitiveness.

Minten B., Y. Habte, S. Tamru, and Tesfaye A., 2020. *The transforming dairy sector in Ethiopia.* PLOSONE. August, 2020. 15(8). https://doi.org/10.1371/journal.pone.0237456

Montiel P.J., 1989. Empirical Analysis of High-Inflation Episodes in Argentina and Brazil", Washington. D. C, International Monetary Fund (IMF), Staff Papers, 36 (3), Pp 527–549.

Nasr G.E. and Michael A.E. 2021. Inflation and the Structure of Economic and Political Systems.

National Bank of Ethiopia report, 2009/10. Annual performance report of the country.

Robert J.G., 2020. The Role of Wages in the Inflation Process; The American Economic Review, Vol. 78, No. 2. https://cpbuse1.wpmucdn.com/sites.northwestern.edu/dist/6/5500/files/2021/04/88WageInflation.pdf

Samari Bagouri, 2021. The Extensive Cost: How the war in Tigray is impacting Ethiopia's economy? https://futureuae.com/en/Mainpage/Item/6933/the-extensive-cost-how-the-war-in-tigray-is-impacting-ethiopias-economy

Samuel Elias Kayamo., 2021. Asymmetric impact of real exchange rate on inflation in Ethiopia: a non-linear ARDL approach.

Sargent T.J. and Wallace N., 1981. Some Unpleasant Monetarist Arithmetic", Minneapolis, Federal Reserve Bank of Minneapolis, Journal of Quarterly Review 5, Pp 1-17.

Seneshaw T., Tewodros M.G., Kathie K., Alemayehu S.T., and Christopher A., 2022. Inflation in Ethiopia: Supply-side drivers. IGC, Policy brief.

Seneshaw Tamru, Tewodros Makonnen Gebrewolde, Kathie Krumm, Alemayehu Seyoum Taffesse, Christopher Adam, 2022. Inflation in Ethiopia: Supply-side drivers. IGC, Policy brief.

Simeon Coleman, 2012. Where Does the Axe Fall? Inflation Dynamics and Poverty Rates: Regional and Sectoral Evidence for Ghana.

Sims, C.A., 1980. A Comparison of Interwar and Postwar Business Cycles: Monetarism Reconsidered, Amsterdam, Elsevier Science, and Journal of Economic Review, Annual Papers and Proceedings 70, P 250-257.

Solimano Andres, 1989. Inflation and the Costs of Stabilization: Country Experiences, Conceptual Issues, and Policy Lessons. PPR Working Paper 226. World Bank; Policy, Research, and External Affairs Staff; Washington, D.C.

Sargent T.J. and Wallace N., 1981. Some Unpleasant Monetarist Arithmetic", Minneapolis, Federal Reserve Bank of Minneapolis, Journal of Quarterly Review 5, PP 1-17.

Tafesse, A.S., Adam, C., Krumm, K., Beyene, S.T., Gebrewolde, T.M., 2021. Inflation in Ethiopia: Supply Side Drivers. IGC.

UNICEF-Ethiopia, 2023. Highlights of the 2022/23 Federal Government Budget Proclamation. UNICEF.

United States Department of Agriculture (USDA), 2022. Food Inflation Stands High in Ethiopia despite Policy Measures to Stabilize Prices. USDA.

Wilson T., 1976. Effective Devaluation and Inflation. Oxford Economic Papers. Vol. 28, No. 1. pp. 1-24 (24 pages). Oxford University Press.

Woldie, G. A., and K. Siddig. 2019. Macroeconomic and distributional impacts of exchange rate devaluation in Ethiopia: A computable general equilibrium approach. Heliyon 5 (12).

World Food Program, 2022. Ethiopia, Market Watch. WFP.

World Food Program, 2023. More Than a Decade of Drought: Impacts and lessons learned across the Eastern Horn of Africa 2011—2022. WFP.

Yihan Liu and Niklas Westelius, 2017. The Impact of Demographics on Productivity and Inflation in Japan. Journal of International Commerce, Economics and Policy. Vol. 8, No. 2 (2017). DOI: 10.1142/S1793993317500089

Yonas Alem and Måns Söderbom, 2010. Household-Level Consumption in Urban Ethiopia: The effects of a large food price shock.

Yonas Alem, 2011. The impact of food price inflation on consumer welfare in urban Ethiopia: A quadratic almost ideal demand system approach.

Yongwei Chen, Tao Li, Yupeng Shi, and Yilun Zhou, 2014. Welfare Costs of Inflation: Evidence from China.

Yoon Y-W., Kim J. and Lee J., 2014. Impact of Demographic Changes on Inflation and the Macroeconomy. IMF Working Paper No. 14/210. Washington D.C.: International Monetary Fund.