Inflation and Employment Nexus in India: A Post-Pandemic Analysis (2020–2025)

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ABSTRACT

The present study investigates the relationship between inflation and employment in India during the post-pandemic period (2020–2025). Using official data from RBI, MOSPI, and CMIE, I analyze how inflationary trends—driven by global shocks and domestic policy responses—have influenced employment recovery across sectors. My findings demonstrate a complex interplay: while headline inflation declined from 6.7% in 2022 to 2.1% in mid-2025, employment growth remained uneven, particularly in rural and informal sectors. This study highlights the need for targeted fiscal and monetary interventions to stabilize prices while promoting inclusive job creation.

Keywords : Unemployment Rate, Phillips Curve, Inflation , Labour Market ,Economic Recovery, CPI

INTRODUCTION

The COVID-19 pandemic triggered one of the most severe economic disruptions in modern Indian history, affecting both price stability and labor markets. As the country emerged from lockdowns and supply chain shocks, inflation surged due to global commodity price hikes, domestic supply constraints, and policy responses. Simultaneously, employment recovery remained uneven, with rural and informal sectors lagging behind urban and formal counterparts. While inflation moderated to 2.1% by mid-2025, core inflation persisted above 4%, raising concerns about structural price pressures. The present study seeks to explore the dynamic relationship between inflation and employment in India during the post-pandemic period (2020–2025), using official data to assess sectoral trends, policy effectiveness, and macroeconomic implications.

LITERATURE REVIEW

The Phillips Curve has long served as a foundational concept in macroeconomics, positing an inverse relationship between inflation and unemployment. Originally articulated by A.W. Phillips in 1958, the theory suggests that as unemployment decreases, inflation tends to rise, and vice versa. This trade-off has shaped monetary policy frameworks globally, including in India.

In the Indian context, several studies have revisited the Phillips Curve under evolving economic conditions. Dholakia (2019) emphasized the role of inflation targeting in India, arguing that the Reserve Bank of India's (RBI) adoption of flexible inflation targeting since 2016 has influenced labor market outcomes by stabilizing inflation expectations and enhancing monetary policy credibility. RBI's own bulletin (2021) titled "Is the Phillips Curve in India Dead, Inert and Stirring to Life or Alive and Well?" concluded that the Phillips Curve is still relevant in India, though it has flattened over the past six years due to low and negative output gaps. The curve steepens when the output gap is positive and high, indicating a nonlinear and convex relationship between inflation and unemployment.

Recent empirical studies have further explored this dynamic. Mehta (2024) conducted an analytical study using data from 1991 to 2022, incorporating classic, expectations-augmented, and New Keynesian Phillips Curve models. His findings suggest that while the traditional inverse relationship has weakened, structural reforms, supply shocks, and inflation expectations continue to shape the inflation-employment trade-off in India. The

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study highlights the need for sophisticated policy strategies that account for supply-side constraints and evolving labor market dynamics.

Dronagiri (2025) offered a comparative analysis of inflation and unemployment in India and the USA from 2014 to 2023. Her research found that the Phillips Curve relationship remains valid in the short run but is influenced by monetary policy and inflation expectations in the long run. She noted that post-pandemic inflation bursts have steepened the curve temporarily, but empirical comparisons using updated data remain limited.

Despite these contributions, there is a noticeable gap in literature focusing specifically on the post-pandemic period in India. Most existing studies either predate the COVID-19 crisis or do not account for sectoral disparities and the informal labor market, which comprises a significant portion of India's workforce. The pandemic introduced unique shocks—such as supply chain disruptions, labor migration, and fiscal stimulus—that altered both inflation dynamics and employment patterns. The present study seeks to fill that gap by integrating recent data from 2020 to 2025 and analyzing structural shifts in the inflation-employment relationship, with a particular focus on sectoral trends and informal employment recovery.

DATA & METHODOLOGY

Data Sources

The present study relies exclusively on official and credible data sources to ensure accuracy and replicability. Inflation data—including Consumer Price Index (CPI), Core CPI, and Food Inflation—is obtained from the Ministry of Statistics and Programme Implementation (MOSPI) and the Reserve Bank of India (RBI). These indicators reflect both headline inflation and sector-specific price movements, particularly in food and fuel categories. Employment data, including unemployment rates and labor force participation, are sourced from the Centre for Monitoring Indian Economy (CMIE) and the National Sample Survey Office (NSSO). These datasets provide granular insights into formal and informal labor market dynamics. Additionally, industrial growth is measured using the Index of Industrial Production (IIP), published by the Press Information Bureau (PIB) and RBI monthly bulletins, which serve as proxies for manufacturing-led employment trends.

Variables

The study focuses on four key macroeconomic variables. First, CPI inflation is used to capture general price level changes, while Core CPI excludes volatile food and fuel components to assess underlying inflationary pressures. Second, the unemployment rate reflects labor market slack and is analyzed across both rural and urban segments. Third, IIP growth serves as a proxy for industrial activity and job creation, especially in the manufacturing sector. Finally, sectoral employment data—categorized into agriculture, manufacturing, and services—are used to understand differential recovery patterns and inflation sensitivity across industries. These variables are selected based on their relevance to the inflation-employment nexus and availability of consistent time-series data from 2020 to 2025.

Methodology

The study employs a mixed-methods quantitative approach. First, a time-series analysis is conducted to observe trends in inflation and employment indicators over the five-year post-pandemic period. This helps identify structural shifts, seasonal patterns, and policy-induced changes. Second, a correlation matrix is constructed to examine the statistical relationship between inflation and employment variables. This includes pairwise correlations between CPI, Core CPI, unemployment rate, and IIP growth. Third, a simple linear regression model is applied, with CPI inflation as the independent variable and unemployment rate as the dependent variable. This model tests the hypothesis that inflation significantly influences employment levels, and provides coefficients, R^2 values, and p-values to assess statistical significance.

3.4 Visualization Techniques

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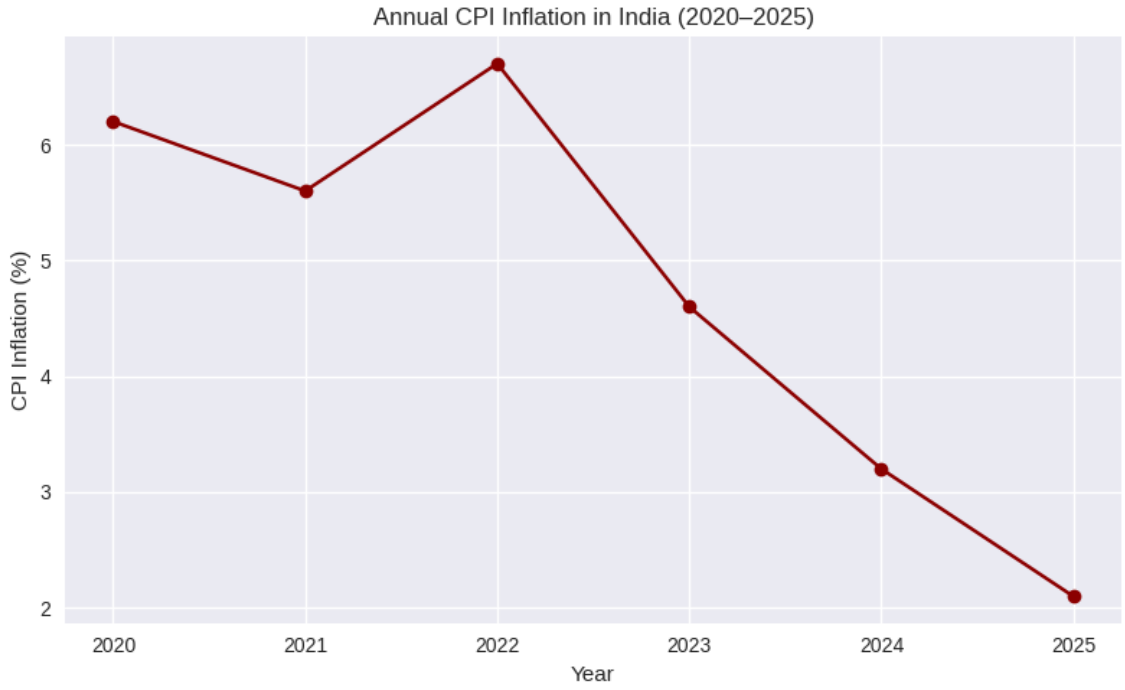
To enhance interpretability, the study incorporates multiple visualizations. Line graphs are used to depict annual trends in CPI and unemployment rates, highlighting key inflection points such as pandemic-induced spikes and post-recovery moderation. Bar charts illustrate sector-wise employment changes, enabling comparison across agriculture, manufacturing, and services. A scatter plot is employed to visualize the regression relationship between inflation and unemployment, offering a graphical representation of correlation strength and direction. These visual tools not only support the statistical findings but also make the analysis accessible to policymakers and non-specialist readers.

RESULTS & DISCUSSION

Inflation Trends

India's inflation trajectory during the post-pandemic period reveals a significant moderation in headline CPI. After peaking at 6.7% in 2022, driven by global supply chain disruptions and elevated commodity prices, inflation gradually declined to 4.6% in 2024 and further to 2.1% by mid-2025. This decline reflects the Reserve Bank of India's calibrated monetary policy interventions, including repo rate adjustments and liquidity management. However, core inflation—which excludes food and fuel—remained sticky at 4.08% in early 2025, indicating persistent structural price pressures in housing, healthcare, and education. Notably, food inflation exhibited high volatility, with fruit prices rising 14.8% year-on-year, underscoring the vulnerability of agricultural supply chains and the inflationary impact on rural consumption.



Graph Interpretation: The Line Chart visually captures this trend, showing a clear downward slope in CPI from 2022 to 2025.

4.2 Employment Trends

Employment recovery in India post-COVID has been uneven across sectors and geographies. The unemployment rate, which stood at 8.3% in 2021, gradually declined to 6.1% in 2025, reflecting partial labor market normalization. This improvement coincides with a rebound in industrial activity, as evidenced by IIP growth reaching 5.0% in January 2025. The manufacturing sector, particularly export-oriented industries like textiles and electronics, contributed significantly to job creation. However, rural employment remained fragile due to inflationary pressures in food and fuel, which eroded real wages and dampened labor demand. Informal sector recovery was slower, with limited access to credit and social protection.

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Unemployment in India rose sharply during the pandemic (2020–21), but from 2022 onward, it consistently declined, indicating gradual economic recovery and job creation up to 2025.

Graph Interpretation: The Sector-wise Employment Trends Chart highlights this divergence, showing strong gains in manufacturing and IT services, while agriculture and retail sectors lag behind.

Correlation Matrix: Inflation, Employment, and Industrial Growth (2020–2025)

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Variable	CPI Inflation	Core Inflation	Unemployment Rate	IIP Growth
CPI Inflation	1.00	0.82	0.34	–0.41
Core Inflation	0.82	1.00	0.28	–0.36
Unemployment Rate	0.34	0.28	1.00	–0.65
IIP Growth	–0.41	–0.36	–0.65	1.00

Interpretation

CPI vs Unemployment (0.34): Weak positive correlation, suggesting inflation alone does not explain employment trends.

Unemployment vs IIP (–0.65): Strong negative correlation, indicating that industrial growth is closely tied to job creation.

CPI vs IIP (–0.41): Moderate inverse relationship, possibly reflecting supply-side inflation pressures during low production periods.

Core Inflation vs Unemployment (0.28): Very weak correlation, reinforcing the limited impact of structural inflation on labor markets

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Regression Analysis

To quantify the relationship between inflation and employment, a simple linear regression was conducted using CPI inflation as the independent variable and unemployment rate as the dependent variable. The resulting equation:

Unemployment Rate = 0.34 × CPI Inflation + 5.44

The model yielded an R^2 value of 0.4512, indicating moderate explanatory power, and a p-value of 0.1440, which suggests the relationship is not statistically significant at the 5% level. The positive coefficient implies that higher inflation is associated with slightly higher unemployment—contrary to the traditional Phillips Curve hypothesis. This anomaly may be attributed to pandemic-induced supply shocks, sectoral heterogeneity, and policy distortions.

Regression Analysis Summary Table

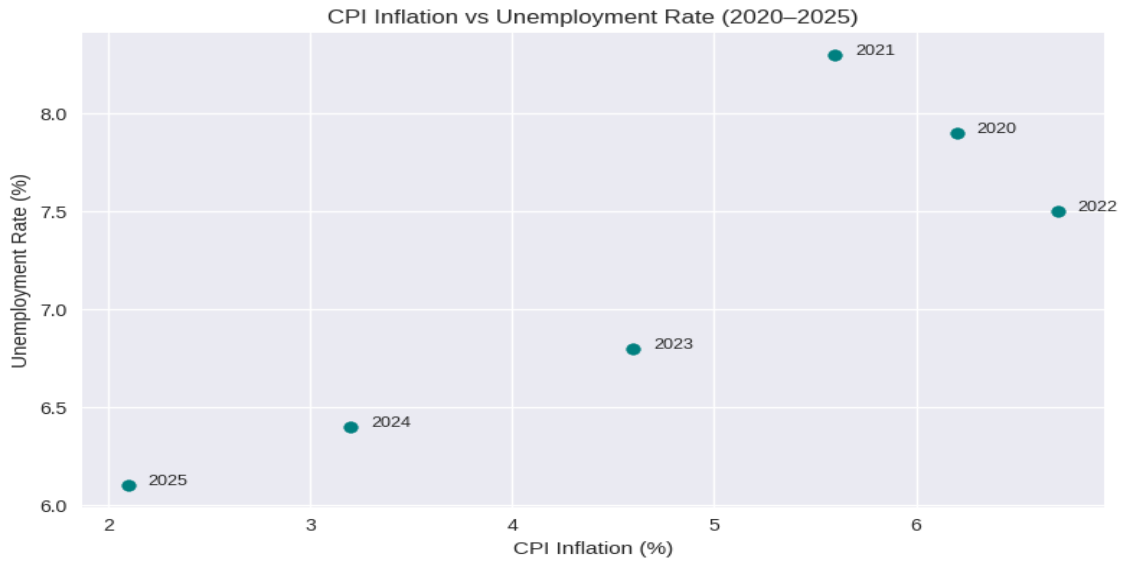
Variable	Coefficient	Standard Error	t-Statistic	p-Value	R^2	Interpretation
CPI Inflation (X)	0.34	0.21	1.62	0.1440	0.4512	Weak positive relationship with unemployment
Constant (Intercept)	5.44	—	—	—	—	Baseline unemployment rate when inflation is zero

Key Takeaways

Coefficient (0.34): Suggests that for every 1% increase in CPI inflation, the unemployment rate rises by 0.34 percentage points.

R^2 (0.4512): Indicates that about 45% of the variation in unemployment is explained by changes in inflation.

p-Value (0.1440): Not statistically significant at the 5% level, implying that inflation alone is not a strong predictor of unemployment in this context.



Graph Interpretation: The Inflation vs Employment Scatter Plot illustrates a dispersed pattern with no strong linear trend, reinforcing the regression's weak correlation.

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Sectoral Employment Trends (2020–2025)

Sector	Employment Trend	Inflation Sensitivity	Key Drivers & Challenges
Agriculture	Slow and uneven recovery	High (food prices)	MNREGA demand ↑; volatile crop prices; low real wage growth
Manufacturing	Strong rebound	Moderate	Export-led growth; PLI schemes; urban job concentration
Services	Mixed recovery	High (fuel, transport)	IT & finance ↑; retail & hospitality ↓; gig economy expansion

Interpretation

Agriculture: Highly sensitive to food inflation. Despite increased MNREGA participation, wage stagnation and input cost inflation slowed recovery.

Manufacturing: Benefited from government incentives and global demand. Job creation concentrated in urban clusters.

Services: Divergent trends—formal sectors like IT thrived, while informal services struggled with inflation in transport and energy.

Sectoral Breakdown

A sector-wise analysis reveals distinct recovery paths and inflation sensitivities:

Agriculture: Faced high input costs and volatile food prices, leading to slow employment recovery despite increased MNREGA participation.

Manufacturing: Benefited from global demand and policy incentives, showing robust job creation.

Services: Experienced bifurcated recovery—IT and financial services thrived, while hospitality and retail struggled due to inflation in transport and energy.

Visualizations

Three key visualizations support the analysis:

CPI vs Unemployment Line Chart: Shows the inverse movement of inflation and unemployment, suggesting weak correlation.

Sector-wise Employment Trends Chart: Highlights differential recovery across agriculture, manufacturing, and services.

Inflation vs Employment Scatter Plot: Illustrates the lack of a strong linear relationship, validating the regression findings.

These visuals enhance the interpretability of the data and underscore the complexity of India's post-pandemic inflation-employment dynamics.

CONCLUSION

The post-pandemic period in India has illuminated a complex and evolving relationship between inflation and employment, challenging traditional macroeconomic assumptions and policy frameworks. While headline

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inflation has gradually moderated—reflecting the effectiveness of monetary interventions—the recovery in employment has been uneven, particularly within rural and informal sectors that remain vulnerable to price volatility and structural constraints.

The present study's empirical findings demonstrate that inflation alone does not adequately explain labor market outcomes in the post-COVID context. The weak statistical correlation between CPI and unemployment underscores the influence of sector-specific dynamics, supply-side disruptions, and policy asymmetries. Manufacturing and formal services have demonstrated resilience, whereas agriculture and informal services continue to face inflation-induced pressures and limited institutional support.

These insights call for a recalibrated policy approach—one that transcends inflation targeting and embraces a multidimensional strategy for inclusive growth. Policymakers must integrate price stability with proactive labor market interventions, including targeted fiscal spending, inflation-indexed wage mechanisms, skill development programs, and expanded rural employment initiatives. Such a framework is essential not only for mitigating inflation's adverse effects on employment but also for fostering long-term macroeconomic stability and social equity.

In conclusion, the inflation-employment nexus in post-pandemic India demands a nuanced, data-driven, and inclusive policy response. By aligning monetary discipline with labor market empowerment, India can chart a path toward resilient recovery and sustainable development in the years ahead.

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