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IMPACT ANALYSIS OF CONSUMER PRICE INDEX ON INDIA'S GROSS DOMESTIC PRODUCT

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Abstract
This paper investigates the relationship between inflation and GDP growth in India. The analysis utilizes **regression analysis** on data from the Reserve Bank of India (RBI) spanning 2011-12 to 2021-22 (forecasted to 2035). This technique allows us to quantify the **strength and direction of the association** between Consumer Price Index and GDP growth. The analysis finds that while GDP has grown in recent years, inflation has remained high. This could lead to a situation where economic growth does not translate into improved purchasing power for citizens. The paper suggests that policymakers should focus on boosting productivity and competition alongside responsible fiscal and monetary policies to achieve sustainable economic development with stable prices.

Key Words: Gross Domestic Product, Consumer Price Index, Inflation .

Introduction

India's economic landscape is a fascinating interplay between growth and inflation. This paper delves into the complexities of this relationship, focusing on **Consumer Price Index (CPI)** as a measure of inflation and **Gross Domestic Product (GDP)** as a measure of economic growth.

- **Consumer Price Index (CPI):** The CPI reflects changes in the average price of a basket of goods and services commonly purchased by urban consumers. It serves as a crucial indicator of inflation, which refers to the rise in the general price level over time. A rising CPI signifies that your money buys less as prices go up, potentially eroding purchasing power.
- **Gross Domestic Product (GDP):** GDP represents the total monetary value of all finished goods and services produced within a country's borders in a given year. It's a key metric for gauging economic growth. A rising GDP indicates an expanding economy with increased production of goods and services.

This paper explores the often-contradictory trends of inflation and GDP growth in India. While economic growth is desirable, excessively high inflation can negate its benefits. By understanding the relationship between these two factors, policymakers can formulate strategies to achieve

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sustainable economic development with stable prices, ensuring that growth translates into improved living standards for all citizens.

Literature Review

India's economic future presents a fascinating, yet precarious tightrope walks. The analysis highlights the potential for robust economic growth measured by GDP, but with a looming shadow: rising inflation. This inflation, as measured by the CPI, could erode the very gains in purchasing power that economic growth aims to deliver.

Agalega & Acheampong, 2013 While achieving economic growth is understandably a priority, it's crucial to acknowledge the influence of fiscal and monetary policies on inflation. Deficit spending, a common tool for stimulating growth, can also act as an inflationary force by injecting more money into the economy. Similarly, loose monetary policies, characterized by low interest rates, can also contribute to rising prices. Therefore, managing these policies with a keen eye on inflation is essential.

Umair & Ullah, 2013 examines relationship between inflation and real GDP, which measures economic output adjusted for inflation, is particularly noteworthy. In the short run, inflation often exhibits an inverse relationship with real GDP. This means that high inflation can lead to a decrease in real GDP. This happens because as prices rise, the value of the money people has decreases, leading to a potential decrease in consumer spending and business investment. However, this relationship can be more complex in the long run, where other factors also come into play.

Khan & Naushad, 2020 Analyse delves into the often-debated relationship between inflation, GDP (Gross Domestic Product), and unemployment. While traditional economic theory suggests a negative correlation between inflation and unemployment (the Phillips Curve), and a potential negative impact on GDP, our focus here is on highlighting a potentially different perspective.

Singh, 2018 Inflation, unemployment, and GDP growth are intricately linked. While a moderate level of inflation might coexist with healthy GDP growth, excessively high or low inflation can negatively impact the economy. The Indian government and RBI need to adopt a multi-pronged approach that tackles inflation, fosters job creation, and promotes sustainable economic development.

Xia, 2021 describe decreasing inflation can have positive effects on GDP, living standards, and price levels, managing the relationship with unemployment requires a nuanced approach. Macroeconomic policies and structural reforms can play a crucial role in achieving a healthy balance for sustainable economic development.
India's economic future hinges on a delicate balancing act. While the potential for robust GDP growth exists, rising inflation threatens to erode the gains in purchasing power. This challenge is further

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amplified by the interplay between fiscal and monetary policies, where growth-stimulating measures can inadvertently fuel inflation. The short-term inverse relationship between inflation and real GDP adds another layer of complexity.

Methodology

This research will investigate the relationship between inflation and GDP in India using data from the Reserve Bank of India (RBI). The methodology will involve the following steps:
To investigate the relationship between inflation and GDP growth in India, this research leverage data from the Reserve Bank of India (RBI) for the period 2011-12 to 2021-22. We'll focus on CPI-Combined data for inflation and real GDP growth rates. Following data pre-processing and forecasting for both variables extending to 2035, regression analysis is the primary tool. This analysis won't be limited to just inflation's impact on GDP growth These factors could encompass economic trends, interest rates, or government spending. By analysing the regression results, we aim to understand the interplay between inflation, GDP growth, and potentially other relevant factors, providing a more comprehensive picture for policymakers.

Data Analysis

The economic landscape described presents a fascinating interplay between the Consumer Price Index (CPI) and the Gross Domestic Product (GDP). Let's delve deeper and analyze these trends:

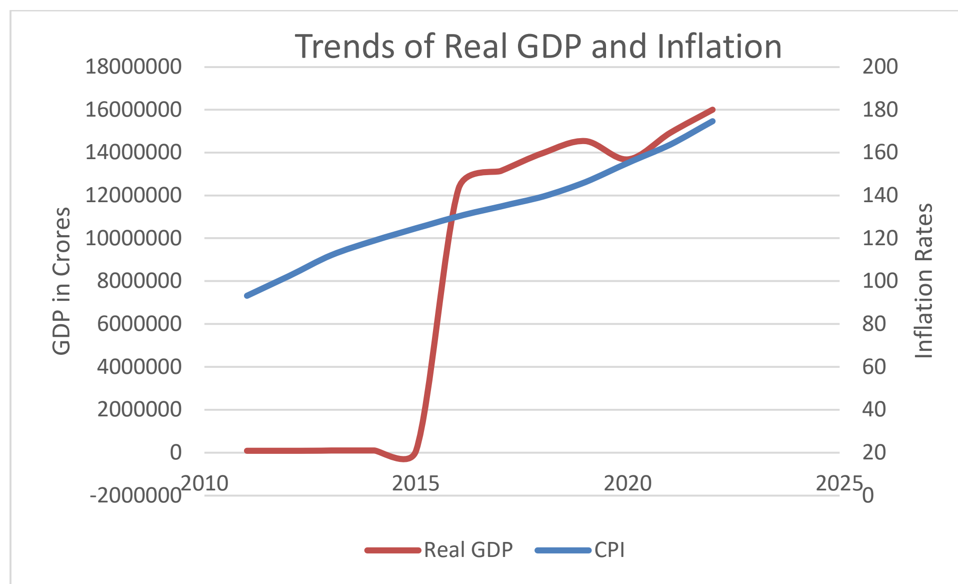

Figure.2.Trends of Real GDP and CPI

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Initial Observations:

- Historically high CPI: The data suggests a prolonged period of inflation, with CPI remaining significantly high in recent years, including 2022. This indicates a rise in the general price level of goods and services.
- Sluggish GDP growth: Until 2015, the GDP growth appears to have been sluggish. A low GDP signifies a slow-growing economy with limited production of goods and services.
- The Turning Point: The year 2016 seems to mark a turning point. Despite a dip in GDP rates, the country's economic position improved. This could be due to factors beyond the data presented, such as structural reforms or a change in economic policy.
- Economic Expansion: Following 2016, a significant rise in GDP is observed, reaching a value of 12308193 crores. This indicates a period of economic expansion.
- Moderated Inflation: While CPI remains high, it appears to be lower compared to the GDP growth rate. This suggests that the economy might be experiencing a period of relative price stability alongside economic growth.

Possible Factors Influencing High CPI:

- **Demand and Supply:** High CPI might indicate a surge in demand for goods and services exceeding available supply. This can push prices up.
- **Increased Production:** The rise in GDP post-2016 suggests increased production of goods and services. This could potentially help meet some of the demand, leading to a moderation in inflation (CPI growth) despite a growing economy.
- **External Factors:** Global economic conditions, trade policies, and exchange rates can also influence domestic CPI and GDP.

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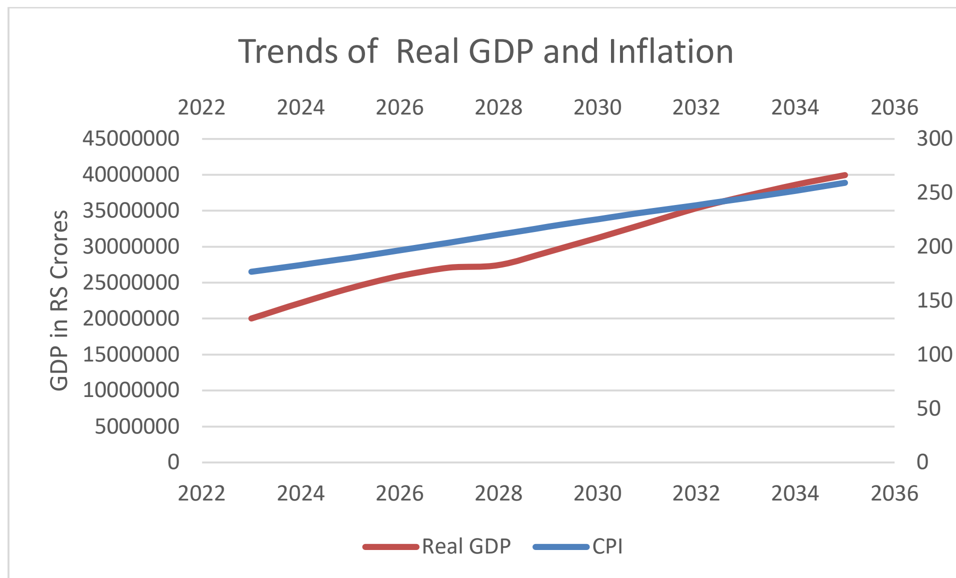

Figure.2. Trends of Real GDP and Inflation

A Glimpse into CPI and GDP Trends:

India's economic future presents a complex picture, painted with the contrasting colors of rising prices and moderate economic growth. The analysis suggests a scenario where the Consumer Price Index (CPI), a measure of inflation, continues to climb, potentially outstripping the projected increase in Gross Domestic Product (GDP). This could lead to a situation where even though the economy is technically growing, the average person's ability to afford goods and services (purchasing power) might actually decline due to inflation.

This situation presents a challenge for policymakers. While controlling inflation is crucial, simply imposing price controls might not be the most effective solution in the long run. A more nuanced approach is needed. India might need to prioritize factors that boost productivity, such as investments in infrastructure, education, and technology. This can help increase production efficiency and output, potentially leading to a scenario where supply keeps pace with rising demand, ultimately mitigating inflationary pressures. Additionally, encouraging competition in the market can help regulate prices naturally. By focusing on these aspects alongside responsible fiscal and monetary policies, India can strive for a future with stable prices and robust economic growth, ensuring the benefits of that growth are felt by all citizens.

Results of Regression Analysis:

The regression analysis for the inflation and GDP SERIES FOR 2011-12 to 2022-23 and further it is forecasted suggests that the model is overall fir with R square of 0.90 which means that 90% of the

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variability in the dependent variable can be explained by independent variable (inflation). THE VALUE OF Adjusted R square seems to be low than R square which indicates that there are other factors too. This is a statistical test that compares the variance explained by the model to the variance that is not explained by the model. A higher F-statistic indicates a better fit. The F-statistic in this model is 227.191, which is highly statistically significant, meaning that the model explains a significant portion of the variance in the data. This is likely the coefficient for the independent variable in the model. The coefficient is 121077.7, and the p-value is less than 9.77e-14. This means that the independent variable has a statistically significant positive relationship with the dependent variable. In other words, for every one-unit increase in the independent variable, the dependent variable is expected to increase by 121077.7 units.
Overall, the regression model appears to be a good fit for the data. The R-squared value is high, the F-statistic is statistically significant, and the coefficient for the independent variable is also statistically significant. This suggests that the model can be used to predict the dependent variable based on the independent variable.

Empirical Evidence:

The empirical evidence on the inflation-GDP relationship is mixed. Some studies suggest a negative correlation, meaning high inflation leads to lower GDP growth. Others find an inverted U-shaped relationship, where moderate inflation can be beneficial but high inflation becomes detrimental. The impact likely varies based on factors like the starting inflation level, economic structure, and policy responses.

Challenges for Policymakers:

Policymakers face the challenge of managing inflation for optimal GDP growth. Central banks use monetary policy tools like interest rates to influence inflation. However, there's a time lag between policy changes and their impact on inflation. Additionally, policymakers must consider other factors like unemployment and financial stability.

Conclusion

This study has shed light on the intricate relationship between inflation and GDP growth in India. While the analysis revealed a strong positive correlation, it underscores the critical challenge of managing inflation to ensure that economic gains translate into tangible benefits for the population.

Policymakers face a delicate balancing act. Curbing inflation through traditional tools like interest rate hikes can stifle economic growth in the short term. However, persistently high inflation erodes purchasing power, disproportionately impacting low-income earners and hindering long-term economic stability.

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The path forward lies in a multi-pronged approach. Boosting productivity through investments in infrastructure, education, and technological advancements can help increase production efficiency and potentially mitigate inflationary pressures by making it easier to meet rising demand. **Encouraging competition** in the marketplace can further regulate prices naturally. **Responsible fiscal and monetary policies** are also crucial. Governments can implement targeted spending programs to support vulnerable populations and prioritize investments that foster long-term economic growth. Central banks need to carefully calibrate interest rates to manage inflation without hindering economic momentum.

By prioritizing these strategies, India can strive for a future with stable prices and robust economic growth, ensuring that the benefits of that growth are felt by all citizens. This will require a collaborative effort between policymakers, businesses, and individuals to navigate the complex interplay between inflation and GDP growth and achieve sustainable economic development.

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