

A Comparative Study For Exploring The Nexus Between Inflation and Economic Growth

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ABSTRACT

This research examines the relationship between unemployment, inflation, and GDP growth, focusing on how these factors impact unemployment rates and economic development. It also explores income inequality, which can impact price increases and economic development, and wealth inequality, which can hinder economic growth by limiting market participation and human capital development. The study uses the CPI to measure inflation, a measure of market-wide price increases, to understand its complexity. Objective of the study is to identify a non-linear relationship between inflation and economic growth, distinguish significant disparities between developed and developing economies, and propose measures to assist officials in controlling inflation and promoting long-term economic growth. The study uses a descriptive and explanatory research design to analyze macroeconomics and the Indian economy, utilizing secondary data from the Reserve Bank of India's website and quarterly reports. The research indicates a link between living costs, inflation rates, and economic growth. Excessive inflation can hinder economic development, while economic growth can alleviate living expenses. The quantity of money also influences inflation and growth, necessitating legislation for balancing these factors.

Keywords: inflation rates, and economic growth, unemployment, living costs, developed and developing economies

1. INTRODUCTION

Numerous studies from different nations have linked unemployment, inflation, and GDP growth. Inflation and economic growth affect unemployment rates differently by nation and time. It also relies on employment market structure (Roncaglia de Carvalho et al., 2018). Income inequality may be assessed using the Gini statistic, which illustrates how unequally income is distributed in a country. However, income variations may affect price increases and economic development.

Income inequality may destabilize the economy and society. This is because impoverished individuals have trouble accessing resources and opportunities. Social dissatisfaction, requests for better wages, scarcity of essential items, and money concerns may all affect inflation. Wealth inequality may inhibit economic growth by making it tougher to join markets, limit human capital development, and preserve cultural disparities, which hurt business (Gebremeskel, 2020).

The CPI measures inflation, which is market-wide price increases. It's usually discussed in terms of inflation, the yearly percentage rise in prices. When inflation occurs, fewer products and services may be purchased with the same money. Thus, money has less buying power. This research compares and analyzes the link between inflation and economic growth to help grasp its complexity.

1.1. BACKGROUND

Economic Growth

Insight into economic development requires an examination of the growth in the production and consumption of goods and services over a specific time frame, which is frequently measured in terms of Gross Domestic Product (GDP). Long-term economic expansion frequently produces advantageous consequences through the generation of employment and income prospects, as well as the enhancement of living standards (Mallik & Chowdhury, 2021). However, it is possible that the benefits of economic growth might not be distributed equitably, leading to disparities in income. Particular sectors or geographic regions might experience more substantial growth in comparison to others. A surge in prices and inflation may ensue when the demand for products and services surpasses the current supply during periods of rapid economic expansion.

Impact of Inflation

Low inflation may indicate a healthy economy. This signifies that there is adequate product and service supply on the market, which encourages corporate investment and expansion and economic growth (Teshome, 2021). Inflation may hurt economic development. Customers spend less and have less buying power when inflation is high. Little investment, low consumer confidence, and slow economic growth might ensue. Low-income persons may spend more on needs due to weaker buying power and higher costs, worsening income disparity. This tendency may widen the wealth gap.

Inflation, GDP growth, and unemployment are inversely related, say experts. For instance, government measures to contain inflation reduce economic growth, which boosts unemployment (Ali, 2019). The "sacrifice ratio," which tracks unemployment and inflation rates across time, may estimate inflation reduction costs. A paradox of rising unemployment might threaten social,

political, and economic stability. A person's standard of living might drop if inflation and unemployment grow. Inflation and unemployment lower national and individual well-being. Instead of affecting future well-being expectations, inflation devalues existing well-being.

2. LITERATURE REVIEWS

Some individuals in less developed countries are still unsure about the connection between inflation and economic growth (Roncagliaetal.,2018). The concept that the association between inflation and economic growth might be positive, negative, or null is supported by empirical and theoretical data. Keynesian economists held power in the early1900s, when inflation was seen as a beneficial factor for economic growth rather than a danger. The concept of the Phillips Curve garnered considerable attention simultaneously. Inflation is often believed to have a positive impact on unemployment, hence benefiting both the economy and businesses. The following study endeavors did not provide substantial and reliable data to definitively determine the nature of the relationship between inflation and economic growth, whether it is positive or negative.

Extensive research has been conducted on the topics of economic growth and inflation, with diverse perspectives on the resulting effects. Gebremeskel's study uncovers a divergent correlation between economic progress and inflation, contradicting early expectations. Some argue that high inflation rates hinder economic development by reducing consumers' spending and altering their buying patterns. In contrast to this perspective, scholars such as Mallik and Chowdhury (2021) and Teshome (2021) provide a contrasting viewpoint. According to their perspective, low inflation rates have the potential to foster economic growth via the reduction of real wages and the stimulation of investment.

Understanding the intricate interplay of income inequality, inflation, and economic growth in the study titled "An ARDL Approach to Economic Growth in Pakistan" (Ali, 2019) is a considerable challenge. This research used data spanning from 1972 to 2007 to investigate the interplay between inflation, income inequality, and economic growth, both in the short-term and long-term. The available evidence suggests that inflation has a favorable influence on the economy in the short term, while concurrently exerting an adverse impact on long-term income disparity. Li and Zou (2017) performed a cross-country research entitled "Income Distribution, Inflation, and Growth." What are the potential consequences of inflation on income distribution and economic growth? What is the source of our knowledge? The data from cross-national surveys was analyzed. The research findings indicate that inflation has a detrimental impact on social is parity and hinders the progress of economic development.

The beneficial long-term and short-term repercussions of economic growth, income disparity, and inflation have been examined by several researchers, including Ozdemir (2020) and Wolde

(2022). Research, such as Michael's (2018), indicates that there is a negative correlation between inflation, income inequality, and economic growth in both the short and long term.

Developing nations are often believed to be more vulnerable to supply interruptions, which have a significant impact on how people invest, consume, and produce commodities. These disturbances cause significant economic volatility. Moreover, heightened government interference in financial and commodities markets, fiscal policies, and commodity markets exacerbates market failure and economic speculation. As a result, it may be seen that prices in most developing countries do not accurately represent the operational practices of economic players. Therefore, it is important to conduct an analysis of the impact of inflation on the development of emerging economies.

2.1 RESEARCH GAP

Recent research strongly supports the argument that inflation is harmful. How to compare inflation, income inequality, and economic growth at the same time is poorly covered in academic literature. Focused research is needed to solve this problem. Officials might also benefit from studying the macroeconomic policy impacts of this linkage to improve equitable economic development. A careful analysis of long-term patterns may demonstrate how inflation and wealth inequality affect economic growth. However, this connection's policy ramifications haven't been well studied.

2.2 RESEARCH QUESTION

- I. What is the non-linear association between inflation and economic growth?
- II. What are the significant differences in the inflation-growth nexus between developed and developing economies?
- III. What measures can be proposed to aid officials in controlling inflation and fostering long-term economic growth?

2.3 RESEARCH OBJECTIVES

- I. To determine a non-linear association among inflation and economic growth
- II. To distinguish major disparities in the inflation-growth nexus between developed and developing economies
- III. to propose measures that would aid officials in controlling inflation and fostering long-term economic growth.

2.4. RESEARCH LIMITATION

The paper is limited to comparative study through a secondary analysis. There search is constrained to the study between inflation and economic growth in India.

3. RESEARCH METHODOLOGY

3.1. RESEARCH METHOD AND DESIGN

The study procedures utilized in this inquiry give comprehensive information on the techniques employed for data collection. A descriptive technique was used in this study. Descriptive studies include a comprehensive examination of a phenomenon from several perspectives, while explanatory studies aim to elucidate the underlying concepts and principles of the subject matter. The research design used in this study is characterized by its descriptive and explanatory nature. This study employs a theory-based methodology, whereby the researcher's primary objective is to provide a comprehensive description of the issue under investigation. Additionally, explanatory research is conducted to examine phenomena that have not been previously investigated or sufficiently elucidated.

3.2. DATA COLLECTION

Websites, books, scholarly articles, periodicals, and newspapers were among the secondary sources from which this research was completed. This research focuses primarily on macroeconomics, which examines the entire Indian economy. The website of the Reserve Bank of India provides current information pertaining to the Indian economy. Additionally, we reviewed the quarterly reports. The CPI has been utilized to quantify economic expansion, whereas inflation has been assessed using the percentage change in GDP. The consumer price index (CPI) and gross domestic product (GDP) are the two most significant indicators of economic growth.

3.3. DATA APPROACH

This study's objective is to investigate the degree of correlation that exists between the variables that have been selected. The descriptive research approach is often used by qualitative researchers in order to study a certain research topic

4. RESULTS

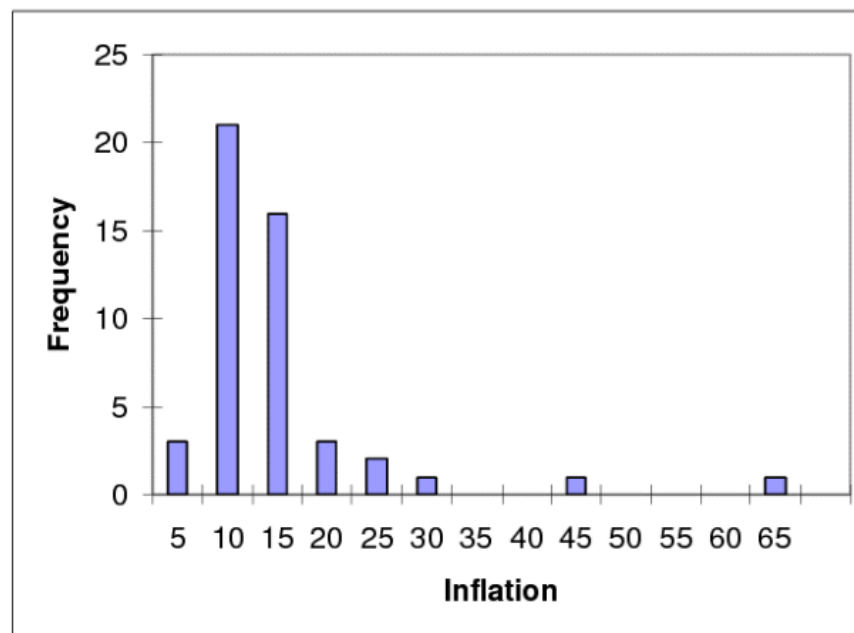
4.1. Non-Linear Association Between Inflation and Economic Growth

When it comes to the connection between inflation and economic growth, there is a lack of agreement among experts (Wolde et al., 2022). On the other hand, the prevalent notion is that

nominal rigidities are a factor that contributes to healthy long-term development of money. The acceleration of inflation, on the other hand, is undesirable since it leads to an un equal distribution of income and adds to the difficulties that many people are experiencing in their lives. Several unresolved inquiries remain, including the question of whether the adverse consequences of inflation remain consistent across economies of varying levels of development, the point at which inflation begins to impede sustained economic growth, and the specific national factors that influence the trajectory and magnitude of inflation's impact on economic activity.

Beyond specific thresholds, inflation has been found to have a negative and complex influence on the growth of the economy (Li & Zou, 2017). In the corpus of material that is currently available, several locations of inflection have been isolated and identified. The link between inflation and growth is dependent on characteristics that are distinctive to the country in question and is also impacted by differences in the economic development of other countries. By disrupting the association between inflation and economic development in ways that are unique to each country and age, this phenomena contributes to the disruption of the correlation(Michael, 2018).

Figure1. Distribution of Inflation (Inflation and Economic Growth: The Non-Linear Relationship. Evidence From Cis Countries. By Pypko Sergii)

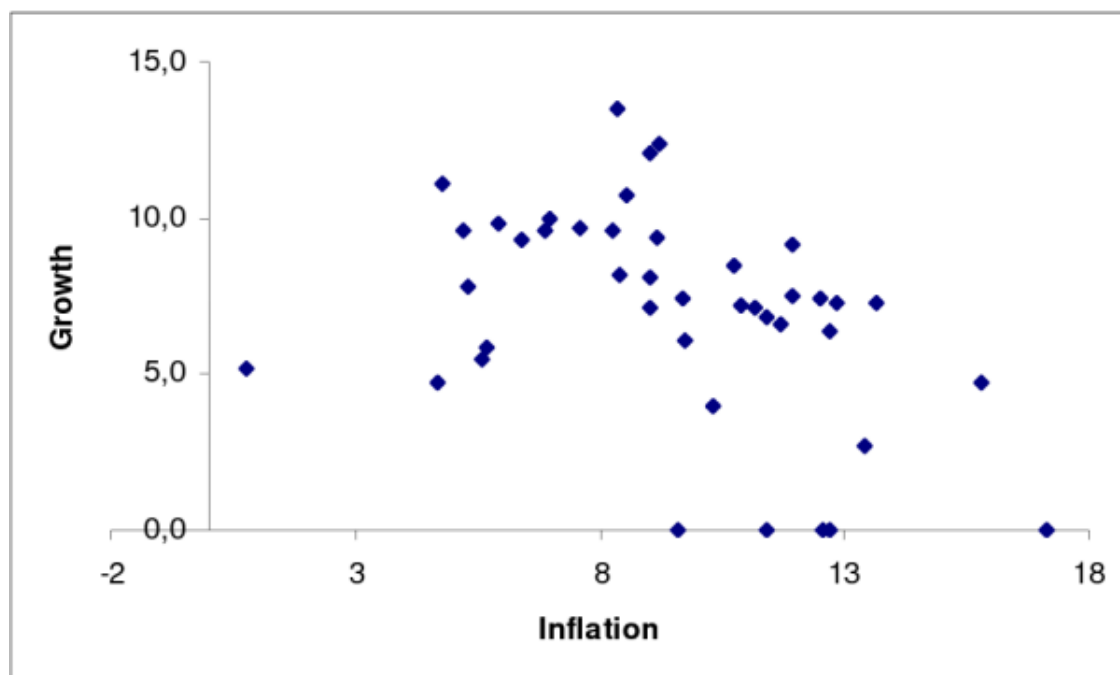


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The effect of inflation on economic growth, on the other hand, is dependent upon macro economic factors, which vary greatly from one nation to the next but generally remain the same. One of the most important aspects to take into consideration is the effect that financial depth has on growth via the development of capital (Ozdemir, 2020). The aggravation of price fluctuations in goods and money markets in countries with more modern financial systems causes potential trade partners to pay greater fees in order to protect their funds during times of inflation. This is because of the fact that these nations have more advanced financial systems.

The expansion of capital, the expenditures of the state, and the openness of trade are some other macroeconomic factors that have an impact on this nonlinear dynamics. When government expenditures rise as a result of the seignior age tax and project costs beyond the budget that has been allotted, it becomes impossible to avoid inflation (Khan & Hanif, 2020). On the other hand, increasing trade openness results in higher inflation cost so wing to the volatility of currency rates and a decrease in export competitiveness. Since inflation has an effect on both real interest rates and savings rates, it makes it difficult to accumulate cash because of the obstacles it presents.

Figure 2 Growth and Inflation (Inflation and Economic Growth: The NonLinear Relationship. Evidence From Cis Countries. by Pypko Sergii)



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4.2. Differences In the Inflation-Growth Nexus Between Developed And Developing Economies

To keep prices stable and encourage long-term growth, central banks use tools like monetary policy, which is why inflation is a necessary part of economic prosperity (Amar & Pratama, 2020). Despite data showing benefits, rising inflation is often seen as harmful to economic progress. But exogenous shocks have made it difficult to reduce inflationary pressures. The oil crisis of 1973 is a good illustration of this since it caused OECD countries to have high inflation rates. As a result, interest rate hikes were necessary for central banks to impose price stability. Economic progress has slowed under Paul Volcker's tenure because central banks have been hiking interest rates.

To combat rising prices, central banks used "inflation targeting" in the '90s. On the other side, inflationary pressures have been intensified by the COVID-19 outbreak (Mishchenko et al., 2018). The United States, the United Kingdom, Canada, and Germany are among the most industrialized nations with very high inflation rates right now. A combination of supply interruptions caused by factors such as Russia's invasion of Ukraine and the continuing COVID outbreaks in China has led to a spike in inflation. Many studies have looked at the correlation between inflation and GDP growth. Finding out how inflation affects GDP growth has been the subject of many statistical analyses. Although there is a long-term association between inflation and economic growth, others maintain that inflation hurts the economy in the short-term (Dinh, 2020). The degree to which it exerts its impact is relative to the income levels or economic situations of the countries involved.

Many variables are included in the study, including but not limited to: education, oil prices, life expectancy, trade, inflation, population growth rate, GDP per capita growth rate, life expectancy, and total consumer spending. The World Development Indicators and the International Country Risk Guide (ICRG) corruption score were used to acquire the control data. The study gathered 1900 observations from 38 OECD countries between 1982 and 2021. The lack of data from some nations meant that corruption was mostly ignored. Adding it to regressions as a control variable has no effect on the results (Li et al., 2021). The table below clearly shows that the research control variables were appropriately selected. When it comes to growth and inflation, the two go hand in hand. Considering the interdependence of several factors, it is crucial to choose suitable control variables that are in line with the study goals.

Figure 3 summary descriptive statistics

Table 1: Summary Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Year	1900			1972	2021
Growth (%)	1636	2.186	3.322	-14.464	23.999
Log (GDP)	1649	9.998	0.79	7.721	11.63
Inflation CPI (%)	1789	12.724	55.852	-4.478	1281.443
Trade (% of GDP)	1696	77.303	48.573	9.1	388.848
Population (%)	1899	0.701	0.801	-2.574	6.017
Savings (% of GDP)	1696	24.919	6.99	6.057	63.718
Life Expectancy	1862	75.698	4.56	53.492	84.616
Unemployment (% of Labor Force)	1554	7.405	4.174	0.2	27.47
Oil Rents (% of GDP)	1663	0.539	1.373	0	11.077
Education (Primary Gross)	1668	102.743	6.718	77.746	130.029
Gen. Cons. Exp. (% of GDP)	1696	18.221	4.298	7.515	30.324
Corruption	1251	-4.262	1.232	-6	-1.5

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Figure 4 Correlation matrix

Variables	Growth (%)	log (GDP)	Inflation CPI (%)	Trade (% of GDP)	Population (%)	Savings (% of GDP)	Life Expectancy	Unemployment (% of Labor Force)	Oil Rents (% of GDP)	Education (Primary Gross)	Gen. Cons. Exp. (% of GDP)	Corruption
Growth (%)	1											
log (GDP)	-0.156*	1										
Inflation CPI (%)	-0.114*	-0.337*	1									
Trade (% of GDP)	0.079	0.304*	-0.159*	1								
Population (%)	-0.093*	-0.147*	0.029	-0.163*	1							
Savings (% of GDP)	0.150*	0.410*	-0.124*	0.508*	0.122*	1						
Life Expectancy	-0.238*	0.720*	-0.232*	0.230*	-0.092*	0.171*	1					
Unemployment (% of Labor Force)	-0.060	-0.339*	0.026	-0.055	-0.207*	-0.437*	-0.071	1				
Oil Rents (% of GDP)	-0.054	-0.105*	0.084*	-0.197*	0.243*	0.046	-0.116*	-0.071	1			
Education (Primary Gross)	-0.062	-0.357*	0.011	-0.233*	0.287*	-0.256*	-0.139*	0.140*	0.230*	1		
Gen. Cons. Exp. (% of GDP)	-0.199*	0.420*	-0.226*	0.156*	-0.407*	-0.189*	0.403*	0.170*	-0.162*	-0.212*	1	
Corruption	0.101*	-0.586*	0.053	-0.007	-0.081	-0.194*	-0.235*	0.259*	0.055	0.220*	-0.355*	1

*** p<0.01, ** p<0.05, * p<0.1

Inflation has recently received a lot of attention after skyrocketing to double digits in both wealthy and poor countries due to the spread of COVID-19 (Haini, 2020). Anxieties being alleviated by central banks via interest rate hikes has the unintended effect of slowing the economy and maybe making unemployment worse. We find the same thing whether we utilize other econometric methods, such as difference GMM or fixed effect regressions. Over two successive time periods, inflation persistently impedes economic development, regardless of the amount of data utilized or the technique applied. A lot of theories state that inflation slows down

economic development (Alexiou et al., 2018). Using the generalized method of moments (GMM), issues with endogeneity and reverse causality may be addressed. A model estimate indicates that growth is reduced by 0.03 to 0.15 percentage points for every one percentage point rise in inflation. The thorough examination of several issues contributes to the credibility of the conclusions. Findings are made more reliable by using fixed effect (FE) regressions and differential GMM. These things back up the GMM's claim that inflation slows down the economy. Governments are obligated to take certain actions to decrease the acceleration of inflation.

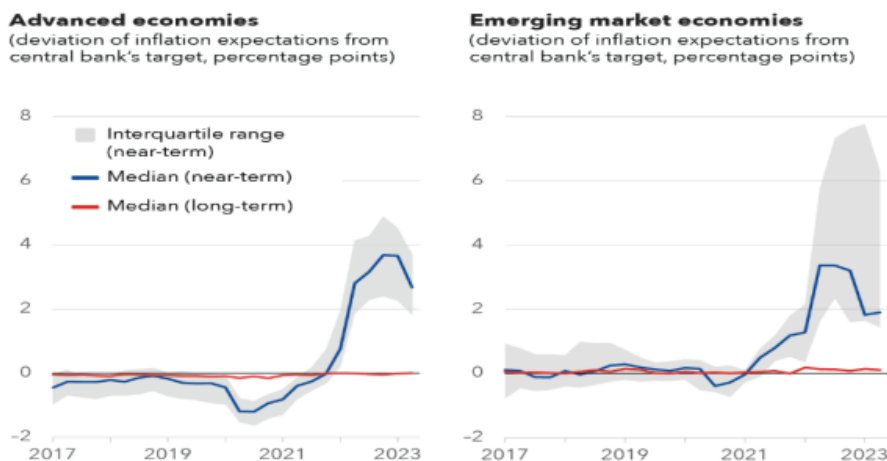
4.3. Measures to Aid Officials in Controlling Inflation and Fostering Long-Term Economic Growth

The inflation rate hit a twenty-decade high last year. Despite a general decrease in total inflation, core inflation—which does not include food and energy—is becoming more stable in a number of countries (Zulfiqar et al., 2020). Because they affect spending and investment choices, which in turn affect prices and income, expectations of future inflation are very consequential. In order to achieve a "soft landing"—that is, to get inflation back to target while limiting negative impacts on economic development and employment—the World Economic Outlook looks at how expectations affect inflation and how monetary policy can influence these expectations.

Inflation started to rise in both developed and developing countries in 2021 and picked up steam last year as a result of cost increases, according to experts. On the other hand, the central bank's target inflation rates for the next five years are still within striking distance of the current average inflation estimates.

Higher but contained

Near-term inflation expectations shot up rapidly in 2022 but are now reverting; long-term expectations have remained stable.



When short-term inflation projections decrease, firms, individuals, and buyers in the financial markets experience similar consequences (Khan & Hanif, 2020). Given the conclusion of inflationary events in 2021 and early 2022, the significance of these projections has escalated in terms of comprehending inflation patterns. Both the economy and inflation are subject to this statement. These expectations are the primary drivers of inflation in the typical advanced economy. However, in the typical developing market economy, historical inflation remains more significant. This implies that individuals residing in such countries may have a greater tendency towards retroactivity due to their prior exposure to high and fluctuating levels of inflation.

Drivers of inflation

Decomposing recent dynamics of headline inflation reveals the growing importance of near-term inflation expectations.

Advanced economies

(headline inflation, deviation from Q4, 2019; percentage points)



Emerging market economies

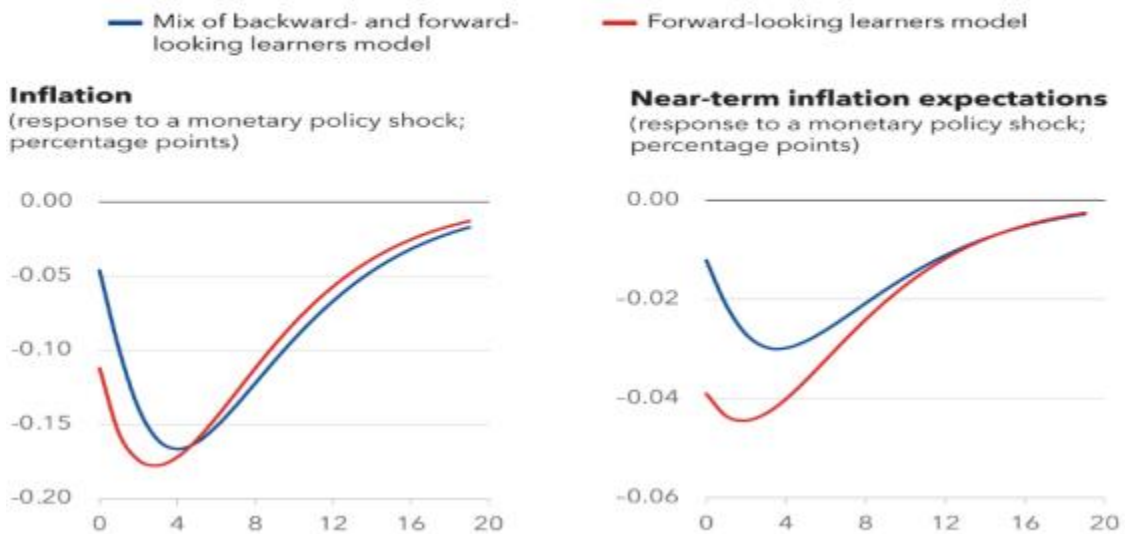
(headline inflation, deviation from Q4, 2019; percentage points)



For every one percentage point rise in near-term expectations, inflation in mature countries usually rises by 0.8 percentage points. In countries with developing markets, the pass-through rate is about 0.4% (Dinh, 2020). Some kids in each socioeconomic group may be more likely to focus on the future than on the now, which might explain the discrepancy. Students who prefer to look forward use a more holistic perspective to fore cast economic shifts in the future, while those who choose to look backward concentrate on past or current price experiences. When it comes to policy decisions, these differences matter a lot to central banks. Taking these differences into account, new research finds that when more people in an economy tend to look backward while learning, the impacts of policy tightening on short-term inflation predictions and inflation are reduced.

Weaker transmission

Monetary policy is less effective when there is a higher share of backward-looking learners, as they do not take account of the effects of interest rate rises on future demand and prices.



Some people, who are stuck in the past, might find it hard to understand how recent increases in interest rates could lower price pressures by slowing down the economy (Amar & Pratama, 2020). Some students are more interested in studying the past, which means the central bank needs to tighten monetary policy to lower prices more evenly. This shows that when more people make decisions based on past facts, the economy has to pay more for goods and services to try to keep inflation expectations and real inflation low. By making communication clearer and more effective and improving the trustworthiness, openness, and independence of monetary policy, central banks can make policies work better and encourage people to look further ahead. People are more likely to take the initiative to learn about the economy because they have a better idea of the policy measures put in place by the central bank and the effects these measurements have on the economy (Mishchenko et al., 2018). Still, making monetary policy structures better and coming up with personalized communication plans might be hard to do or take a lot of time.

Inflation is controlled by the Federal Reserve (Fed) through monetary policy. Monetary policy means that central banks or groups decide how much money the economy can hold. In a number of emerging countries, the Federal Reserve wants to support price stability, encourage full employment, and keep long-term interest rates modest. A stable rate of inflation is good for the business, and long-term inflation goals help keep it that way. The maintenance of stable prices helps businesses plan strategically and encourages the achievement of optimal job levels, which are not just decided by financial factors (Li et al., 2021). Because there isn't a clear goal, the

Federal Reserve's method to maximum employment is mostly based on what employers think. The financial disaster of 2008 is a good example of how taking extreme steps can cause prices to rise. Instead, inflation reached its highest point in 2007 and then slowly fell over the next eight years because of quantitative easing and the downward effects of the slump.

In developing countries, officials want to keep yearly inflation at 2%. In the eurozone, on the other hand, the World Bank uses quantitative easing to fight negative forces. Concerns about economic slowdown have led to the rise of negative interest rates in some countries (Haini, 2020). It is possible for countries with higher growth rates to handle high inflation rates. India wants to reach a level of about 4%, while Brazil wants to reach 3.25%.

5. CONCLUSION

Based on the above analysis of the research inquiry, it is evident that a correlation exists between the cost of living, the inflation rate, and economic growth. Excessive inflation has a detrimental impact on economic development since it leads to increased prices and reduced purchasing power for individuals. Increased economic development has the potential to alleviate these verity of living expenses. The findings of the research indicate a significant correlation between the quantity of money in circulation and its impact on both inflation and economic growth. This highlights the significance of legislators in achieving an optimal equilibrium between inflation management and the stimulation of economic development. The research further demonstrates the significance of interest rates in maintaining price stability within both established and developing nations. The findings of this study indicate that policymakers should use monetary policy as a proactive measure to reduce inflation. In order to stimulate economic growth, it is advisable to allocate a majority of their funds into infrastructure, education, and technology. In order to sustain economic growth and mitigate the occurrence of inflation, it is essential to exercise prudent management of the money supply to maintain equilibrium. Finally, in order to effectively manage inflation, central banks should exercise caution when considering adjustments to interest rates.

FUTURE SCOPE

- It is recommended that the future research should focus more on the accuracy of machine learning to anticipate building project delays.
- More research is required within the context to improve project delays with help of BIM and ML systems combined with real-time data from smart technologies, drones, and IoT monitors.
- Extra analysis is required for Predictive analytics so as to minimize hazards in risk

management.

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