



Exploring the Symbiotic Relationship Between Inflationary Trends and Economic Advancement in Uganda

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ABSTRACT

The study explores the impact of inflation on project disputes and construction material prices in Uganda from 2018-2022. It reveals unstable inflation rates, non-uniform material prices, and factors like importation, interest rates, GDP, and government policies. Despite inflation spikes, Uganda's construction industry continues to grow. The composite price index was used to measure average price changes and the construction material inflation rate was derived. The findings offer valuable insights into inflationary forces and material prices. The study highlights the need for effective strategies to manage inflation and improve the construction industry in Uganda, highlighting financial risks. The unstable inflation from 2017 to 2022 caused irregular price movements in construction materials, with 71% of price changes attributed to inflation, indicating a positive relationship between inflation and construction prices. This instability, indicating economic volatility and uncertainty, led to project disputes. Finding discovered a decline in currency value, reducing purchasing power for goods and services, affecting the construction industry. The study suggests that other macro-economic factors, such as importation, interest rate, and GDP, may also contribute to the general increase in construction material prices. The study recommends reducing imports of construction materials, involving construction professionals in government policy, using locally made materials, and developing a construction database.

Keywords: Construction industry, Economy, Financial risks, Inflation trend and interest rate

INTRODUCTION

The construction industry is facing challenges such as cost overruns caused by inflation, which impact the prices of construction materials throughout the project. In Uganda, the annual inflation rate has increased to 3.2% from 2.7% in February 2022, reaching its highest level since July 2022 [1]. This rise in construction costs has slowed down national infrastructural development and resulted in cost overruns in construction projects. Economic instabilities have led to contractors stopping ongoing projects and potential clients delaying or scaling back their plans. This has limited economic growth and paralyzed the construction industry due to a lack of funds to support construction projects. The latest report from the Ugandan Bureau of Statistics shows that inflation has hit its highest level since July 2022. According to [2], there is a clear inverse relationship between inflation and the growth of the construction industry. This means that as inflation continues to rise, the construction sector's performance deteriorates and could even collapse. The industry is currently grappling with challenges such as soaring prices and low output, which can be attributed to issues like poor organization, limited resources, institutional constraints, lack of critical inputs, and governance issues. Despite these challenges, there is a lack of research on how inflation specifically impacts Uganda's construction industry. This poses a significant financial risk to construction management, particularly during key project phases.

LITERATURE REVIEW

Many countries strive to keep prices stable to support economic sustainability and growth. However, achieving this goal can be difficult due to high inflation rates, especially in developing economies, as pointed out by [3]. Inflation is when there is more demand for goods and services than supply, causing prices to continuously rise. This can be caused by factors like rapid economic growth, loose monetary policy, or supply disruptions. Inflation is measured over a long period to account for short-term fluctuations. Since 2021, inflation has been on the rise, leading to fiscal imbalances, poverty, and changes in household well-being. This has negative impacts on individuals and society as a whole. The current situation leads to problems in the economy, social conflicts, and inconsistent government policies. Policymakers need to take into account the impact of inflation and analyze household data [4]. Inflation, which is the continuous rise in prices of goods and services, diminishes the value of money and can shift wealth from those who save to those who borrow. The concept of the inflation tax, as introduced by Friedman, clarifies this phenomenon. The significance of people's expectations about inflation when making economic choices such as saving and investing were highlighted by [5]. Central banks utilize monetary strategies, like the Taylor rule explained by [6], to control inflation. Inflation has effects on economic stability, growth, and equality, making it a key factor to consider. According to a study by [7], there are different types of inflation, such as demand-pull,

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cost-push, structural, monetary, and imported inflation. Demand-pull inflation happens when the demand for goods and services is higher than the available supply, resulting in price increases overall. Cost-push inflation occurs when production costs escalate due to things like higher wages or raw material prices, causing prices to rise. Imported inflation can spread through global trade, especially during times of increasing prices. Structural inflation emerges from imbalances in certain sectors of the economy, causing prices to go up. Expectations-based inflation is influenced by anticipated future inflation, causing individuals and businesses to adjust their behavior. Hyperinflation occurs when prices rise rapidly, causing money to lose its function as a store of value and medium of exchange.

Inflation under Construction Contracts

The Producer Price Index (PPI) is a tool used to forecast inflation, which is an important measure of economic health. In healthy economies with good monetary policies, inflation rates tend to be low. Inflation has a significant impact on pricing, and there are various methods proposed to address it. The [8] provides formulas for adjusting prices to reflect rising material and labor costs during periods of inflation. These formulas aim to ensure that businesses remain financially viable while also protecting consumers' interests. According to experts from PIMCO and Iquasor, inflation-driven price hikes are a frequent occurrence in developing nations and construction ventures due to the wide margin between quoted costs and the actual procurement of materials. This escalating inflation is straining businesses, particularly in the construction sector, and contributing to a rise in conflicts. Inflation significantly impacts pricing strategies, pricing models, and strategies for addressing inflation beyond contracts, such as enhancing design phases, utilizing offsite construction, and adopting modular construction alternatives. The construction industry and economy are greatly affected by inflation, a factor often ignored when considering project economics and budgeting. Global economic trends, imbalances in supply and demand, ineffective tax practices, and technological shortcomings can all contribute to rising labor and material expenses. Issues like inadequate infrastructure, political unrest, currency devaluation, disruptions in global supply chains, environmental regulations, and market speculation can also drive up costs. By developing better models for estimating future budgets, we can prevent cost overruns caused by inflation. The rising costs in the construction industry are being caused by various global economic factors like oil prices, trade policies, supply and demand imbalances, tax inefficiencies, and a lack of technological advancements. Fluctuations in fuel and energy prices also play a role in affecting the industry's profits. Insufficient infrastructure development hinders the smooth movement of materials, resulting in delays and higher expenses. Political instability and policy unpredictability contribute to an uncertain business landscape, deterring investments and strategies for the long term. Currency depreciation affects the prices of imported materials, while disruptions in the global supply chain lead to shortages and bottlenecks in supplies. Environmental regulations and sustainability requirements also increase costs for construction companies. Market speculation and hoarding practices can create artificial shortages and price manipulation, exacerbating inflationary pressures and increasing material costs [9]. Inflation rates are causing rising material costs, labor expenses, and fluctuating interest rates, leading to budget overruns and delays. To mitigate these challenges, construction professionals must address these issues during project planning, establish strong relationships with suppliers and subcontractors, and consider inflation-indexed contracts. Technology and innovation can also play a crucial role in mitigating inflation's impact. Escalation clauses can help mitigate risks by providing a mechanism for parties to account for increased costs over time [10]. The relationship between inflation rates and construction material prices has been a topic of analysis globally, as the cost of materials is a crucial component in construction projects. Studies have shown that higher inflation rates are associated with increased costs of construction materials, reflecting the impact of inflationary pressures on the supply and demand dynamics of these materials. [11] found a positive relationship between inflation rates and steel prices in China. Global inflation is expected to decline, but deteriorate in 2022 due to geopolitical tensions and development slowdown. The EPU index explains market variations, emphasizing the need for global economic recovery and multilateral cooperation. Uganda's construction costs decreased to an average annual inflation rate of 3.7% in 2023, down from 8.3% in the previous year. The construction input price index increased 1.6% year-on-year, with a 0.2% fall in road and railway construction input inflation [12]. Building costs moderated due to lower residential building input inflation, while non-residential construction costs slowed. In July 2018, construction sector input prices increased by 3.9% for residential and non-residential buildings, electrical wire and cables, lime, and diesel [13]. Construction cost inflation is a major concern for project owners, leading to escalation and long lead times. To mitigate these impacts, delivery teams need flexible strategies that move projects through preconstruction, construction, and operation without significant delays or surprise costs [14]. Seven strategies are recommended: seeking partners who understand local and global market impacts, shifting to a lean partnership approach, integrating trades early, releasing funds promptly, and adopting best practices and lean tools like Target Value Delivery. In Nigeria, the 18.6% inflation rate in June 2022 has led to higher insurance coverage costs for insureds. Strategies include developing accurate construction cost estimates, procuring long lead items, and embracing value engineering [15]. Contractors in the U.S. and Canada can improve construction processes by utilizing alternative materials and lean practices, staying updated with industry trends, and collaborating to mitigate inflation risks, focusing on raw material production, design, and project management [16].

METHODOLOGY

Data for the study was obtained mainly from secondary sources only, since the research is quantitative in nature. Quarterly prices of construction materials were collected from the Uganda National Bureau of Statistics (UNBS) and published journals, while the quarterly inflation rate was collected from the Central Bank of Uganda (C.B.U) statistical bulletin and the Uganda National Bureau of Statistics (UNBS) bulletin. 45 professional cost experts were randomly selected to answer a question about the impact of inflation on the economy. The data obtained were presented in tables and also graphs for

proper pictorial elucidation. The method of sample collection adopted is the stratified random sample technique. Data was analyzed in the following manner; the cumulative inflation rate was obtained by addition of the inflation rate of the previous quarter to that of the recent quarter to obtain the cumulative inflation rate of that quarter. In examining the inflationary trends in the Uganda economy, the inflation rate was plotted against each quarter, while in determining the inflationary trend in the construction industry of the Uganda economy using prices of construction materials as input, the average weighted aggregative price index using 2017 as the base year was used.

FINDINGS AND DISCUSSIONS

The study aimed to analyze the inflationary trend in Uganda's economy over the past five years, from 2018 to 2022, with the aim of identifying any recurring patterns in activity, as depicted in Table 1.

Table 1: Uganda inflation rate 2018 - 2022

Source: World Bank 2023

Year	Inflation Rate (%)	Annual change (%)
2022	7.20	4.99
2021	2.20	-1.11
2020	3.31	0.45
2019	2.87	0.25
2018	2.62	-2.59
2017	5.21	-0.50

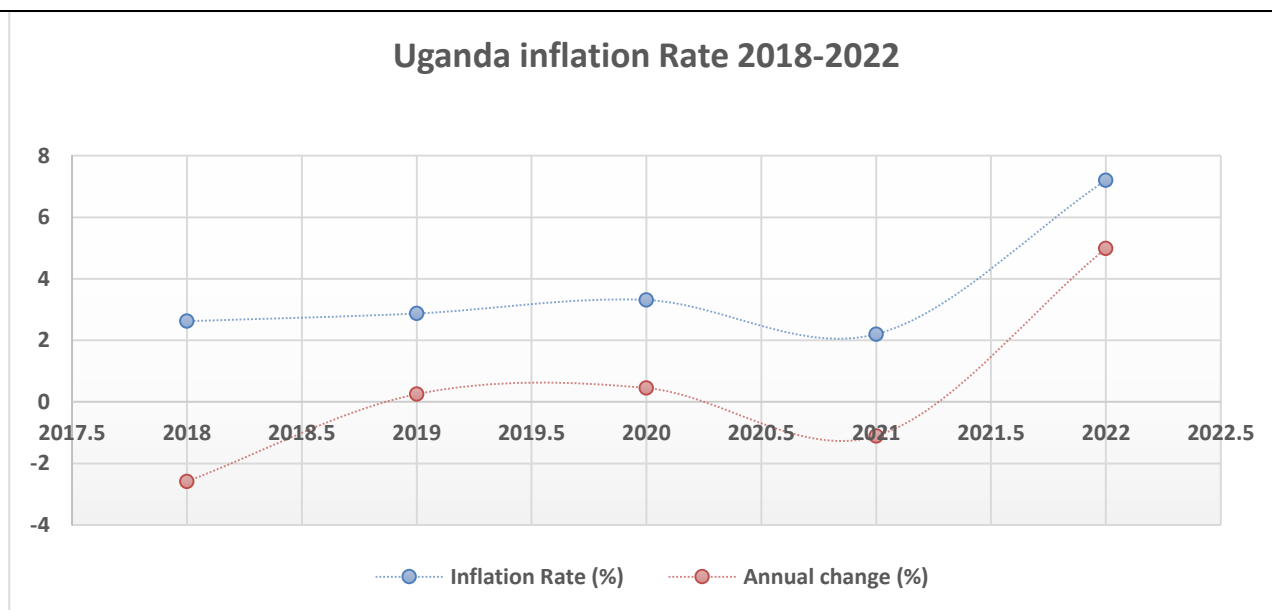


Fig. 1: Uganda inflation rate 2018-2022: Source (1)

The graph in Figure 1 shows a consistent inflation rate in Uganda between 2019-2021, with a sharp rise from 2021-2022. Nyiiri's study [17] found a positive relationship between inflation and economic growth from 1994-2019, suggesting moderate inflation rates for investment and growth. Implementing inflation-mitigating policies can prevent instability. The study used descriptive analysis and graphs for visualization.

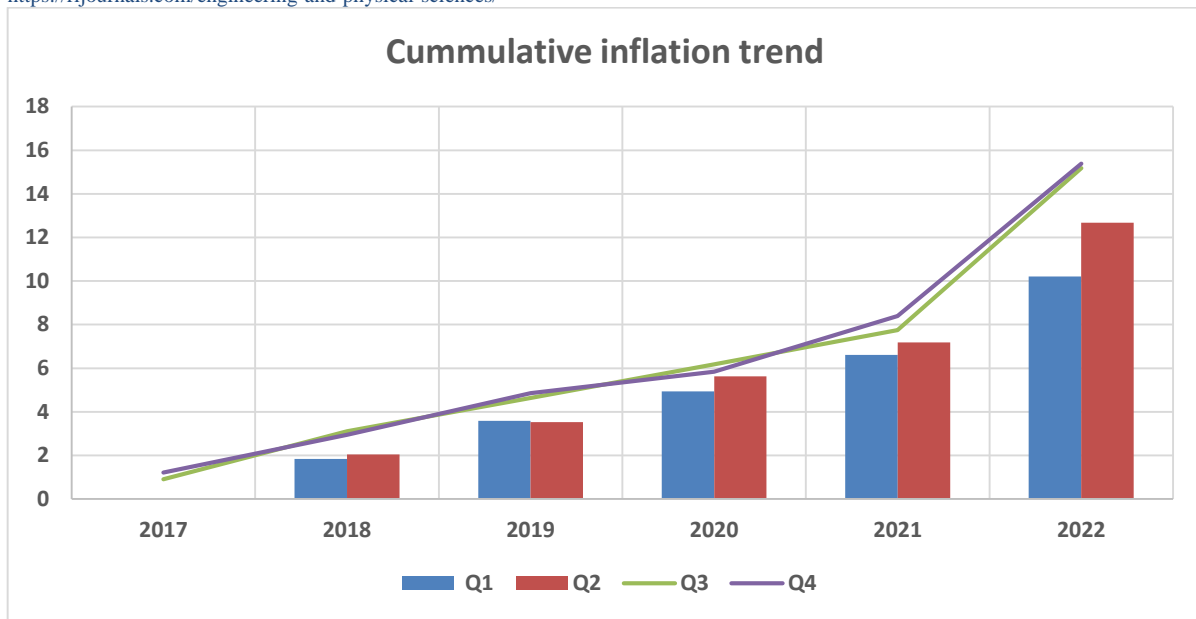


Fig 2: Cummulative inflation rates

The Ugandan economy experienced a general instability in inflation rates between 2017 and 2022, with irregular upward and downward movements observed in each quarter shown in Figure 2. The highest rate was in Q3 (1.1) in Q3, while the lowest was around -0.3 in Q4. This volatility and uncertainty in goods prices made it challenging for individuals, businesses, and policymakers to anticipate future price movements, leading to project disputes. The findings align with the Uganda Bureau of Statistics (2023) statistics, which show a general trend of instability. The construction industry experienced inconsistent inflationary trends between 2016 and 2020, with a trajectory level observed from 2020 to 2022. This suggests that exchange change influences the economy's inflation pattern, affecting imported materials and foreign workforce. The second specific objective was to examine the impact of inflation on construction material prices. This was achieved through a regression technique as shown in Table 2.

CMP: Construction Material Prices (Dependent Variable)

IF: Inflation (Independent Variable)

Dependent Variable: CMP

Method: Least Squares

Date: 29/04/24 Time: 12:39

Sample (adjusted): 5

Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CMP	6.352032	3.764912	5.318021	0.3331
IF	5.356171	4.681830	3.017685	0.2205

R-squared	0.710309	Mean dependent var	6.51E+11
Adjusted R-squared	0.517011	S.D. dependent var	3.24E+13
S.E. of regression	1.66E+14	Akaike info criterion	52.74921
Sum squared resid	1.13E+20	Schwarz criterion	71.25715
Log likelihood	-1240.436	Hannan-Quinn criter.	84.15670
F-statistic	4.049870	Durbin-Watson stat	1.205179
Prob. (F-statistic)	0.005747		

The coefficient of determination R^2 from the regression result in Table 2, depicts that R^2 is given as 0.710309 this implies that 71% of construction material price changes are caused by inflation. This shows that there is a positive relationship between inflation and construction material prices. Inflation has negative effects on low or fixed-income individuals, causing reduced purchasing power and increased costs as shown in Figure 3. The Federal Reserve raises interest rates to combat it, with housing prices being the largest contributor. Understanding these effects is crucial for a sustainable economy, as it affects low or fixed-income individuals. This is in agreement with previous work by (18) while he examined inflation and economic growth in Uganda from 2000-2018 and [19] about funding of public projects in Nigeria. The findings suggest

that reducing inflation is crucial for high economic growth and that the government should implement policies to curb inflation.

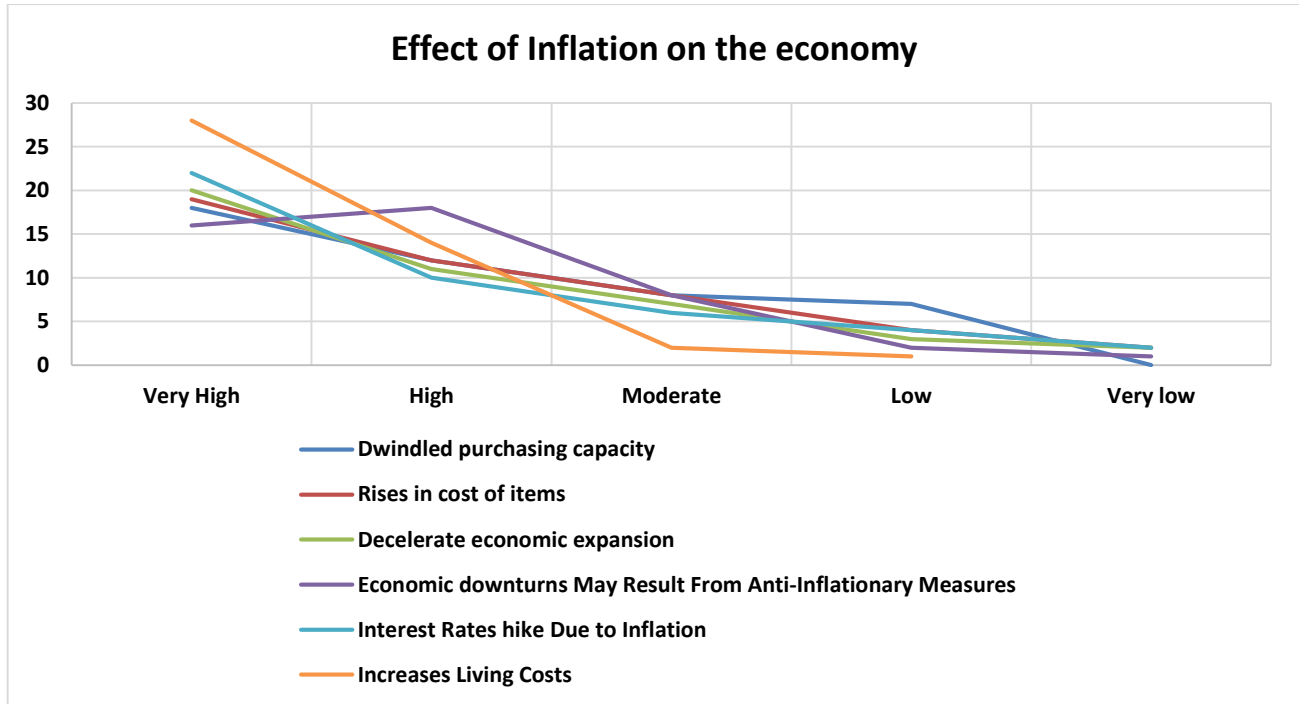


Fig. 3: Effect of inflation on the economy

The declining value of a country's currency decreases purchasing power for goods and services, affecting individuals and construction companies. This can lead to reduced real income, savings, and investment in the construction industry. This trend in national inflation rates is similar to a study highlighting the importance of relative inflation in economic growth [20] and [21] opinions of capitalization as instruments of mitigating inflation and economic imbalances. However, general nationwide inflation affects construction material prices non-uniformly, making it difficult to explain the general increase in prices. Other macroeconomic factors like importation, interest rates, and GDP may also play a role.

CONCLUSION

The construction industry in Uganda is grappling with inflation, which has increased to 3.2% annually since July 2022, causing slowed national infrastructural development and cost overruns in construction projects. This has led to contractors stopping ongoing projects and potential clients delaying or scaling back their plans, limiting economic growth and paralyzing the industry. Issues include poor organization, limited resources, institutional constraints, lack of critical inputs, and governance issues. Inflation impacts pricing strategies, pricing models, and addressing inflation beyond contracts. To mitigate these challenges, construction professionals must address inflation during project planning, establish strong relationships with suppliers and subcontractors, consider inflation-indexed contracts, and use technology and innovation. Global inflation is expected to decline but deteriorate in 2022 due to geopolitical tensions and development slowdowns.

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