



## The drivers of inflation in Ethiopia: Systematic review and meta-analysis

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### Abstract

Inflation is defined as a rise in the overall price level of a basket of goods and services that represents an economy over time. The primary purpose of this article review is to identify the drivers of inflation in Ethiopia based on prior empirical studies and to provide information to other academics. In this study we used systematic review and meta-analysis. The analysis took into account economic growth, exchange rate, money supply, the price of imported goods and services, price expectation, interest rate, and population increase. The findings demonstrate that national income, wide money supply, import prices for goods and services, and the exchange rate are the most important factors driving inflation performance. Finally, the study suggests that countries focus on achieving moderate inflation to build their economies by boosting national income, as well as maintaining stable fiscal and monetary policies and that focusing on the aforementioned variables is vital.

**Keywords:** inflation, drivers, review, Ethiopia

### Introduction

Inflation is the general rising price movement of goods and services in an economy. The consumer price index (CPI), which is primarily used to gauge inflation in Ethiopia, is calculated by the central Statistical Authority. We multiply that number by 100 because inflation is measured as a percentage. Inflation has a negative impact on those with lower incomes, due to its role in income distribution and currency purchasing power with the poor. Its negative impact is multiplied, particularly on low-income households, as a result of their poorer purchasing power. Keynes argued that money could have a real effect on economies where resources are not fully employed (Alemu and Wassie, 2016; HAILE, 2016, 2020; Hoover, 2012; Melaku, 2020) [2, 7, 9].

One of the most basic measures of macroeconomic stability is inflation. It is a measure of the government's ability to control the economy. Inflationary pressures are a sign that a country's monetary authority isn't operating effectively. Theoretically, the determinants of inflation can be categorized into two broad parts (Ambachew *et al.*, 2012; Hoover, 2012; Youse and Debebe, 2021) [3, 9, 16]. Ethiopia's inflation has significantly increased since the middle of 2004. Sharp increases in inflation could reduce economic growth and exacerbate poverty levels. The main source of short-run inflation in Ethiopia is an increase in money supply, which accounts for 40% of the total (Durevall *et al.*, 2013) [5].

Understanding the current state of inflation and the factors that influence it is critical for achieving sustainable development goals. Various researchers have been undertaken to date in order to determine the determinants of inflation. As a result, the primary goal of this systematic review is to look into the major factors that influence inflation in Ethiopia. This analysis may be useful in providing important information regarding policy possibilities for bodies such as governments, policymakers, and other organizations involved in the production and distribution of products and services.

### Literature Review

A few studies have arisen in response to Ethiopia's food price problem, based mostly on logical inferences and descriptive analyses. Then we go over the most crucial ones. A number of ideas have been offered by the Ethiopian Development Research Institute, a government think tank, and are summarized here. Increases in aggregate demand should, by definition, put downward pressure on food demand, causing food inflation to accelerate. The conundrum, though, is that agriculture has been fueling the economy's rapid expansion, with agricultural production increasing dramatically over time. This appears to cast doubt on aggregate demand's role in explaining Ethiopia's recent food inflation (Ahmed, 2007; Haji and Gelaw, 2012; Youse and Debebe, 2021) [1, 16]. Price increases may be explained more effectively by changes in the economy's structure as a result of persistent infrastructure development. Behavioral changes such as the increased commercialization of crop production and reduced distress selling by peasants with better access to credit, storage facilities, and marketing information systems might have a considerable impact on aggregate demand and prices. (Ahmed, 2007) [1] Also lists various other domestic and external factors, including money supply and world commodity prices. In addition, urban housing shortages and speculation have influenced inflation, with a lack of regulation possibly contributing to the rise in housing prices, notably in Addis Ababa. The International Monetary Fund (Demeke and Tenaw, 2021; Loening *et al.*, 2009) [4, 13] suggests that inflation is being led by rapidly rising food prices. However, because Ethiopia's inflation is higher than that of its neighbors, internal factors such as demand pressure and expectations should be considered. Some supply-side variables, such as reduced distress selling by farmers and the shift from food to cash aid, may also explain a portion of the rise in food costs. As a result, the Fund advises correcting macroeconomic imbalances and enforcing monetary and fiscal policies. Although rising global commodity prices may be crucial, the transmission mechanism is unclear due

to the tiny amount of non-aid food imports (Loening *et al.*, 2009)<sup>[13]</sup>.

Though there is little empirical evidence, there may be a process of convergence to world food prices caused by high food costs in surrounding nations. (Rashid, 2010)<sup>[15]</sup>. Also, except in 2007–2008, when cereal production was substantially lower than represented by official figures, contends that domestic food price increases were the result of popular demand. Excess money supply, in turn, drove general demand, and rigorous monetary policy brought inflation under control in 2008–2009.

Between 2015 and 2019, Ethiopia's average annual inflation rate was 11.3 percent, compared to 3.4 percent and 4.4 percent for low-middle-income countries and Sub-Saharan Africa, respectively. Inflation was also 14 percent on average in 2018 and 2019. In a country where a quarter of the population lives in poverty, double-digit inflation puts huge pressure on people's livelihoods, particularly for wage employees and the retired, whose income barely keeps up with inflation rates. Inflation also raises the real exchange rate, making exports less competitive. In recent years, high inflation has remained a key source of concern (Ketema and Diriba, 2021)<sup>[11]</sup>.

According to (Kahssay, 2017)<sup>[10]</sup> the study reveals that in the long run broad money supply and gross domestic product are contribute to the rising consumer price index while the consumer price index is bound to decrease due to higher imports and gross national saving. Credit facility and exports are found to be insignificant. In the short run, the coefficient of error correction term is -2.26 suggesting a 26 percent annual adjustment towards long-run equilibrium. Broad money supply has a more positive effect on inflation than economic growth (GDP) and GNS in the short run. The broad money supply coefficient is 0.60, implying that a one-percentage-point increase in broad money supply results in a 0.60-percentage-point increase in inflation. The economic growth (GDP) coefficient, on the other hand, is 0.46 and the GNS coefficient is -0.90, implying that a one percent increase in broad money supply causes a 0.46 percent increase and a 0.90 percent decrease in inflation.

The credit facility, exports, and imports are found to be insignificant in the short-run in explaining inflation in the country. Based on the findings of the study, it can be concluded that inflation in Ethiopia is determined by demand-side factors as well as supply-side factors but the gross domestic product and money supply are critical. As shown in (Melaku, 2020)<sup>[14]</sup> real exchange rate, government expenditure, and real GDP per capita are the variables that affect inflation in the short run, significantly. Accordingly, a unitary increase in the exchange rate of Birr per US dollar leads to a 0.099 rise in inflation. This inflation could have been induced by a decrease in the purchasing power of the Birr as a result of its depreciation versus the dollar. Furthermore, in the short run, an increase in government spending induces a 0.393 increase in inflation per unitary increase in government spending. This could have been triggered by demand-pull inflation generated by the government pumping money into the economy.

Furthermore, as a government's spending increases, it momentarily boosts general demand and economic growth. If, on the other hand, demand rises faster than an economy's capacity to meet it, the consequent strain on resources leads to "demand-pull" inflation. Policymakers must strike the correct balance between increasing GDP when it is needed

while avoiding overstimulation and inflation. The other short-run element that impacts inflation is real gross domestic product per capita. Accordingly, each additional Birr rise in real GDP causes inflation to decline by 0.30. The rise in real output reduces the demand-pull inflation and this might be the cause behind this negative effect.

A systematic review was done to gather all of the necessary material on the topic of the research. In terms of sampling, random sampling was utilized to increase the sample's representativeness. The relevance of the issue and the geographical area of study were used as selection factors. The dependent and independent variables for this analysis were gathered from seventeen (17) Ethiopian studies. The review focuses primarily on the factors that influence long-run inflation. Indeed, the vast majority of these are also variables that cause short-term inflation.

## Methods

In this study, we used systematic review and meta-analysis to identify major drivers of inflation in Ethiopia.

## Discussion of the Drivers of Inflation in Ethiopia

This topic discusses some of the common characteristics of works of literature in terms of country, data type, time periods studied, and analysis methodologies. According to the study's findings, all studies were done in Ethiopia between 2007 and 2021. As a result, they supply us with information about Ethiopia's recent inflationary trends. For their analyses, all of the research used time-series data and a suitable econometric model.

Inflation can have a negative impact on growth since it can be viewed as a tax on investment. As a result, it might raise the profitability required to execute an investment project while also lowering the real interest rate relevant to saving. High inflation may cause firms and households to devote more resources to transaction and cash management rather than to the production of goods and innovation, i.e., overall inflation provides an incentive for firms and households to devote more resources to activities that are not engines of long-term growth. Inflation causes distortion that affects the search intensity of individual and monopoly power of firms and increases uncertainty, which affects adversely the public's ability to make their best decision uncertainly about macroeconomic policy increases with inflation (Ahmed, 2007; Alemu and Wassie, 2016; HAILE, 2016; Loening *et al.*, 2009; Melaku, 2020; Youse and Debebe, 2021)<sup>[1, 6, 2, 14, 16]</sup>.

Let's talk about the effects of changing the independent variables on the dependent variable now (inflation). One of the most important factors influencing inflation is GDP. Inflation is influenced by real GDP and economic growth (GDP) or real income. Because the supply of products and services increases with an increase in GDP, the rate of inflation decreases. As the supply of goods and services increase price level will decrease (Ahmed, 2007; Ketema and Diriba, 2021; Loening *et al.*, 2009)<sup>[1, 11, 13]</sup>.

Economic growth (GDP) is, on the other hand, discovered to be linked to inflation. It's possible that this beneficial association is attributable to the country's economic status. To assist the economy's ability to grow quickly enough, the central bank reduces interest rates, making borrowing more appealing. The logic is that it will boost spending, resulting in an increase in GDP. The disadvantage of this strategy is that it will lead to inflation (Ambachew *et al.*, 2012; Durevall *et al.*, 2013; Melaku, 2020)<sup>[3, 5, 14]</sup>.

The rise in money supply in the economy was supposed to result in a rise in inflation increases in the money supply lead to an increase in the aggregate demand. The explanatory variable was statistically significant in influencing inflation in Africa as variation in money supply is a major factor responsible for inflation at any given point in time since there would not be a corresponding increase in the available goods and services. It is found that due to a higher money supply, more funds will be available to invest in the economy, the investment will take place, more employment will be generated, aggregate demand will increase, and finally, there will be an increase in inflation in the economy. It affects price level through the demand side (Ahmed, 2007; Durevall *et al.*, 2013; Kahssay, 2017; Melaku, 2020) <sup>[1, 5, 10, 14]</sup>.

In the study, the price of imported goods and services was found to have a considerable positive impact on inflation. They said that raising the cost of imported products and services would raise inflation in the economy. That is, as the price of imported products and services rises, so does the demand for domestic goods and services, resulting in an increase in inflation (HAILE, 2016; Kahssay, 2017; Krugman *et al.*, 2009; Melaku, 2020) <sup>[6, 10, 12, 14]</sup>. The interest rate has a positive impact on inflation; an increase in the interest rate raises the cost of production, reducing the availability of items on the market. A limited supply of commodities had to compete with the available money, which may result in a price increase (Loening *et al.*, 2009) <sup>[13]</sup>. Interest rates, on the other hand, have a negative impact on inflation because as interest rates rise, demand for money falls, and consumers choose to store more money in the bank rather than circulate it (Hoover, 2012) <sup>[9]</sup>.

As a result, lowering the interest rate will lower inflation. Inflation grew substantially when the exchange rate climbed. Imports grew more expensive as the currency devalued. In terms of finished goods and services, as the currency devalues, the supply of foreign items in that country decreases due to their high cost. In addition to this, demand for foreign goods and services will shift to home goods and services, resulting in inflation. Raw materials imported from outside to produce domestic goods and services, on the other hand, become more expensive as a result of depreciation, raising the cost of production.

Price expectations and population growth are two more factors that have a substantial impact on inflation. People's price expectations are that prices will rise in the future and that demand will be high, resulting in a price increase. As the population grows, so does the demand for products and services, and as a result, prices will rise. However, it has been discovered that as population growth increases, more and more productive people will be generated, resulting in a lack of goods and services and, as the same time, no price increase (Alemu and Wassie, 2016; Durevall *et al.*, 2013; Youse and Debebe, 2021) <sup>[2, 5, 16]</sup>.

### Conclusion and Recommendation

Increased economic growth almost always leads to lower inflation, resulting in moderate inflation. As a result, Ethiopia's key objective should be to increase GDP. However, the impact of fiscal and monetary policy instruments should be taken into account when doing so. The money supply plays an important role in this analysis. Because the bulk of the population in these types of developing countries are poor, and as the money supply

increases, so will their need for money, the combined impact will be a rising price level for these types of developing countries.

The impact of the interest rate is also influenced by the type of other elements. For example, if the central bank lowers interest rates to encourage investment and expenditure in order to boost GDP, the immediate result will be higher prices. In terms of the impact of imported products prices, Ethiopia should expand manufacturing sectors in order to boost exports and keep inflation at a manageable level. Because Ethiopia is known for buying completed goods from other countries and has a trade imbalance, this is the case. The level of inflation is affected by the trade deficit. As a result, they could aim to achieve a trade balance in order to start reducing inflation. If all of the above variables are to blame for Ethiopia's inflation, the first step should be to change these economic factors to achieve moderate or balanced inflation, which will help to support the economy. The causes of inflation in most emerging countries, however, go beyond this. In addition to these considerations, I urge that other researcher look into other factors that influence inflation. Many economic agents will borrow and inject large sums of money into the system if the interest rate falls, which may generate inflation, however, this is not the case. On the one hand, the central bank has remained silent on whether or not new money will be circulating in the economy. The probability of inflation is modest even if the national bank causes this additional money without being aware of agents.

Finally, in both the public and private sectors, there is no overall salary increase. Government employees are claiming that they are unable to make ends meet due to rising prices. Even if wages rise, the inflationary rate may be higher on certain commodities. The cost of basic things may go down. The government has been unable to alter the value of money in any way. In addition, there has been no change in taxation legislation. The majority of us may feel that the price increase is due to growing demand and supply constraints. Consumption products, on the other hand, are rarely in low supply.

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### Author's Contribution

TD author contributed to the articles searching and writing full article review. Author read and approved the final manuscript for publication.

### References

1. Ahmed H. Structural analysis of price drivers in Ethiopia. Addis Ababa: Ethiopian Development Research Institute. Processed, 2007.
2. Alemu M, Wassie Y. Monetary policy and inflation dynamics in ethiopia: an empirical analysis. Global Journal of Human-Social Science:(E) Economics,2016:16:45-60.
3. Ambachew A, Shumetie A, Mohammed J, Leake M. Dynamics of food price inflation in Eastern Ethiopia: A meso-macro modeling. Ethiopian Journal of Economics,2012:21:1-32.

4. Demeke H, Tenaw D. Sources of recent inflationary pressures and interlinkages between food and non-food prices in Ethiopia. *Heliyon*, e08375, 2021.
5. Durevall D, Loening JL, Birru YA. Inflation dynamics and food prices in Ethiopia. *Journal of development economics*,2013;104:89-106.
6. Haile MA. Monetary policy and inflation dynamics in Ethiopia, Jimma University, 2016.
7. Haile MA. The Puzzle of Unemployment and Inflation: A Causality Analysis to Ethiopia. *Journal of International Trade, Logistics and Law*,2020;6:29-32.
8. Haji J, Gelaw F. Determinants of the recent soaring food inflation in Ethiopia. *Universal Journal of Education and General Studies*,2012;1:225-33.
9. Hoover KD. "Applied intermediate macroeconomics," Cambridge University Press, 2012.
10. Kahssay T. Determinants of inflation in Ethiopia: A time-series analysis. *Journal of Economics and Sustainable Development*,2017;8:1-6.
11. Ketema M, Diriba G. State of the Ethiopian Economy 2020/21: Economic Development. Population Dynamics, and Welfare, 2021.
12. Krugman P, Krugman PR, Wells R. "Macroeconomics," Macmillan, 2009.
13. Loening JL, Durevall D, Birru YA. Inflation dynamics and food prices in an agricultural economy: The case of Ethiopia. *World Bank Policy Research Working Paper*, 2009.
14. Melaku M. Determinants of Inflation in Ethiopia. *Academic Journal of Research and Scientific Publishing*, 2, 2020.
15. Rashid S. Staple Food Prices in Ethiopia. Prepared for the COMESA policy seminar on "Variation in staple food prices: Causes, consequence, and policy options", 25-26 January 2010 under the African Agricultural Mar. *Maputo, Mozambique*, 2010.
16. Youse A, Debebe S. Dynamics of inflation and its impact on economic growth in selected East African Countries: Ethiopia, Sudan and Kenya. *Journal of African Studies and Development*,2021;13:1-8.