

The Relationship between Economic Growth and Unemployment in India

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Abstract

Purpose: The objectives of the study are to investigate the statistical correlation between economic growth (measured by GDP growth) and the unemployment rate in India and to analyse the direction and strength of causality between economic growth and unemployment, thereby determining whether one variable significantly influences the other.

Design/methodology/approach: This study employs a quantitative research methodology, utilizing time-series data from 1991 to 2024 based on the data from the World Bank, International Monetary Fund (IMF), Forbes India and Ministry of Statistics and Programme Implementation using Correlation Test and Granger Causality test to examine the correlation between GDP growth and unemployment rate and the causality between them with the help of EViews Statistical Software.

Findings: The findings revealed a negative correlation between economic growth and the Unemployment rate in India. There is no Granger causality between Economic Growth and the Unemployment rate in both directions. This study delves into the nuances of how economic expansion impacts employment trends and vice versa.

Research Implications: The implications derived from this analysis are pivotal for designing effective policies that can foster inclusive growth and address unemployment challenges in India.

Social Implications: This study highlights the need for inclusive economic policies that not only promote growth but also generate employment opportunities. Addressing unemployment is essential for reducing inequality and improving living standards in India's rapidly transforming economy.

Originality / Value: The novelty of this study lies in its extended data range from 1991 to 2024, which addresses gaps in previous research. It also applies both correlation analysis and Granger causality tests, offering a deeper understanding of the dynamic relationship between economic growth and unemployment in India. This dual-method approach, combined with updated data, provides fresh insights and strengthens the empirical foundation for policy and academic discussions.

Keywords: Economic Growth, Unemployment, Time-series, Correlation, Granger Causality.

Introduction

The relationship between economic growth and unemployment has long been a central topic in macroeconomic analysis, particularly due to its implications for public policy, income distribution, and overall socio-economic development. A growing economy is generally expected to create more jobs, raise living standards, and reduce poverty. However, this correlation is not always straightforward, especially in the context of emerging economies like India. As one of the world's fastest-growing major economies, India offers a complex and intriguing case for studying the growth-employment nexus ([Mehrotra, 2022](#)).

Over the past few decades, India has undergone profound economic transformations. These include rapid GDP growth, a noticeable shift in the economic structure from agriculture toward services and manufacturing, and significant changes in the demographic composition of the labour force. Despite these positive indicators, the challenge of unemployment and underemployment persists. High growth rates have not always translated into proportional increases in employment opportunities, raising concerns about the inclusiveness, sustainability, and quality of growth. This has led economists and policymakers alike to question whether India's growth trajectory is truly employment-generating or if it reflects a phenomenon often described as 'jobless growth' (Jagadeesha, 2018).

Background and Context

The foundation for India's contemporary economic journey was laid in the early 1990s with the implementation of liberalization policies. These reforms marked a significant departure from a heavily regulated, state-controlled economy to a more open, market-driven model. The liberalization process facilitated foreign investment, improved private sector participation, and boosted competitiveness, resulting in accelerated economic growth. From 2000 to 2020, India recorded an average annual GDP growth rate exceeding 7%, positioning itself as a leading player in the global economy.

However, the relationship between this growth and unemployment rates has remained unclear. Traditional economic theory, particularly Okun's Law, asserts a negative relationship between economic growth and unemployment. Ball et al. (2017) supported this view, demonstrating its relevance in many industrialized economies where economic expansion reliably leads to job creation. However, applying this framework to India reveals a more nuanced picture. Unlike developed economies, India's labour market is characterized by widespread informal employment, skill mismatches, and limited social security. Structural issues, such as low labour force participation among women, regional disparities, and a lag in industrial employment growth, further complicate the scenario. Although economic output has grown impressively, employment has not kept pace in a manner proportional to expectations, particularly in labour-intensive sectors. This divergence between growth and job creation suggests that India's growth model may be capital-intensive or service-driven, benefiting only a segment of the population, rather than being broad-based or inclusive.

Moreover, the increasing automation in manufacturing and the reliance on high-skilled labour in the services sector have restricted employment opportunities for low- and semi-skilled workers. This has exacerbated the issue of educated unemployment, where individuals with degrees remain jobless due to a lack of alignment between educational outcomes and labour market needs. Such structural barriers indicate that unemployment in India is not merely a cyclical issue that can be resolved through short-term economic stimuli but is rooted in deeper systemic challenges.

While India's economic growth has been commendable in terms of aggregate GDP performance, its weak linkage with employment generation poses critical questions for policymakers. Understanding and addressing the underlying causes of this disconnect is crucial for shaping a more inclusive and equitable growth path that ensures economic benefits reach a larger section of the population.

Significance of the Study

Examining the relationship between economic growth and unemployment in India holds substantial significance for both academic inquiry and practical policymaking. As India continues to position itself as a key global economic player, it becomes imperative to evaluate whether this growth is inclusive and capable of generating meaningful employment opportunities. Understanding the growth–unemployment nexus is not just an exercise in economic theory—it directly informs the quality, sustainability, and equity of the country's development trajectory.

First and foremost, analysing this relationship allows for a critical assessment of the extent to which economic growth has translated into job creation, which is widely regarded as one of the most important indicators of real developmental progress. Mere increases in GDP do not automatically improve living standards unless they are accompanied by enhanced employment opportunities and income generation for the broader population. In this context, investigating how GDP growth aligns with trends in employment provides valuable insights into the inclusiveness of India's economic model.

Secondly, the study plays a crucial role in guiding policymakers to formulate evidence-based strategies that can effectively address unemployment and underemployment. India's labour market is highly complex and fragmented, characterized by a dominant informal sector, persistent rural–urban divides, gender disparities,

and a growing share of educated but unemployed youth. These dynamics often weaken the expected link between GDP growth and improvements in labour market outcomes. Therefore, a better understanding of this relationship can help in the design of policies that not only stimulate economic activity but also foster job creation, especially in sectors and regions that have been left behind.

The phenomenon of ‘jobless growth’—where economic growth occurs without a corresponding rise in employment—has been a recurring challenge in India. Several instances, particularly in the post-liberalization period, have shown that even during phases of robust GDP growth, employment growth has remained stagnant or unevenly distributed across sectors. This mismatch highlights the need to delve deeper into the structural factors that influence how and where jobs are created within a growing economy.

Additionally, this study holds significance in understanding regional disparities and demographic pressures within the country. India is home to a young and rapidly growing workforce, which, if not gainfully employed, can lead to socio-economic instability. Identifying patterns in the growth–unemployment relationship across states and sectors can help policymakers implement more localized, region-specific employment strategies that take into account the diverse economic realities of different parts of the country.

In essence, this study aims to contribute to the ongoing discourse on employment and development by providing empirical insights into how economic growth in India correlates with unemployment trends. It seeks to unravel whether India’s growth model is adequately employment-intensive or whether reforms are needed to ensure that economic gains translate into broader social and economic benefits. By doing so, the research aspires to support the formulation of inclusive growth policies that align national economic objectives with the aspirations of its vast and diverse labour force.

Table 1: GDP Growth Rate and Unemployment Rate

	GDP Growth Rate	Unemployment Rate
Mean	6.08	6.86
Median	6.73	6.93
Maximum	9.69	8.70
Minimum	-5.78	5.27
Std. Dev.	2.838	1.228
Observations	34	34

Source: [World Bank \(2024\)](#) and [Ministry of Statistics and Programme Implementation \(2024\)](#)

Table 1 helps in understanding the basic nature and behaviour of the two variables under study before conducting more complex statistical procedures. According to Table 1, the mean GDP growth rate is 6.08%, while the median is 6.73%, indicating that India’s economic growth has generally been strong over the period. The slightly higher median suggests that in many years, growth was above the average, with the mean slightly pulled down by outliers like the sharp decline during 2020 (COVID-19). The mean unemployment rate is 6.86%, and the median is 6.93%, indicating moderate consistency in unemployment levels, with a slightly right-skewed distribution where more years had rates slightly above the average. And the highest GDP growth rate is 9.69% and the lowest is -5.78%. While the maximum unemployment rate is 8.70% and the minimum is 5.27%. The standard deviation of GDP growth (2.838) is considerably higher than that of the unemployment rate (1.228), indicating that economic growth has been more volatile than unemployment over the years. This reflects India’s sensitivity to global economic shocks, policy changes, and structural transformations. With 34 observations, the dataset provides a sufficient time series to identify patterns, trends, and relationships, forming a solid basis for further econometric analysis (such as correlation, Granger causality, and unit root tests). The trends of GDP Growth rate and Unemployment rate in India from 1991 to 2024 are as shown in Figures 1 and 2.

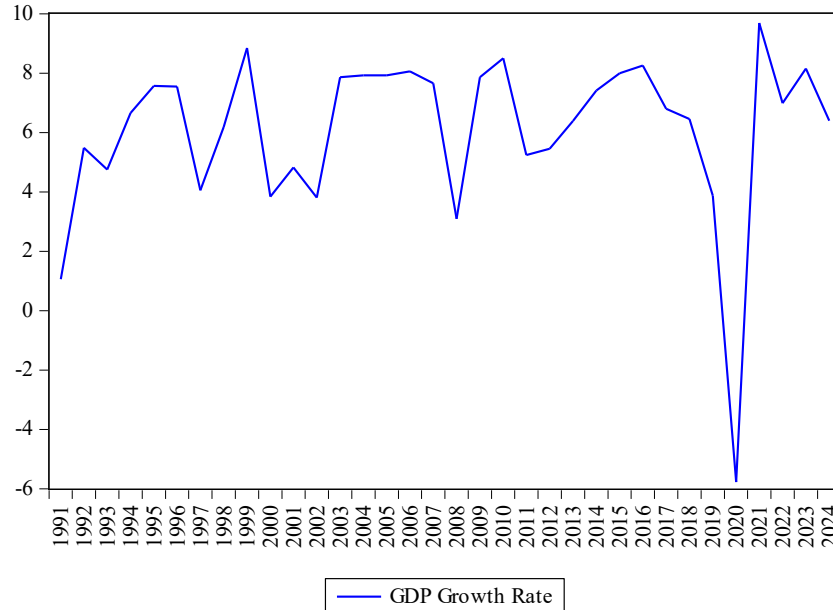


Figure 1. GDP Growth Rate in India (1991-2024)

Source: [World Bank \(2024\)](#), [IMF \(2025\)](#), [Forbes \(2025\)](#), [Ministry of Statistics and Programme Implementation \(2024\)](#)

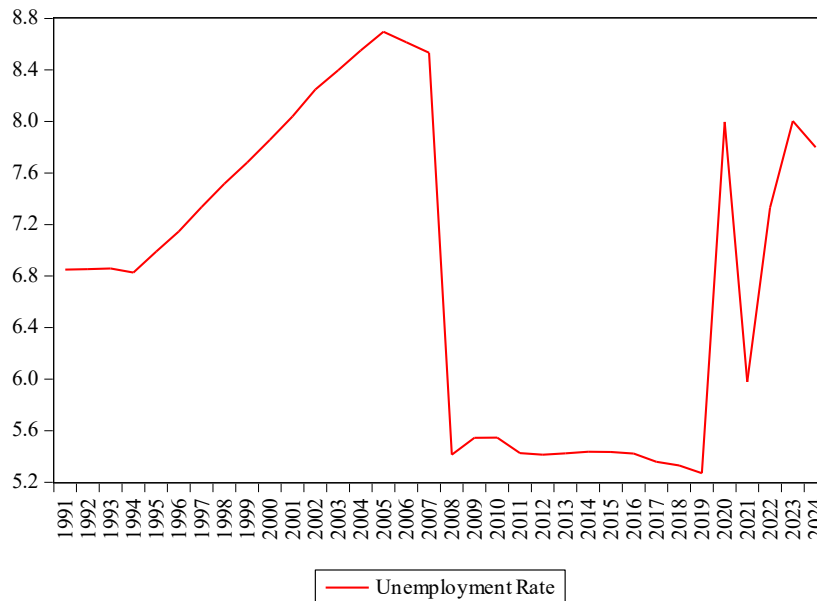


Figure 2. Unemployment Rate in India (1991-2024)

Source: [World Bank \(2024\)](#), [IMF \(2025\)](#), [Forbes \(2025\)](#), [Ministry of Statistics and Programme Implementation \(2024\)](#)

In Figure 1, the trend of the GDP growth rate fluctuates. India had the highest GDP growth rate in 2021 with 9.69% and the lowest in 2020 with -5.78%. Figure 2 also shows the fluctuating trend for the Unemployment rate in India from 1991 to 2024. The highest unemployment rate in India is 8.7% in 2005, while the lowest is 5.27% in 2019.

Statement of the problem

India's emergence as the most populous nation in the world presents both opportunities and challenges. One of the most pressing challenges is unemployment, which has critical implications for economic stability, social cohesion, and the nation's long-term development goals. Despite India's notable economic expansion in recent decades, the persistent and often rising unemployment rate raises questions about the nature and quality of this growth. The demographic dividend—reflected in a large and youthful labour force—can only be harnessed effectively if sufficient employment opportunities are created across all sectors of the economy.

While several studies have examined India's economic growth, many of them have either relied on outdated data or focused on other macroeconomic indicators such as inflation, trade, or fiscal policy. These approaches, though valuable, often overlook the direct dynamics between economic growth and employment. Furthermore, much of the prior research has not sufficiently explored whether a causal relationship exists between the two variables. Given the evolving structure of India's economy and labour market, a timely and data-driven investigation is necessary to understand the true nature of this relationship.

This study aims to address this gap by examining the linkage between economic growth and unemployment using the most recent and relevant data. By doing so, the research hopes to provide a clearer understanding of whether economic growth in India is employment-generating or if it contributes to the phenomenon of "jobless growth." Through this focused lens, the study will contribute to a more accurate and contemporary understanding of one of the most critical socio-economic issues facing India today.

Research questions

While the patterns and drivers of economic growth in India have been widely analyzed, the consequences of this growth on employment outcomes remain less understood. This study seeks to bridge that gap by specifically focusing on the nature of the relationship between economic growth and unemployment. The research aims to explore not only whether these two variables are related, but also whether one can be said to cause the other. The key research questions that guide this investigation are:

1. What is the nature and extent of the correlation between economic growth and the unemployment rate in India?
2. Does economic growth cause changes in unemployment, or does unemployment influence the pace and pattern of economic growth?

Research Objectives

The overarching aim of this study is to empirically examine the relationship between economic growth and unemployment in the Indian context, using the most recent data available. To achieve this aim, the specific objectives of the research are as follows:

1. To investigate the statistical correlation between economic growth (measured by GDP growth) and the unemployment rate in India.
2. To analyse the direction and strength of causality between economic growth and unemployment, thereby determining whether one variable significantly influences the other.

Review of Literature

Studies on India

[Bhattacharya and Caktivel \(2004\)](#) highlighted that there is a limited impact of GDP growth on employment generation. [Ball et al. \(2017\)](#) provided comparative frameworks, highlighting the varying applicability of Okun's Law across different economies. There is an inverse relationship between economic growth and unemployment in India, which is the application of Okun's Law ([Bhowmik, 2016](#); [Jain & Kumari, 2024](#); [Sharma & Rai, 2024](#)). Studies have shown that a 1% increase in GDP can lead to a decrease in the unemployment rate by approximately 0.4% ([Abubakar & Nurudeen, 2019](#); [Jain & Kumari, 2024](#); [Kumar & Balu, 2023](#); [Monica et al., 2024](#); [Sharma & Rai, 2024](#)).

[Chand et al. \(2017\)](#), [Sahoo & Sahoo \(2019\)](#), and [Kumar & Balu \(2023\)](#) investigated that economic growth in India has been shown to have a direct and positive impact on the aggregate level of output and productivity. This is partly due to the utilization of human capital, which includes educational and health competencies. Higher economic growth leads to increased employment opportunities and better utilization of the labor force. Despite the general trend of an inverse relationship, there are challenges such as jobless growth, where economic growth does not necessarily translate into proportional job creation. This can be due to factors like inadequate economic planning, labor immobility, and the need for skill development ([Testbook, 2023](#); [Padder & Mathavan, 2021](#)).

[Padder & Mathavan \(2021\)](#) and [Monica et al. \(2024\)](#) applied time series data and econometric tools such as the Augmented Dickey-Fuller test and Ordinary Least Squares (OLS) and found a negative relationship between economic growth and unemployment, suggesting that higher economic growth is associated with lower unemployment rates. The Granger causality approach has also found that unemployment and economic growth are inversely related in India. This implies that changes in economic growth can predict changes in unemployment, and vice versa. [Kexin \(2022\)](#) and [Arora et al. \(2024\)](#) suggested some policy implications that there is a need for high growth to create employment opportunities in the economy, such that the policies

should focus on improving economic planning, enhancing labor mobility, and investing in skill development to ensure that economic growth translates into sustainable employment opportunities.

[Jamal et al. \(2024\)](#) found that the issue of youth unemployment is particularly significant in India and claimed that the high rates of youth unemployment can have a detrimental impact on economic growth. Addressing this issue is crucial for achieving sustainable economic growth and reducing overall unemployment rates. [Jolianis et al. \(2024\)](#) examined the economic growth and unemployment in Indonesia and found that inflation and exchange rates have a considerable impact on economic growth, and unemployment is influenced by both population density and direct investment. [Sit \(2024\)](#) suggested that the relationship between unemployment and GDP growth can be characterized by non-linearities and cyclical components. This means that the relationship may not be straightforward and can vary depending on the economic cycle and other factors.

Studies on Asian countries (excluding India)

[Louail and Riache \(2019\)](#) investigated the impact of the output gap on the unemployment rate gap and the role of economic growth in lowering unemployment. They demonstrated the presence of Okun's law in the Saudi economy. The gross domestic product gap had a negative and significant impact on unemployment rates, with a 1% increase in GDP resulting in a 0.29% decrease in unemployment. [Hjazeen et al. \(2021\)](#) used the auto-regressive distributed lag (ARDL) model and an ARDL bootstrap cointegration approach, revealed a long-term association between Jordan's unemployment rate, economic growth, education, female population, and urbanization, and demonstrated a negative relationship between economic growth and unemployment.

[Fauzan et al. \(2023\)](#) investigated the link between income inequality, economic growth, inflation, and unemployment and showed that income inequality, inflation, and unemployment have a significant negative impact on economic growth. They confirmed that the income inequality has a considerable impact on unemployment, although economic growth and inflation have a significant positive influence. [Ayyubi et al. \(2024\)](#) investigated the relationship between unemployment rates and output growth in Pakistan and revealed a negative link between the output growth gap and the unemployment gap. [Irawan and Khoirudin \(2024\)](#) investigated the elements impacting economic growth and showed that the variables open unemployment rate and provincial minimum wage have a significant and negative impact on economic growth. Conversely, the labour force participation rate variable has a considerable and beneficial impact on economic growth. [Setyastanto et al. \(2024\)](#) investigated the impact of inflation and unemployment rates on Indonesian economic growth, revealed that the inflation variable and the unemployment rate have a significant impact on Indonesia's economic growth.

Studies on African and European countries

[Dankumo et al. \(2019\)](#) used an autoregressive distributed lag (ARDL) technique to examine the dynamic influence of unemployment on economic growth in Nigeria during 1996-2017. The findings demonstrated a long-term relationship between economic growth, unemployment, corruption, and political instability. Unemployment and corruption, on the other hand, have little effect on economic growth, whereas political stability has a negative impact. This result shows that in Nigeria, Okun's law does not explain the relationship between unemployment and economic growth. [Chuttoo \(2020\)](#) investigated the link between unemployment and economic growth in Mauritius. The test results demonstrate that, in both the long and short run, there is a negative cointegration between economic growth and unemployment, but it is not statistically significant. According to Okun's coefficient, a 4% change in gross domestic product (GDP) growth rate alters the unemployment rate by 1% in the opposite way in Mauritius.

[Conteh \(2021\)](#) examined the relationship between economic growth and unemployment in Liberia from 2001 to 2019. The findings revealed that there is no long-run correlation between unemployment and economic growth. The long and medium-term observational studies revealed no significant link between unemployment and economic growth. [Louail and Benarous \(2021\)](#) investigated the Algerian economy using Okun's law to determine the impact of real GDP on unemployment rates based on the data from 1991 to 2019. The empirical findings indicate that Okun's law functions in Algeria's economy. The GDP gap has a negative and considerable influence on unemployment. Unemployment decreased as GDP climbed; nonetheless, the increase in employment was quite small for each 1% growth in GDP.

[Amor \(2023\)](#) explored the relationship between economic growth and unemployment by examining the validity of Okun's law in the Tunisian economy. Based on secondary data from 1980 to 2020, using linear

regression and augmented autoregressive distributed lag (ARDL), the results show the presence of a long-run link. In the long run, the data demonstrated a strong unidirectional causal relationship between the unemployment rate and real output. A 1% increase in real output for the difference model reduces the unemployment rate by around 1.6%. [Ngubane et al. \(2023\)](#) examined how unemployment and economic growth affect poverty based on time series data from 2000Q1 to 2021Q4. The study's findings revealed that economic growth reduces poverty over time, whereas unemployment increases poverty.

[Niken et al. \(2023\)](#) evaluated the relationship between inflation, unemployment, and economic growth in Ethiopia's least developed, transition-undertaking economy using data from 1980 to 2020. Long-term results show no significant impact of inflation or unemployment rates on Ethiopia's economic growth. Long-term, there is a non-trivial relationship between inflation and economic growth, with inflation inversely related to unemployment. [Sekwati and Dagume \(2023\)](#) examined the impact of unemployment and inflation on economic growth in South Africa from 1994 to 2018. The Johansen co-integration test indicates a long-term association between variables. The Vector error correlation model confirms that inflation and unemployment negatively affect economic growth.

[Mohamed and Abdi \(2024\)](#) used annual data from 1991 to 2021 to investigate the relationship between Somalia's GDP and unemployment. The study's findings show a negative relationship between unemployment and economic growth, implying that Okun's law is applicable in Somalia, and the analysis finds unidirectional relationships between unemployment and GDP. [Moridian et al. \(2024\)](#) found that urbanization has a positive impact on unemployment. Romania's unemployment rate, on the other hand, is much lower as government size increases, and unemployment is negatively correlated with inflation and trade.

Theoretical Framework

The relationship between economic growth and unemployment is a long-standing topic in economic theory, often framed through the lens of macroeconomic models and labour market dynamics. This study draws its theoretical foundation primarily from Okun's Law, a widely cited economic principle that posits an inverse relationship between economic growth and unemployment. In its simplest form, Okun's Law suggests that for every 1% increase in GDP above the natural growth rate, the unemployment rate is expected to fall by a specific percentage, typically around 0.3% to 0.5% in developed economies.

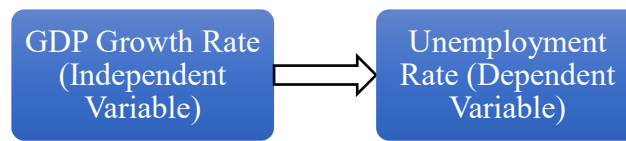
This inverse relationship forms the basis of many employment-related economic forecasts and policy strategies in industrialized nations. However, its applicability in developing economies like India is neither straightforward nor guaranteed. While Okun's Law provides a useful conceptual framework, the Indian context introduces a host of structural and institutional complexities that necessitate a more nuanced interpretation.

Several empirical studies have suggested that the growth–unemployment relationship in India is not as strong or linear as Okun originally theorized. As noted by [Ball et al. \(2017\)](#), in developing economies, this relationship often exhibits weaker correlations or asymmetries, largely due to factors such as labor market rigidities, low levels of formal employment, and the dominance of the informal sector. In India, more than 80% of the workforce is engaged in informal employment, which complicates the transmission mechanism through which economic growth might typically influence job creation.

Moreover, India's economic growth in recent decades has been disproportionately concentrated in capital-intensive and skill-intensive sectors such as information technology and financial services. These sectors tend to generate fewer jobs relative to output, limiting their ability to absorb surplus labour from agriculture or low-skilled segments. This structural transformation, while contributing to GDP growth, does not necessarily lead to broad-based employment gains, thereby weakening the expected outcomes suggested by Okun's Law.

Additionally, demographic factors such as a rapidly growing youth population and the underutilization of women in the labour force further distort the growth–employment dynamic. These socio-economic elements introduce lags, mismatches, and barriers that traditional macroeconomic theories may not fully capture.

Therefore, while Okun's Law remains the primary theoretical anchor for this study, its application in the Indian context is critically examined through the lens of India-specific labour market characteristics and structural constraints. This research adopts a modified interpretation of the law, supplemented by insights from development economics and labour market segmentation theories, to more accurately explore and explain the complex interplay between GDP growth and unemployment in India.



Hypotheses

Hypothesis.1: There is Granger causality from Economic Growth to Unemployment Rate in India.
 Hypothesis.2: There is Granger causality from the Unemployment Rate to Economic Growth in India.

Research Methodology

This study adopts a quantitative research methodology, with a focus on empirical analysis using time-series data to investigate the relationship between economic growth and unemployment in India. The choice of a quantitative approach is appropriate given the study's objective to measure and analyse the statistical and causal relationships between macroeconomic variables over time. This methodological framework enables the research to provide objective, data-driven insights that are essential for informing economic policy and theory.

The analysis covers a comprehensive period from 1991 to 2024, capturing over three decades of India's post-liberalization economic journey. The year 1991 marks a critical turning point in India's economic history, when the country adopted the Liberalization, Privatization, and Globalization (LPG) policy framework. This period witnessed significant structural reforms and macroeconomic transitions, making it a suitable starting point for examining long-term trends in GDP growth and unemployment.

The data for this study were obtained from reliable and internationally recognized sources, including: World Bank, International Monetary Fund (IMF), Ministry of Statistics and Programme Implementation (MOSPI), Government of India, Forbes India (for recent macroeconomic indicators and employment insights)

These sources ensure the credibility, consistency, and comparability of the time-series data across years

The study involves two core macroeconomic variables:

1. GDP Growth Rate: Treated as the dependent variable, representing the pace of economic expansion.
 2. Unemployment Rate: Treated as the independent variable, reflecting labour market outcomes.
- The selection of these variables is guided by the theoretical foundation of Okun's Law and the study's primary aim of examining the interplay between output and employment over time.

To analyse the nature and strength of the relationship between the selected variables, the study employs two key econometric techniques: Pearson's Correlation Coefficient and the Granger Causality Test. The analysis is conducted using EViews, a specialized econometric software known for its robustness in handling time-series data. EViews allows for accurate modelling, forecasting, and testing of statistical hypotheses, ensuring high reliability of the results. It also facilitates diagnostics for autocorrelation, stationarity, and other common issues in time-series econometrics, thereby improving the validity of the findings.

Findings

Unit Root Test Results

The stationarity of the variables – GDP Growth and Unemployment Rate was tested using the Augmented Dickey Fuller (ADF) test. From Table 2, it can be seen that the rejection of the unit root null hypothesis of stationarity for GDP Growth in India at the Level and Unemployment Rate at the first difference level.

Table 2. Unit Root Test Results

For GDP Growth	ADF (level)	p value	ADF (1 st difference)	p value	ADF (2 nd difference)	p value
(with intercept)	-5.816	0.0000	-8.887	0.0000	-6.176	0.0000
(with intercept and time trend)	-5.703	0.0003	-8.741	0.0000	-6.127	0.0001

For the Unemployment Rate	ADF (level)	p value	ADF (first difference)	p value	ADF (second difference)	p value
(with intercept)	-1.990	0.2894	-7.585	0.0000	-8.107	0.0000
(with intercept and time trend)	-1.982	0.5893	-7.502	0.0000	-7.965	0.0000

Correlation Analysis

The examination of the relationship between GDP growth rate and unemployment rate is shown in Table 3.

Table 3. Correlation between GDP & Unemployment

	Unemployment Rate	p-value
GDP Growth Rate	-0.07	0.675

From the statistical analysis presented in Table 3, it is observed that there exists a weak negative correlation between the GDP growth rate and the unemployment rate in India during the period from 1991 to 2024. This implies that, in general, as the GDP growth rate increases, the unemployment rate tends to decrease slightly. However, this relationship is not statistically strong or meaningful. The p-value obtained is greater than 0.05, indicating that the correlation is not statistically significant at the 5% significance level. This means that we cannot confidently assert the existence of a consistent linear relationship between these two macroeconomic indicators over the studied period. While the direction of the correlation aligns with theoretical expectations—particularly Okun’s Law, which suggests an inverse relationship—the statistical insignificance reflects that this relationship may not hold uniformly or reliably in the Indian context.

Granger Causality

The empirical study analyses the relationship between economic growth and unemployment rate through Granger Causality in India. It is used to measure the short run relationship of two variables.

Table 4. Granger Causality Results

Null Hypothesis	F-value	p-value
No Granger Causality from Economic Growth to Unemployment Rate	0.65770	0.5261
No Granger Causality from Unemployment Rate to Economic Growth	0.52193	0.5992

Table 4 summarizes the Granger causality test results, revealing that there is no evidence of Granger causality running from economic growth to unemployment at the 5% level of significance. In other words, fluctuations in GDP growth do not statistically predict or cause changes in the unemployment rate in India. Similarly, the reverse direction also holds—unemployment does not Granger-cause economic growth. This absence of causality in both directions suggests that the two variables do not influence each other directly over time, and their interactions might be moderated or disrupted by other structural, institutional, or demographic factors.

Discussion

The highest economic growth in India during the observed period was recorded in the year 2021, a time of post-COVID recovery and policy-driven fiscal stimulus aimed at reviving economic activity. In contrast, the highest unemployment rate was observed in 2005, potentially reflecting structural bottlenecks in job creation during a period of economic transition. On the other hand, 2020 marked the lowest economic growth, coinciding with the COVID-19 pandemic and global lockdowns that severely disrupted economic output. Interestingly, 2019 witnessed the lowest unemployment rate, possibly capturing a brief period of relative labor market stability before the pandemic. These observations illustrate the non-synchronous movements of GDP and unemployment, indicating that factors such as global economic shocks, domestic policy decisions, and demographic changes can significantly influence both variables independently.

The unit root test results further validated the appropriateness of time-series econometric modelling. The GDP growth rate was found to be stationary at the level, meaning it does not exhibit trends or volatility that would distort analysis. Meanwhile, the unemployment rate became stationary at the first difference, confirming that it required transformation to ensure valid statistical testing. These stationarity results support the reliability of the correlation and causality tests conducted in the study.

Conclusion

In conclusion, the overall findings of this research point to a negative but statistically insignificant correlation between economic growth and unemployment in India. While the direction of the relationship is in line with Okun's Law, the lack of statistically significant correlation and the absence of Granger causality in either direction imply that the law's predictive power is limited in the Indian context. This highlights the unique complexities of India's labour market, where informal employment, underemployment, regional disparities, and skill mismatches undermine the expected positive spillovers of GDP growth on job creation.

Ultimately, this study underscores the fact that economic growth alone is not sufficient to reduce unemployment in a meaningful way. The findings reflect the need for complementary policies and targeted interventions, such as skill development programs, labour market reforms, support for MSMEs, and initiatives to formalize employment. For India to fully leverage its demographic dividend and achieve inclusive growth, future strategies must move beyond a narrow focus on GDP growth and incorporate employment-oriented planning as a central component of economic policy. The complex and dynamic relationship between growth and employment in India, as revealed by this study, should serve as a foundation for future research and informed policymaking.

Recommendations

The relationship between economic growth and unemployment in India is shaped by a combination of economic, institutional, and structural variables. While the findings support the relevance of Okun's Law in the Indian context, the absence of direct causality indicates the need for a more integrated and holistic policy approach. Addressing unemployment effectively will require not only promoting growth but also ensuring that growth is equitable, sustainable, and employment-generating.

Based on these insights, several recommendations are proposed for policymakers and researchers:

- 1. Implement Targeted Employment Policies:**
 - Design sector-specific employment policies focused on labor-intensive industries such as agriculture, construction, and small-scale manufacturing.
 - Aim to reduce structural unemployment and improve labor market efficiency.
- 2. Consider Broader Determinants:**
 - Encourage future research and policies to include factors like educational attainment, technological change, labor laws, urbanization, and demographic transitions that impact the growth-unemployment relationship.
- 3. Invest in Human Capital Development:**
 - Increase investments in skill development and education.
 - Expand access to vocational training and align educational curricula with industry needs to reduce the skills mismatch in the labor market.
- 4. Adopt an Integrated and Holistic Policy Approach:**
 - Recognize that India's growth-unemployment relationship is shaped by economic, institutional, and structural factors.
 - While Okun's Law is relevant in India, the lack of direct causality suggests the need for broader, integrated policies.
 - Promote growth that is equitable, sustainable, and capable of generating employment.

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