Macroeconomic Determinants of Consumer Price Inflation in India: A Study of Recent Trends from 2017 to 2024

Elina Mehra

The Shri Ram School, Aravali, India

elinamehra1@gmail.com

Abstract

The paper investigates the correlation of consumer price index with labour force participation and economic growth in India between 2017 to 2024. The analysis involves using secondary data that is sourced from the Ministry of Labour and Employment, the World Bank, the Ministry of Education and Macro trends to explore the effect of the rural and urban labour force participation rates between males and females, their enrolment in secondary schooling, total and planned spending on education and the yearly increase in the GDP on consumer price movements. Since the consumer price index data is non-negative and skewed and the time-series sample used is rather small, Poisson regression is the model used as the major econometric tool. The findings show that the result is high heterogeneity of labour market segments. Male labour force participation in the rural areas has a positive and significant relationship with the consumer price index and a negative significant relationship with female labour force participation. The variables of urban labour force participation are statistically insignificant and there are weaker or less predictable relationships with the price movements. The increase in the gross domestic product is observed to significantly affect the consumer price index negatively, which implies a higher rate of economic growth could alleviate the inflation pressure. The results reveal the significance of the demographic and sectoral differences in the study of the dynamics of inflation and offer policy-related details on labour participation and growth in the determination of price stability.

Keywords: *Labour Force Participation; Consumer Price Index; Inflation; Economic Growth*

Introduction

Inflation refers to the increase in the prices of goods and services over time. Inflation is a growing concern as it reduces purchasing power which leads to increased costs of living for consumers. It also creates uncertainty in investment and savings because fluctuating prices make financial planning and decision-making complicated (Golob, 1994). Due to high inflation, the school enrollment ratio, labour force participation, money supply and interest rates have gone down. The relationship between inflation and unemployment has been extensively researched, with findings indicating that their interplay changes

depending on time frames and economic scenarios. It was observed that in Palestine, unemployment affected economic growth negatively whereas inflation had a positive effect on it (Razia et al., 2023). Labor market tightness is needed for achieving long term price stability (Crump et al., 2024). In a study conducted in Ethiopia it was found that unemployment lead to a decrease in inflation and economic growth (Alemu, 2024). In the short run, a inverse relationship was observed between unemployment and inflation (Saputra et al., 2024). It was found that increased unemployment is associated with a decrease in inflation and a rise in inequality (Rolim et al., 2024).While in the long run, the two variables demonstrate a positive relationship (Oliver, 2023). Another study revealed an inverse relationship between unemployment rates and inflation rates in Iraq. A unit increase in unemployment led to a decrease in by 3.8369 in the short term, whereas in the long term, a unit increase in the unemployment resulted in a increase of 0.0118 in inflation (Hasan, 2025).

The empirical studies have heavily questioned the correlation between inflation and economic growth but have found that there is quite a range in both direction and magnitude across countries and over time. The general evidence shows that high inflation is likely to be accompanied by low economic growth. In Ethiopia, we have observed that inflation and exchange-rate fluctuations have a negative impact on the GDP growth, which implies that an increase in price levels hinders production and the entire economic operation (Malec et al., 2024). The positive relationship between GDP and inflation has been reported to be short-run in India, and in China it is positive but negative in the long run (Relationship between GDP & Inflation in India and China, 2023). A weak positive linear correlation between inflation and the GDP growth is documented in Germany (Huppertz n.d.), a study in India agrees that the relationship is statistically insignificant, with inflation explaining less than five per cent of the variability in GDP-growth between 2013 and 2023 (M et al., 2024). Alsuhaili and Panigrahi (2023) note that there is a negative correlation between inflation and GDP growth in Saudi Arabia. On the other hand, a positive correlation is found to be substantial, according to Shiferaw (2023), which means that inflation can stimulate GDP growth.

The connection between inflation and educational outcomes emphasizes how increases in price levels affect educational expenses, accessibility, and enrollment choices, especially in higher education. It was found that that inflation has more than tripled college tuition costs since 1987, which has adversely impacted students' decisions to enroll in higher education (Denning et al., 2022). Research funding has been found to have a significant positive non-linear effect on publication output (Li & Kang, 2013). Inflation can increase education costs for students from lower-income families (Fan et al., 2023). Higher rates of inflation are associated with less investment in knowledge assets, which includes educational enrollment, as families prioritize their immediate financial requirements over future educational aspirations (Fan et al., 2023). The rise is average tuition cost has outstripped inflation, and this has reduced access to higher education (Ouyang, 2025). Inflation negatively impacts expenditure on education, and in Egypt, this is on the rise ("Inflation and Education Expenditure: Evidence from Egypt," 2022).

The connection between the rate of inflation and exchange rates shows how changes in currency are converted to prices in the country through trade, costs of imports and the general stability of the economy. Studies have shown that exchange rate impacts inflation positively (Frederick & Benjamin, 2025). Previous studies identified a robust positive long term relationship between the exchange rates and inflation in Turkey indicating that currency variations have a significant influence on the domestic prices (Öztürk, 2025). Exchange rate and inflation have a positive correlation (Dzupire, 2020). There is a direct relationship between exchange rate and inflation (Monfared & Akın, 2017). Exchange rates have a significant and effect on inflation in the long term; they are known to be the main variable that explains variations in inflation (Amalia et al., 2025). A depreciation of the exchange rate that is higher than 0.70% produces a very positive impact on inflation (Valogo et al., 2023).Exchange rate impacts inflation positively (Gola et al., 2023).

The monetarism concept between the supply of money and inflation has been extensively studied in an empirical study where scholars have explored how changes in the monetary aggregates contribute to price changes in the short and long-term in different economies. A number of researches report a positive correlation between monetary growth, such as exchange-rate changes, and inflationary pressure (Monfared & Akın, 2017). On the other hand, other authors do not see any statistically significant money supply effect on inflation in either of the temporal dimensions (Amalia et al., 2025). According to a more recent study, there is a direct, statistically significant relationship between the growth of money supply and inflation (Wetaifi et al., 2024). In Pakistan, there is some evidence that there are always long-run impacts of monetary expansion on price levels (Stylianou et al., 2024), which is further supported by other studies that show a positive influence of money supply on inflation (Gola et al., 2023). It is important to note that others note that there is no effect of money supply on inflation in the short-term, whereas there is a bidirectional causal relationship in the long run (Sultana et al., 2019). Moreover, a higher amount of money development has been demonstrated to raise inflation risk in the Sub-Saharan African economies (Okedigba et al., 2024).

Literature Review

In the labour-market literature, the higher the unemployment, the lower the inflation and the increased income inequality. Monetary policy is said to produce more unemployment levels and expanding inequality (Rolim et al., 2024). Analytical data reveals that unemployment rates are very volatile in emerging-market economies, which can be explained by inflationary processes (Ozker, 2025). Additional explanations based on the Phillips-Curve model have recognized a negative correlation between unemployment and inflation on a short-term basis (Saputra et al., 2024). Further empirical studies in Iraq that utilize the Phillips-Curve model have created a substitutable short and long-run relationship and reported a decrease in the rate of inflation by 3.8369 when unemployment increases by one unit. A one-percent increase in the inflation rate, in the short term implies a 0.0017 decrease in unemployment and in the long run, a one unit increase in unemployment increases inflation by 0.0118; a one-percent increase in inflation decreases unemployment by 0.0019 (Hasan, 2025). An overall study of Afghanistan 2003 to 2021 states that there is a favorable correlation between inflation and unemployment (Saad et al., 2025). A period-range study (2002-2021) in Indonesia shows that unemployment has a strong impact on inflation, which implies that it is a two-way effect but, in other words, that inflation is not influenced by employment changes, thus contradicting the traditional assumptions of a Phillips-Curve relationship (Kusumastuti and Sasana, 2022. Empirical studies in North Africa reveal that there is a significant, positive long-run relationship between inflation and unemployment; a 1$^-$ percentage increase in unemployment is, in fact, associated with a 1.06 percentage increase in inflation and challenge the generalizability of the Phillips curve to that area (Zahir and Rehaimi, 2025). A study conducting in Ethiopia finds a negative and statistically significant relationship between unemployment and inflation (Shiferaw, 2023). The connections between inflation and educational enrollment are complex, with inflation having the potential to significantly change educational expenditures and consequently affect the rate of enrollment. Increased inflation would decrease the household income spent on education, making schools less accessible and attended. This is especially noticeable in Egypt, where the inflation decreases educational spending per-student, which may discourage investment and enrollment into the education sector (Inflation and Education Expenditure: Evidence from Egypt, 2022). In addition to this, inflation can limit the successful influence of the public expenditure on economic growth of low-income countries since it lowers fiscal capacity and therefore, less money is available to institutions of learning (Alpagut, 2024). Inflation in the realm of private education affects the quality of learning in developing economies, where higher tuition fees disproportionately affect the students with low financial ability and limit their access and social mobility (Yurtseven, 2024; Levine, 2023). According to a 15 country European panel study, inflation alters already existing educational inequalities with a disproportionate impact on marginalized populations (Pietrolucci et al., 2024).

The analytical results on the Nigerian economy show that the rate of inflation has a negative effect on the GDP. The statistically significant p-value of 0.005 supports this relationship hence the importance of keeping inflation moderate in order to stabilize GDP (Ugoma and Chijioke, 2024). In addition, it was found that the GDP and inflation had a two-way causality with each other, which meant that they were mutually influencing one another; this correlation was significant at the 10 per cent level in 2005 and 2022 in India (Mohanty et al., 2024). They both indicated a strong positive association but Shiferaw (2023) noted that the strength of the correlation changes with time, such that the historical inflation has a powerful and negative impact on the GDP in the present in the next two years. Alsuhaili and Panigrahi (2013) found that there is a negative relationship between inflation and GDP growth in Saudi Arabia, which indicates that a high level of inflation negatively impacts the economy, and it obstructs financial growth. Equally, Huppertz (n.d.) underscored a more watered down positive linear relationship in Germany, where the correlation coefficient of 0.18 was obtained between 2012 and 2022. However, in China, the relationship is positive in the short term and negative in the long term, and no relationship is found within India, as opposed to a causal relationship existing between GDP and inflation in China (Relationship between GDP and Inflation in India and China, 2023). One of the studies reports that the exchange rate positively affects inflation and the use of a regression analysis indicates that there is a long run relationship between the exchange rate and inflation. The econometric model assumes that the exchange rate, interest rate, and broad money supply are exogenous variables, whereas the inflation rate is considered to be an endogenous variable (Frederick and Benjamin, 2025). An study conducted in Ethiopia examines the dynamic relationship that exists between the exchange rate and inflation, which is a challenge of great economic significance. The research validates that there is a negative relationship between inflation and exchange rate on the one hand and economic growth on the other, and this study is empirical and can therefore be used by policymakers (Malec et al., 2024). A different study confirms a reciprocal cause and effect linkage between inflation and the exchange rate, in which a rise in inflation triggers a devaluation of the exchange rate, and a one-percent strengthening of the exchange rate affects general levels of prices (Aprilia et al., 2024). In a another study, a one-way causal effect of inflation on the exchange rate in India is recorded therefore, the changes in inflation can have a significant impact on the exchange rate although the opposite is not true (Das, 2025). Evidence shows that there is a strong, positive long-term relationship between exchange rates and inflation in Turkey, which means that the movements of the currency issue have a major impact on the domestic price movement, especially under the conditions of the recent economic difficulties and the depreciation of the currency (Ozturk, 2025). The existence of negative and significant effect on the exchange rate implies that inflation can strengthen the depreciation of the Rupiah against the dollar with a study on 2016-2020 (Ibrahim and Kornitasari, 2023). Inflation has significant effects on the exchange rate, and the research results can confirm it. An increase in inflation can cause currency depreciation and hence its value in comparison to other currencies in the post-COVID-19 economic recovery in Indonesia (Karimah et al., 2024). A study carried out in Indonesia reveals that there is a negative relationship between the money supply and inflation, of 0.277; an increase in unit money supply is calculated to lower the inflation rate by 0.814 (Tadoda et al., 2025). Pakistani research findings indicate that inflation has a positive long-run relation with the money supply, which means that the growth of money supply leads to inflationary pressure (Stylianou et al., 2024). Scholars have also reported a two-way cause and effect linkage between money supply inflation in six countries in the ASEAN region and money supply growth can either reduce or increase inflation depending on the economy at the time (Sihombing et al., 2022). One of the papers addresses the relationship between money supply and inflation in Nigeria over the last four decades, 19812021 and concludes that the relationship is statistically significant in the long run (Okeke, 2023). According to another research, the effectiveness of money supply and interest rates is low since they have little impact on inflation and their effects remain relatively small (Amalia et al., 2025). It was found that there exists a strong long-term and short-term relationship between inflation and the broad money supply in Sri Lanka that provides an in-depth analysis of annual data of the central bank since 1977 to 2019 (Is Inflation in Sri Lanka Always and Everywhere a Monetary Phenomenon?, 2022). The increase in the risk of inflation in Sub-Saharan Africa is explained by the volatility in the money growth, which presupposes that the money supply is a

significant factor of inflation (Okedigba et al., 2024). There is a long-run association between inflation and money growth, where the latter reacts more significantly to the tightening of the monetary policy than to its relaxation (Shrawan and Dubey, 2024).

Methodology

Research design

This study employed a quantitative research design to investigate the effect of CPI on rural male LFPR percentage, rural female LFPR percentage, urban male LFPR percentage, urban female LFPR percentage, school enrollment secondary female percentage gross, Total Budgeted Expenditure on Education Centre plus States or UTs crores revenue account, and GDP growth annual.

Data sources and period

The study used secondary data from 2017 to 2024 collected through the website of Ministry of Labour and Employment Periodic Labour Force Survey, World Bank school enrollment secondary female percentage gross, and secondary data obtained from Macro trends.

Data reliability

The secondary data were obtained from the World Bank database, Macro trends, Ministry of Labour and Employment, and Ministry of Education which are widely recognized for their accuracy and standardized data collection procedures. The secondary data used in this study are considered reliable because they originate from well established sources as mentioned above which employ consistent, systematic, and scientifically validated data collection methods.

Analytical tools

The collected data were analyzed using STATA 17.0, employing Poisson regression. Consumer Price Index is a non negative variable that changes in discrete steps over time, is never negative, and often shows a distribution that is closer to a Poisson shape than a normal one. When the dependent variable has a skewed distribution and the variance is not constant across years a linear model with ordinary least squares would violate key assumptions such as homoscedasticity and normality of residuals. The Poisson model handles these issues by assuming a log link function which ensures that all predicted values of CPI remain positive and by allowing the variance to rise with the mean. This produces more reliable inference when modelling economic indicators that grow over time and exhibit multiplicative behaviour.

Sample size and model suitability

Another reason for choosing Poisson regression is that your sample covers a limited number of years from 2017 to 2024. With a small time series sample, ordinary least squares standard errors can be unstable. Poisson regression can provide more stable coefficient estimates and more accurate uncertainty measures, especially when combined with robust standard errors. Since your independent variables include labour force participation rates and education related indicators that may have nonlinear effects, a log link model is better able to capture proportional changes in CPI rather than assuming constant additive changes.

Limitations

Although the study faced limitations including time period of data availability, the chosen methodology was appropriate for addressing the research objectives.

Analysis

This section presents the empirical results from the Poisson regression analysis used to examine the macroeconomic determinants of consumer price inflation in India.
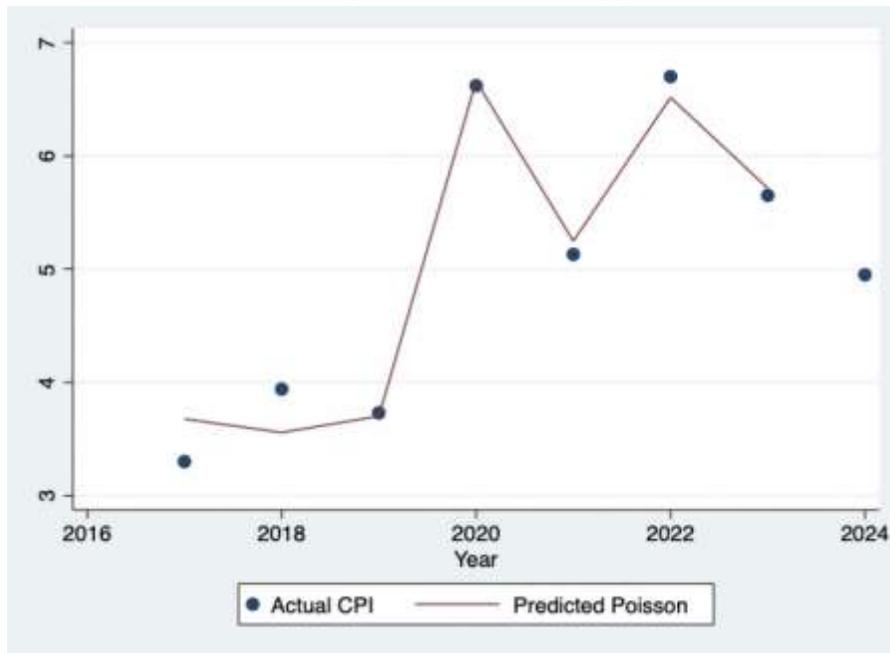
Figure 1
Actual CPI and Predicted Poisson

Table 1
Poisson Regression

```
Iteration 0:   log pseudolikelihood = -12.121814
Iteration 1:   log pseudolikelihood = -12.121813

Poisson regression                              Number of obs =        7
                         Wald chi2(5)  = 2286.72
                         Prob > chi2   =  0.0000
Log pseudolikelihood = -12.121813               Pseudo R2     =  0.0848
```

CPI	Coefficient	std. err.	z	P>|z|	[95% conf. interval]	
ruralmaleLFPRpercentage	.1143806	.0435015	2.63	0.009	.0291192	.1996419
ruralfemaleLFPRpercentage	-.0736375	.0280135	-2.63	0.009	-.128543	-.0187319
urbanmaleLFPRpercentage	-.0844859	.048186	-1.75	0.080	-.1789286	.0099569
urbanfemaleLFPRpercentage	.0664961	.0507904	1.31	0.190	-.0330514	.1660435
GDPgrowthannual	-.0784546	.0076434	-10.26	0.000	-.0934354	-.0634739
_cons	.6468657	.8302359	0.78	0.436	-.9803667	2.274098

The regression analysis interprets the changes in consumer price index in the separate classes of labour force participation, holding constant the annual growth of gross domestic product (GDP). The variable "education" measured by primary and secondary enrollment in school was omitted by STATA because of data constraints. The coefficient of rural male labour force participation is positive and statistically significant at 1 percent level suggesting that the increase in consumer price index by one percentage point is associated with the increase in rural male labour force participation by approximately 0.11 units, other things remaining unchanged. This finding indicates that increased involvement of rural males will have a strain on prices, which can be in terms of increased demand of goods as more members of the workforce group are absorbed into jobs. On the other hand, rural female labour participation has a negative and significant relation with consumer price index. In particular, one-percentage-point rise in the rural female participation is associated with a decrease of approximately 0.07 units in the consumer price index. The negative association observed could be a manifestation of the fact that an increased rural female participation neutralises the effect of a supply constraint in the labour market, potentially through an increased production capacity, which, in turn, reduces the pressure on prices. The level of participation by urban males is negative but the result is only marginally significant at ten percent level. Although the point estimate indicates that a high urban male participation may be linked to a slight decline in the consumer price index, the statistical data lacks adequate strength to give a conclusive finding. Likewise, the coefficient on urban female participation is positive but insignificant which means that changes in urban female participation do not show consistent relationship with change in price in the current sample. The correlation coefficient associated with the growth in the annual GDP is negative and highly significant, thus showing that an increase in the GDP growth by one percentage point translate to a decrease in the consumer price index. This is in tandem with theoretical assumptions that a strong economic growth would ease supply or improve production efficiency, and therefore, reduce inflationary pressures. The constant value is not significant meaning that one can not determine exactly the level of the consumer price index at the baseline in the absence of the explanatory factors. Overall, the results highlight an enormous heterogeneity of the demographic groups in terms of the nexus of labour force participation and price movements, with the rural variables of participation showing the strongest and most consistent trends.

Conclusion

This study examined the relationship between the Consumer Price Index and various categories of labour force participation, controlling for annual GDP growth, using data from 2017 to 2024. The consumer price index positively and significantly relates with the rural male labour force participation, which implies that further increase in rural men participation in the labour force would create an upward pressure on prices due to increased aggregate demand. Conversely, the participation of rural female labour force in the labour markets is negatively and significantly correlated with the consumer price index, and hence an increase in female participation in rural labour markets can alleviate supply stress and minimize inflationary pressures. The correlation between CPI and urban labour force participation rate of males is less important as compared to that of the females. The relationship between annual GDP growth and consumer price index is very negative, which confirms the perspective that an increase in economic growth can enhance efficiency in production and counter inflation. In general, the results highlight the need to consider demographic and spatial heterogeneity in the process of analysing inflation patterns. The findings indicate that policies that can be made to improve the participation of rural women labour force and economic growth may lead to a higher price stability. Although the study has restrictions associated with the short period of data that is available, it gives empirical insights into the labour market inflation nexus, and it forms a starting point of future studies that can involve longer periods of time or disaggregated price indexes.

References:

1. Crump, R. K., Eusepi, S., Giannoni, M., & Şahin, A. (2024). The unemployment–inflation trade-off revisited: The Phillips curve in COVID times. *Journal of Monetary Economics*, 103580. https://doi.org/10.1016/j.jmoneco.2024.103580

2. Alemu, F. M. (2024). An Empirical Analysis of the Nexus Between Inflation, Exchange Rate, Unemployment and Economic Growth in Ethiopia: A Granger Casualty Approach. *Insight on Africa*. https://doi.org/10.1177/09750878241234254

3. Razia, A. S., Omarya, M., Razia, B., Awwad, B. S., & Ruzieh, A. (2023). Examining how unemployment, inflation and their related aspects affected economic growth in Palestine: The period from 1991 to 2020. *Heliyon*. https://doi.org/10.1016/j.heliyon.2023.e21081

4. Denning, J. T., Eide, E. R., Mumford, K. J., Patterson, R. W., & Warnick, M. (2022). Why have college completion rates increased? *American Economic Journal Applied Economics*, *14*(3), 1–29. https://doi.org/10.1257/app.20200525

5. Li, B., & Kang, C. (2013). How Does the Scale and Structure of Funding Affect the Academic Output of Elite Universities? Evidence from Russell Group Universities in the United Kingdom (2013–2022). *European Journal of Education*, *60*(2). https://doi.org/10.1111/ejed.70105

6. Saputra, I. A. G., Subroto, W. T., Sakti, N. C., & Mahendra, A. M. (2024). *Decoding Inflation and Unemployment: Exploring the Phillips Curve's Insights on Short-Term and Long-Term Economic Dynamics*. *1*(4), 228–241. https://doi.org/10.61132/ijems.v1i4.264

7. Rolim, L. N., Carvalho, L. B. de, & Lang, D. (2024). Monetary policy rules and the inequality-augmented Phillips curve. *Economic Modelling*, 106780. https://doi.org/10.1016/j.econmod.2024.106780

8. Oliver, S. (2023). Inflation and employment: Exploring the dynamic relationship in the labor markets. *Economics, Management and Sustainability*, *8*(1), 53–57. https://doi.org/10.14254/jems.2023.8-1.5

9. Hasan, S. A. (2025). *Measuring and Analyzing the Interchangeable Relationship between Inflation and Unemployment in Iraq: Phillips Curve*. https://doi.org/10.63841/iue22591

10. Golob, J. E. (1994). Does Inflation Uncertainty Increase with Inflation. *Econometric Reviews*, *79*(3), 27–38. https://ideas.repec.org/a/fip/fedker/y1994iqiiip27-38nv.79no.3.html

11. Fan, X., Xu, Z., Qin, Y., & Škare, M. (2023). Quantifying the short- and long-run impact of inflation-related price volatility on knowledge asset investment. *Journal of Business Research*, *165*, 114048. https://doi.org/10.1016/j.jbusres.2023.114048

12. Ouyang, Y. (2025). The Economic and Social Case for Reducing College Tuition in the United States. *Advances in Economics, Management and Political Sciences*, *157*(1), 52–59. https://doi.org/10.54254/2754-1169/2025.ab22450

13. Inflation and Education Expenditure: Evidence from Egypt. (2022). *Journal of Economics and Sustainable Development*. https://doi.org/10.7176/jesd/13-4-07

14. Frederick, E. F., & Benjamin, U. (2025). This Study Examines the Impact of Inflation on Exchange Rate. *International Journal of Management and Business Intelligence*, *3*(4), 319–336. https://doi.org/10.59890/ijmbi.v3i4.130

15. Öztürk, C. (2025). Nonlinear Relationships Between Inflation, Interest, and Exchange Rates in Türkiye: A Fourier-Based Approach. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, *25*(3), 103–128. https://doi.org/10.18037/ausbd.1589696

16. Dzupire, N. C. (2020). *Modeling the Co-Movement of Inflation and Exchange Rate*. https://doi.org/10.20944/PREPRINTS202003.0465.V1

17. Monfared, S. S., & Akın, F. (2017). The Relationship Between Exchange Rates and Inflation: The Case of Iran. *European Journal of Sustainable Development*, *6*(4), 329–340. https://doi.org/10.14207/EJSD.2017.V6N4P329

18. Valogo, M. K., Duodu, E., Yusif, H., & Baidoo, S. T. (2023). Effect of exchange rate on inflation in the inflation targeting framework: Is the threshold level relevant? *Research in Globalization*, *6*, 100119. https://doi.org/10.1016/j.resglo.2023.100119

19. Amalia, N. A., Zahra, S. F., & Lestari, F. (2025). Bidirectional relationships between inflation and key monetary indicators in Indonesia: Exploring short- and long-run dynamics. *Journal of Economics Research and Policy Studies*, *5*(2), 597–613. https://doi.org/10.53088/jerps.v5i2.1985

20. Wetaifi, A. S. K., Kareem, H. M., & Hassan, A. H. (2024). The impact of money supply on inflation in iraq for the period (2007-2022). *The American Journal of Management and Economics Innovations*. https://doi.org/10.37547/tajmei/volume06issue01-15

21. Stylianou, T., Nasir, R., & Waqas, M. (2024). The relationship between money supply and inflation in Pakistan. *PLOS ONE*, *19*(3), e0301257. https://doi.org/10.1371/journal.pone.0301257

22. Gola, A. A., Qamri, G. M., Panhyar, A., Khan, Q., & Ali, I. (2023). Analysing the Role of Money Supply on Inflation: A case Study of Pakistan. *iRASD Journal of Economics*, *5*(4), 1162–1176. https://doi.org/10.52131/joe.2023.0504.0187

23. Sultana, N., Koli, R., & Firoj, M. (2019). Causal Relationship of Money Supply and Inflation: A Study of Bangladesh. *Asian Economic and Financial Review*, *9*(1), 42–51. https://doi.org/10.18488/JOURNAL.AEFR.2019.91.42.51

24. Okedigba, D. O., Akintola, A. A., Umaru, A., Mcdonald, Q. E., Inusa, E. M., Fashoro, B. O., Etudaiye, I. M., Joshua, R., & Osagu, F. N. (2024). Exploring Sub-Saharan Africa's Money Supply-Inflation Nexus: A GARCH-MIDAS Approach. *Scientific African*. https://doi.org/10.1016/j.sciaf.2024.e02111

25. Ariani, D., Ekowahyuningsih, Y., Ansari, L. P., Ulyati, R., Fauzan, A., & Atami, Z. R. (2025). Analysis of the Effect of Inflation on Interest Rates in Indonesia (2015-2024). *International Journal of Research and Review*, *12*(8), 413–417. https://doi.org/10.52403/ijrr.20250848

26. Özker, A. N. (2025). Changes In Unemployment During the Inflation Process in Emerging Markets and Scale Variables on Tax Burden. *Power System Technology*, *49*(3), 2631–2655. https://doi.org/10.52783/pst.2414

27. Saputra, I. A. G., Subroto, W. T., Sakti, N. C., & Mahendra, A. M. (2024). *Decoding Inflation and Unemployment: Exploring the Phillips Curve's Insights on Short-Term and Long-Term Economic Dynamics*. *1*(4), 228–241. https://doi.org/10.61132/ijems.v1i4.264

28. Saad, E. S. M., Labib, I., & Mobarez, H. (2025). *Analyzing the Relationship Between Inflation and Unemployment in Afghanistan (2003-2021)*. *2*(1), 47–59. https://doi.org/10.62810/jssh.v2i1.22

29. Kusumastuti, I., & Sasana, H. S. (2022). Hubungan Kausalitas antara Inflasi dan Pengangguran di Indonesia Tahun 2002 - 2021. *Jurnal Sosial Dan Ilmu Ekonomi*. https://doi.org/10.36665/jusie.v7i02.657

30. Investigations into Ghana's Macroeconomics Relationship between Inflation and Unemployment. Quantitative Analysis Based on Time Series in the Years 1990-2014. (2023). *Journal of Economics, Finance and Management Studies*, *06*(04). https://doi.org/10.47191/jefms/v6-i4-06

31. Zahir, A., & Rehaimi, H. (2025). Revisiting the Phillips curve: An empirical study of the relationship between inflation and unemployment in North Africa. *Asian Journal of Economic Modelling*, *13*(2), 159–170. https://doi.org/10.55493/5009.v13i2.5370

32. Shiferaw, Y. A. (2023). An Understanding of How GDP, Unemployment and Inflation Interact and Change across Time and Frequency. *Economies*, *11*(5), 131. https://doi.org/10.3390/economies11050131

33. Alpağut, S. (2024). *Enflasyon, Kamu Harcamaları ve Ekonomik Büyüme İlişkisi: Alt Gelir Grubu Ekonomiler Üzerine Panel Veri Analizi*. https://doi.org/10.58830/ozgur.pub495.c2064

34. Yurtseven, Ç. (2024). Education system resilience in the face of inflationary pressures. *Journal of Infrastructure, Policy and Development*, *8*(11), 7768. https://doi.org/10.24294/jipd.v8i11.7768

35. Levine, P. B. (2023). *Inflation affects the price of everything including a college education*. *5*(1), 19–22. https://doi.org/10.48028/iiprds/ijsressd.v5.i1.02

36. Pietrolucci, A., Dräger, J., Müller, N., & Albertini, M. (2024). *The educational wealth divide in Europe: Post-secondary enrollment gaps across wealth components and countries*. https://doi.org/10.31235/osf.io/s4qx6

37. Malec, K., Maitah, M., Rojík, S., Aragaw, A., & Rojík Fulnečková, P. (2024). Inflation, exchange rate, and economic growth in Ethiopia: a time series analysis. *International Review of Economics & Finance*, *96*, 103561. https://doi.org/10.1016/j.iref.2024.103561

38. Aprilia, E., Hidayat, A., & Asngari, I. (2024). Causality Between Exchange Rates, Economic Growth and Inflation in Indonesia. *Economic Analysis*. https://doi.org/10.28934/ea.24.57.1.pp36-52

39. Das, A. (2025). The Interaction Between Exchange Rate, Interest Rate and Inflation Rate: The Case of India. *European Economics Letters*, *15*(2), 2924–2931. https://doi.org/10.52783/eel.v15i2.3132

40. Ibrahim, M. A., & Kornitasari, Y. (2023). *Analisis pengaruh inflasi, cadangan devisa, dan suku bunga terhadap nilai tukar rupiah terhadap dolar tahun 2016-2020*. *2*(4), 737–745. https://doi.org/10.21776/jdess.2023.02.4.03

41. Karimah, A. K., Anggraini, T., & Aslami, N. (2024). Analisis Pengaruh Suku Bunga Dan Inflasi Terhadap Nilai Tukar Rupiah Era Pemulihan Ekonomi Pasca Covid 19 Di Indonesia. *Costing*. https://doi.org/10.31539/costing.v7i2.8940

42. Tadoda, A. F., Kayupa, O. O., Hengkeng, J., & Lawodi, E. (2025). Pengaruh Jumlah Uang Beredar (M2) Terhadap Inflasi Di Indonesia Tahun 2008–2022. *Interdisciplinary Journal*, *3*(1), 26–35. https://doi.org/10.61254/idejournal.v3i1.85

43. Sihombing, P. R., Arsani, A. M., Satwika, A., & Rochman, A. (2022). *Implementasi model panel var pada hubungan inflasi dan pertumbuhan jumlah uang beredar*. https://doi.org/10.46306/bay.v2i2.34

44. Okeke, C. C. (2023). *The Impact of Money Supply on Inflation in Nigeria (1981 - 2021)*. https://doi.org/10.59324/ejtas.2023.1(5).16

45. Amalia, N. A., Zahra, S. F., & Lestari, F. (2025). Bidirectional relationships between inflation and key monetary indicators in Indonesia: Exploring short- and long-run dynamics. *Journal of Economics Research and Policy Studies*, *5*(2), 597–613. https://doi.org/10.53088/jerps.v5i2.1985

46. Is Inflation in Sri Lanka always and Everywhere a Monetary Phenomenon? (2022). *Sri Lanka Journal of Management Studies*, *4*(2), 49–72. https://doi.org/10.4038/sljms.v4i2.97

47. Ugomma, C. A., & Chijioke, S. C. (2024). Assessing the Impact of Inflation and Exchange Rate on Nigerian Gross Domestic Product (1981-2022). *Asian Journal of Probability and Statistics*. https://doi.org/10.9734/ajpas/2024/v26i5616

48. Mohanty, A. K., Roy, A. K., & Gupta, M. (2024). Dynamic Relationships between GDP and Inflation with Stock Prices: An Analytical Contemplation in the Indian Context. *Mudra: Journal of Finance and Accounting*, *11*(1), 127–145. https://doi.org/10.17492/jpi.mudra.v11i1.1112407

49. Huppertz, J. (n.d.). *Exploring the Inflation-GDP Growth Relationship in Germany: A Mild Positive Linear Association*. https://doi.org/10.37355/kd-2023-06

50. Malec, K., Maitah, M., Rojík, S., Aragaw, A., & Rojík Fulnečková, P. (2024). Inflation, exchange rate, and economic growth in Ethiopia: a time series analysis. *International Review of Economics & Finance*, *96*, 103561. https://doi.org/10.1016/j.iref.2024.103561

51. *Relationship between GDP & Inflation in India and China*. (2023). 446–456. https://doi.org/10.59256/ijire.20230403113

52. Huppertz, J. (n.d.). *Exploring the Inflation-GDP Growth Relationship in Germany: A Mild Positive Linear Association*. https://doi.org/10.37355/kd-2023-06

53. M, K. K., Komirelli, A., Shastry, K. A., & Prafull, L. N. (2024). A Study on Analysis of the Relationship Between GDP Growth and Inflation in India. *Indian Scientific Journal Of Research In Engineering And Management*, *08*(12), 1–5. https://doi.org/10.55041/ijsrem39369

54. Alsuhaili, L. K., & Panigrahi, S. (2023). *Investigating the Relationship Between Inflation and Financial Development: Evidence from Saudi Arabia*. https://doi.org/10.1109/sibf60067.2023.10380099

55. Shiferaw, Y. A. (2023). An Understanding of How GDP, Unemployment and Inflation Interact and Change across Time and Frequency. *Economies*, *11*(5), 131. https://doi.org/10.3390/economies11050131

Copyrights