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Yetmgeta Girma Tsegay (Author) *TradeMark Africa*	**Current Trends of Inflation in Ethiopia: The case of food prices.**

Abstract

One of the prime objectives of macroeconomic policy both in developed and developing countries are to achieve economic stability and ensure sustainable economic growth simultaneously with price stability. Ethiopia has experienced a historically unprecedented increase in inflation, mainly driven by cereal price inflation, which is among the highest in Sub-Saharan Africa. This study, therefore, seeks to identify the current rate, causes and impacts of high rates of inflation in the country by giving particular emphasis on food prices. As high and persistent inflation poses uncertainties in the economy and lead to slowdown of economic growth by discouraging domestic as well as foreign investment most importantly affecting the consumption pattern and saving by reducing real income. Thus, factors contributing for this inflationary pressure should be properly identified and needs to be tackled. In order to achieve these research objectives, inflation related data from Ethiopian statistical authority and other credible sources were collected and analysed. The finding of the study indicated that the purchasing power of Ethiopian Birr1 deteriorated dramatically in the past three decades and identified key historical occurrences that contributed for this deterioration. Moreover, the study recommended to adopt various monetary and fiscal policy instruments to tackle the impacts of inflation.

Keywords: Inflation trends, Tigray war and inflation, consumer price index in Ethiopia, purchasing power of Birr.

1. Background and rationale of the study

Ethiopia is the second-most populous country in Africa, after Nigeria, with an estimated population of over 109 million inhabitants in 2020 (WB[2], 2020). Of which, roughly 80 percent live in rural areas and derive their income primarily from agriculture-based activities, and the remaining residing in urban areas (CSA[3], 2013). Despite the fact that Ethiopia is one of the poorest nations in the world, its economic growth has been accelerated at an unprecedented pace in the most recent decade.

Inflation measures a rise in the overall price level of goods and services in a given economy. It is a decline of purchasing power of a given currency (Ethiopian Birr in this case). A quantitative estimate of the rate at which the decline in purchasing power occurs can be revealed in the increment of an average price level of a basket of selected goods and services in the country during the study period. Individuals with tangible assets such as property and stocked commodities may like to see some inflation as that raise the value of their asset. But those holding cash may not like inflation, as it erodes the value of their cash (Adugna, 2021).

In Economic science, there are various price indexes which are used to measure inflation. The Consumer Price Index (CPI)[4] has been used throughout this research paper to measure inflation. The CPI measures the cost of buying a fixed basket of goods and services representative of the purchase of consumers. Inflation is measured by measuring the percentage change in the prices of a given basket goods over time as compared to the price in the base year: In Ethiopia the central Statistical Authority computes the CPI. The authority makes household expenditure survey every five years.

Through meticulously observing the likely adverse impacts of high inflation on the Ethiopian economy, the author has taken the initiative to conducted this study. The study basically aims at identifying the current rate, causes and impacts of high rates of inflation in the country by giving particular emphasis on food prices.

2. Approach and Methodology

The study was conducted based on both primary and secondary data. The primary data was collected through in- depth interviews using structured and unstructured questionnaires. The secondary data was obtained through a review of reports produced by relevant bodies including government authorities, non-government actors, and business communities. The information gathered from various primary and secondary sources was organized, analysed, and presented using a variety of qualitative and quantitative data analysis tools and techniques. Excel software applications were used to produce tables, graphs and charts, as well as different computations such as percentages, ratios and cross-tabulations.

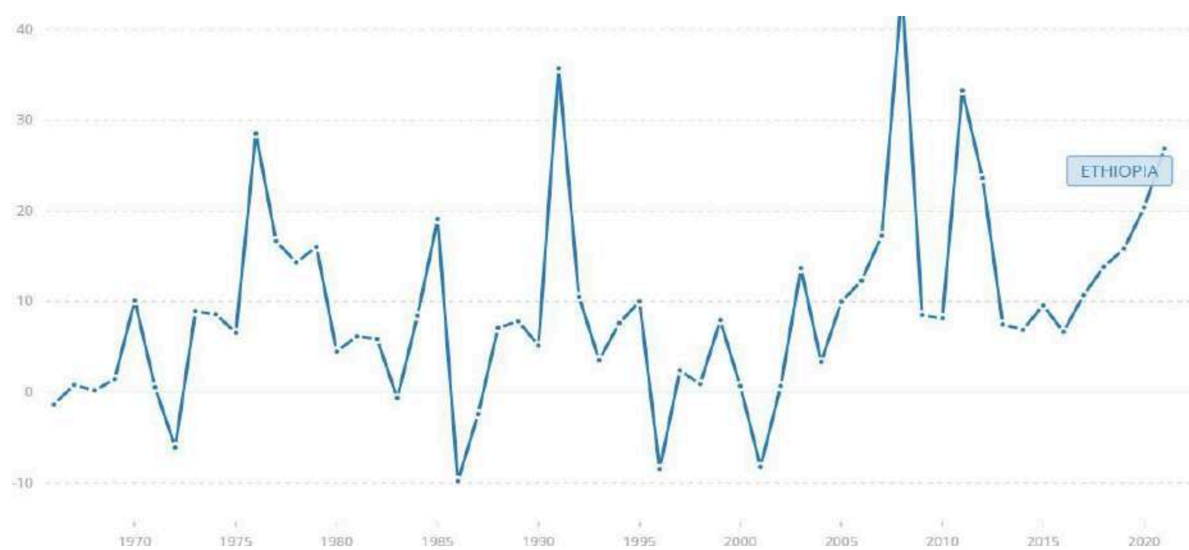
3. Trends of Inflation in Ethiopia.

Historically between the period 1974 to 1991, Ethiopia was ruled by the *Derg*[5] military junta, this is also the period where there is a recorded inflation data in Ethiopia. According to (Menji, 2008) Inflation during the communist regime was low due to various reasons. During the Derg's regime the price control by the government has kept prices stable. The government was also rationing goods at fixed prices to the public which in turn has contributed to the lower inflation attained during the Derg regime. In addition the lower and pegged exchange rate has also helped to lower the impact of international price hikes on Ethiopia. The annual average inflation was 5.2 percent between 1980-2002. Undoubtedly, this state-led economic policy had negative consequences. It stagnated the growth of the economy by hindering innovation, efficiency, and participation of the private sector in the economy.

Persuent to the above historical review of inflation in Ethiopia, (Gebremeskel, 2020) states that the statistics of the previous two decades showed significant economic growth accompanied by low inflation to the mid-2000s; but from 2005, the growth process was accompanied by inflationary pressure. Inflation persisted to the extent that real interest rates fell within negative territory. The official inflation records were 2.5% up to 2004 and 15.1% thereafter. While it was envisaged for 11.1% economic growth, the performance achieved was 10.9%. The regional distribution of inflation shows that Dire-Dawa city reached the highest level, 37.1%, followed by Harari and Addis Ababa with 32.3% and 28.6%, respectively. Despite overall economic growth, inflationary pressure affected the great majority of the population forming inflation growth dilemma which has severe implications for the welfare of wage earners on the minimum wage, and pensioners on fixed incomes which are not subject to wage or income indexation in the context of Ethiopia.

Generally, the highest inflation rate in Ethiopia was recorded during the fiscal year of 2007/2008[6] in which the rate climbed to 64.20% in July of 2008 while the food inflation recorded was 49 % in August 2008.The fiscal year 2007/2008 is a very crucial year in Ethiopia's inflation history. It is the year when Ethiopians globally celebrated the transition to Ethiopian third millennium, according to the Ethiopian calendar. Moreover, in 2008, Ethiopia had the highest rate of month-on-month food inflation rate in the developing world, at 3.5% per month. Most of this inflation is driven by higher staple food prices, such as maize, wheat and teff (Headey et al, 2012).

The following graphical presentation of Ethiopia's inflation trend was adopted from World Bank's inflation data for Ethiopia.



Source: (WB, inflation consumer prices (annual %) Data- Ethiopia)

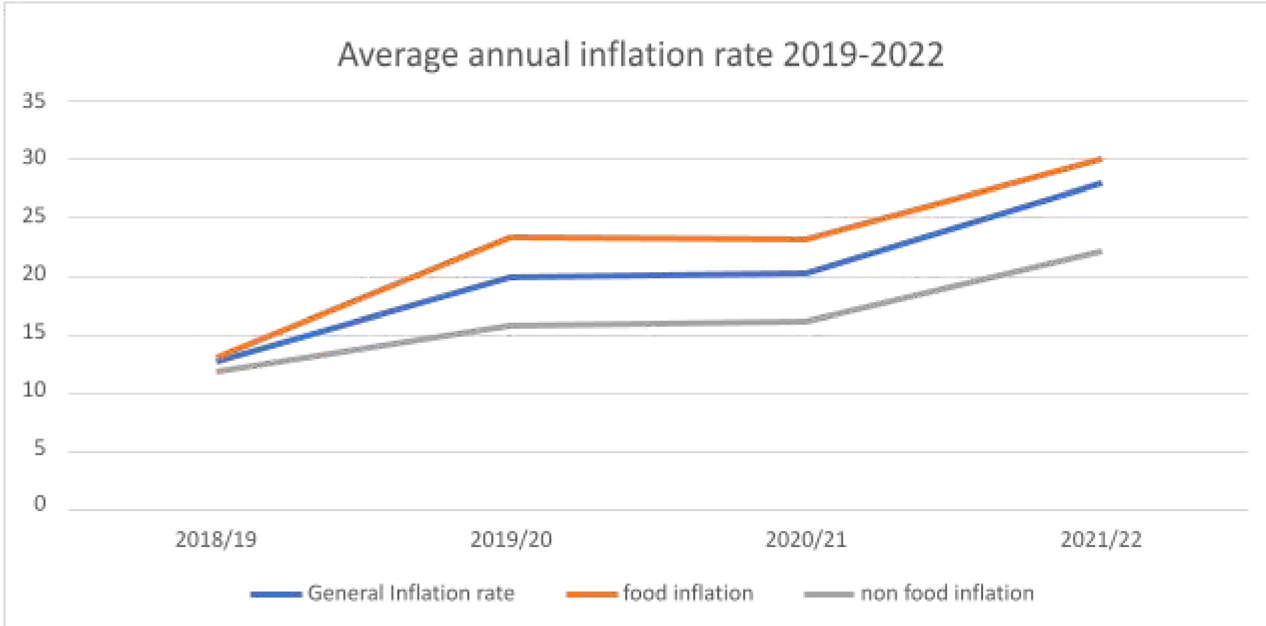
As can be seen above, country-level inflation rate reached above 50% in 2007/8, with the highest rate in the same year and the lowest before (1970). The economic impact of this high rate of inflation post 2000s in Ethiopia has been immense across the country. For instance, it disproportionately impacted the low-income households, raises cost of living, and raises Interest rates.

4. Current trends of inflation (2020-2023)

One of the notable influences in the analysis of trends of inflation in recent years in Ethiopia is the *Tigray war*. The Tigray War was an armed conflict that lasted from 3 November 2020 to 3 November 2022. The war was primarily fought in the Tigray Region of Ethiopia between the Ethiopian federal government and Eritrea on one side, and the Tigray People's Liberation Front (TPLF) on the other. This 2-year civil war has killed thousands of people and seriously aggravated the country's already disastrous humanitarian situation and highly impacted the countries infant economy.

From the findings of a study conducted by (CIPE[7], 2023) the war has not only impacted the economies of the Afar, Amhara, and Tigray regions but the economy of the overall country at both the macro and micro levels. The war in northern Ethiopia greatly affected the macroeconomic performance of the country and contributed to a decline in GDP growth, the expansion of the fiscal deficit, and a considerable increase in the price of food items. Additionally, the war has affected multiple dimensions of the businesses of MSMEs[8] and marginal economic actors. This has manifested through the destruction of assets, shortage of inputs, and market inaccessibility. Additional challenges identified by marginal economic actors include the blocking of banking and telecom services, lack of transportation, and the spread of disinformation during the war.

The following graphical illustration depicts the trend of inflation in Ethiopia from the fiscal year 2018/19 to 2021/22. The data was collected from the reports of the National Bank of Ethiopia (NBE) and Central Statistical Agency (CSA).



Source: National Bank of Ethiopia (NBE) 2020,2021 and 2022 reports.

As can be seen above, Headline inflation was 12.6 percent in 2018/19, food inflation on the same year was on
13.1 percent and non-food inflation was 11.9 Percent, one can see from these data that the inflation rates during the 2019 and before were high but was in a range of manageable magnitude. However write after the commencement of the Tigray conflict all the three indicators showed an alarming trajectory increment.

The persistent inflationary pressure from November 2020, in addition to the war is driven by a range of factors including the mismatch between aggregate supply and demand, the political and unrest in several parts of the country, the high commodity prices in the global market, and the loose monetary and fiscal policies. After remaining at more than 20 percent for the year 2020/21 food inflation alarmingly increased to 30.01 percent in the 2021/22 fiscal year.

5. Conclusion and Recommendation

Evidence from NBE, WB and CSA sources show that since the beginning of the 2000s Ethiopian economic growth has been accompanied by inflationary pressure. Currently, in Ethiopia Inflation is one of the major macroeconomic challenges. In addition, unemployment, slow economic growth, debt burden, balance of payment deficits, steady depreciation of the national currency, and low foreign exchange reserves are among the top challenges restraining the economy. In 2020 and 2021, increased government spending related to the Tigray war, agricultural production contractions, and supply chain disruptions induced by the COVID-19 pandemic have further aggravated the mounting inflation levels in the country. Moreover inflation in the country is showing alarming increment in the past 2/3 decades.
Based on the findings of the study, the author recommends the following measures may help in reducing inflation in Ethiopia.

- **Tight Monetary Policy:** A tightening of monetary policy is necessary for a reduction of the inflation rate. Since it would be difficult to realize sufficient reduction of inflation only by monetary policy, without impacting on economic growth, a reduction of inflation inertia through removal of structural factors is needed.

- **Identifying and regularly monitoring key inflationary commodities:** The commodities whose inflationary pressure can potentially or permanently perpetuate inflation should be identified regularly and the results used for inflation forecasts. This would help the monetary authority (the NBE) to effectively identify the causes of price changes. These commodities include Fuel, Fertilizer, and food stuffs like *Teff*[9] and wheat.

- **Effective management of public expenditures:** The government has to cut its public expenditure to reduce its budget deficit. The huge budget deficit that the country is facing is pushing NBE to print more money and inject in to the economy. This measure has to be managed effectively.

- **Promote the culture of national savings:** Since the gross national saving plays a critical role in reducing inflation especially in the short run, the government has to take various measures including increasing interest rates to increase the public saving while encouraging business firms and households to rise the private saving. This policy direction not only will lessen the rate of inflation but also will provide potential investors with adequate investible funds.

- **Ensuring political dialogue and democratic administration:** as presented in the previous sections, the Tigray war resulted in massive political and economic deterioration in the country, by taking lessons from this horrible occurrence the government and political actors in the country need to settle their political differences in a civilized and democratic manner, other than settling disputes with an armed conflicts.

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A Comparative Analysis of Financial Inclusion Between North Africa and Sub-Saharan Africa

Abstract

Many governments particularly in the developing world have acknowledged the importance of financial inclusion over the past twenty years. Arguably, the African continent seems to have been left behind. However, the continent has begun to make up for the lost ground, with statistics indicating that over three-quarters of Africans own a mobile phone with an internet connection used for mobile payments and e-commerce, among other things. This study seeks to compare the levels of financial inclusion between North and Sub-Saharan African countries. The study used the 2021 Global Financial Index data collected by the World Bank for its report on financial inclusion across the globe. Binary Logistic Regression that incorporated Chi-Square tests and Cross-Tabulations was used to analyse data. The results show that overall, Sub-Saharan Africa is more financially included, favoured by a much higher percentage of mobile money accounts. The study implies that North African countries should embrace the cheap to maintain mobile money to raise the level of their populations' financial inclusion. The originality of this study is that it compares financial inclusion between two regions that are not often compared since North Africa is habitually linked to the Middle East and left out of many research topics on Africa despite being physically present on the continent.

Keywords: African continent; internet connection; mobile money; mobile phone; World Bank

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Supply chain management practices and municipal performance in South Africa. The mediating effect of delivery service excellence.

Abstract

This paper analyses the effect of supply chain management practices on municipal performance in South Africa and explores the mediating role that service delivery excellence plays within the variables' relationships. This study uses data collected through a questionnaire survey distributed to Supply chain management professionals, managers and municipal workers in municipalities from KZN and Eastern Cape provinces in South Africa. The study employed a quantitative approach design on a sample of 293 respondents. Hypotheses were tested using the structural equation modelling (SEM). The results show all supply chain management practices have a positive influence on service delivery excellence. The results also indicate that service delivery excellence has a positive significant relationship with all the three municipal performance dimensions. Furthermore, service delivery excellence acts as a mediator of the relationship between supply chain management practices and municipal performance. This study makes several original contributions to research on supply chain management practices in municipal performance and provides valuable understandings for managers and supply chain management professionals. First, it addresses the call to implement supply chain management practices in municipalities. Second, it augments the literature by examining the relationships between supply chain management practices and municipal performance. Lastly, it explains the mediating effect of service delivery excellence in making decisions and implementing supply chain management practices to achieve better local economy development, financial performance and customer satisfaction.

Keywords: Supply chain management practices, municipal performance, Service delivery excellence, information management, risk management.

Hamidreza Alaee (Author) *Mobile Communication Company of Iran (MCI)*	**Utilizing the Cuckoo Algorithm for Load Balancing Improvement in Cloud Computing**

Abstract

Cloud computing technology has rapidly gained popularity due to its features, offering all kinds of facilities to users as a service. Naturally, any change or new concept in the world of technology comes with its own advantages, challenges, and complexities. Cloud computing is no exception. One of the main challenges in cloud computing infrastructure is load balancing and resource allocation. Efficient load balancing dynamically and evenly distributes requests across all processing nodes, ensuring fair and efficient allocation of each computational resource. In this research, a load balancing solution based on the cuckoo optimization algorithm is proposed. The cuckoo algorithm is a random and evolutionary search method requiring minimal memory, and it has capabilities comparable or even superior to various optimization algorithms when tackling optimization problems. Initially, the list of virtual machines requiring resources is sent along with available resources to the resource allocation section. This section uses the cuckoo algorithm to map virtual machines to physical machines, preventing server congestion and maintaining balance. The proposed solution is implemented in the CloudSim simulator environment, and the evaluation results indicate that its application can reduce energy consumption and execution time.

Keywords: Cloud computing, load balancing, cuckoo algorithm

Mahdieh Farazkish (Author) *National Research Institute of Science Policy (NRISP)* **Gholam Ali Montazer (Co-Author)** *Information Technology, Engineering School of Tarbiat Modares University*	**Assessing the E-Learning Capability Change Outcomes of Higher Education Institutions in the post-COVID Era**

Abstract

In addition to causing disruption, the COVID-19 crisis has also presented an opportunity to rethink higher education. This study focused on analyzing change outcomes of Iranian higher education institutions (HEIs) during the mandatory adoption of e-learning and its effect on improving the capability level of these institutions in implementing this type of educational system and examining how governments and universities plan and make policies in the post-COVID era. This study aimed to understand the capability-level change of HEIs for e-learning during the COVID-19. E-learning capability assessment significantly contributes to the strategic success of e-learning and identifies the strengths and weaknesses of higher education institutions in this regard.

To obtain this goal, the article applies the I-Five model considering “Infrastructure, Individuals, Instruction, Input, and Institution” to evaluate the e-learning capability of HEIs before and after this crisis and examine the results of its application through a case study example. In addition, this research examined the results of acquiring this compulsory capability of universities in response to the COVID crisis and its role in drawing a long-term and different change management perspective of the global future of higher education. It seems that the restrictive laws of some countries to change the face-to-face education system to more complex forms of hybrid education will be a more appropriate model for the future.

Keywords: E-learning Capability Change, Online Education, Higher Education Institutes (HEIs), I-five model, post-COVID era.

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