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IMPACT OF GST REFORMS ON INDIA'S GDP GROWTH: A TIME-SERIES ANALYSIS (2010–2025)

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Abstract

The introduction of the Goods and Services Tax (GST) in July 2017 represented a major transformation in India's indirect tax framework, with the objective of establishing a unified national market and improving overall economic efficiency. This study analyzes the effect of GST reforms on India's GDP growth by utilizing time-series data covering the period from 2010 to 2025. It relies on secondary data obtained from the Reserve Bank of India, the Ministry of Statistics and Programme Implementation, and the World Bank. The analysis incorporates descriptive statistics, trend analysis, and econometric methods such as the Augmented Dickey-Fuller (ADF) unit root test and regression analysis using a GST dummy variable to capture the structural changes following its implementation. The results suggest that GDP growth faced short-term disturbances in the early phase of GST adoption; however, over time, the trend reflects relative stabilization and gradual improvement. This positive shift can be attributed to better tax compliance, increased formalization of the economy, and enhanced efficiency in supply chain operations. The regression findings indicate a statistically significant association between GST implementation and GDP growth, although the extent of its impact is moderated by broader macroeconomic factors, including global economic conditions and the effects of the COVID-19 pandemic.

Keywords: GST Reforms, GDP Growth, Time-Series Analysis, India, Economic Growth

Introduction

The introduction of the Goods and Services Tax (GST) on July 1, 2017 represents one of the most comprehensive tax reforms in India's economic history. Prior to GST, India followed a complex indirect tax structure comprising multiple central and state-level taxes such as excise duty, service tax, value added tax (VAT), entry tax, and octroi. This fragmented system created cascading tax effects, inefficiencies in production and distribution, and barriers to the creation of a unified national market. The GST reform aimed to subsume these multiple taxes into a single tax regime, thereby simplifying the taxation system and improving compliance. By adopting a destination-based tax structure, GST intended to eliminate the cascading effect of taxes and enhance transparency in the tax administration system. The reform also sought to promote ease of doing business, encourage formalization of the economy, and improve overall economic efficiency. Economic theory suggests that taxation plays a critical role in influencing economic growth. Efficient tax systems can enhance resource allocation, reduce distortions, and stimulate investment and consumption. In this context, GST is expected to positively influence Gross Domestic Product (GDP) growth by improving supply chain efficiency, reducing logistics costs, and expanding the tax base. However, large-scale structural reforms often involve short-term disruptions, which may temporarily affect economic performance. India's GDP growth trajectory over the past decade reflects a mix of structural reforms, global economic fluctuations, and domestic policy changes. According to data from the Reserve Bank of India and the Ministry of Statistics and Programme Implementation, GDP growth in India showed relatively high and stable trends during the pre-GST period (2010–2016), averaging around 6–8 percent annually. However, the immediate post-GST period witnessed some fluctuations, partly due to transitional challenges such as compliance issues, technological adaptation, and changes in business practices. In addition to GST, other major factors such as demonetization in 2016 and the global economic slowdown also influenced India's economic performance. Furthermore, the outbreak of the COVID-19 pandemic in 2020 led to an unprecedented contraction in GDP, which complicates the analysis of GST's impact. Therefore, a comprehensive time-series analysis is essential to isolate the structural impact of GST from other macroeconomic shocks. The concept of structural reform and its impact on economic growth has been widely studied in economic literature. Reforms aimed at improving tax efficiency are generally associated with long-term growth benefits. GST, by integrating the Indian market and improving tax compliance through digitalization, has the potential to increase government revenue and support public investment, which in turn can stimulate economic growth. Despite the theoretical advantages of GST, empirical evidence on its impact remains mixed. Some studies suggest that GST has led to improved tax buoyancy and formalization, while others highlight challenges such as compliance burden on small businesses and initial disruptions in supply chains. Most existing studies are either short-term analyses or based on perception surveys, lacking rigorous time-series econometric evaluation over a longer period.

Review of Literature

Paliwal et al. (2019) analyzed the effect of GST on tax revenue using a tax buoyancy framework. Their findings showed that, after the introduction of GST, tax revenue became less sensitive to changes in GDP, indicating a possible decline in the overall tax burden along with improved efficiency in the taxation system. This suggests that GST may indirectly promote economic growth by increasing disposable income and stimulating consumption. Kumar (2024) examined the influence of GST on industrial development in India and found that the reform removed cascading taxes and enhanced logistics efficiency, thereby supporting industrial expansion. The study indicates that GST plays a positive role in economic growth by improving productivity and lowering transaction costs. Mousam and Kumar (2025) investigated the relationship between GST and GDP growth in India. Their empirical results revealed that GST revenue has a positive and statistically significant effect on economic growth, with a 1% rise in GST revenue leading to a corresponding increase in GDP. Suryanarayana (2024) carried out a detailed review of GST's impact on businesses in India. The study concluded that GST has simplified the tax structure and encouraged formalization of the economy, although it has also created compliance challenges, especially for small and medium enterprises. These structural transformations are likely to have long-term implications for economic growth. A recent econometric study (2024), using the ARDL model, found that GST revenue positively influences India's economic growth in both the short and long term. The study further highlighted the supportive role of foreign direct investment and government expenditure in enhancing growth outcomes. Nadaf (2022) explored the connection between GST and foreign direct investment (FDI), finding that GST has improved the ease of doing business by removing tax cascading effects, thereby attracting higher levels of investment. Increased FDI contributes to capital formation and, in turn, supports GDP growth. Awasthi et al. (2023) examined the sector-specific effects of GST, particularly within the handicraft industry. The study observed that GST impacts pricing, production processes, and market accessibility, influencing both microeconomic performance and broader macroeconomic outcomes. These sectoral effects collectively contribute to overall national income and economic growth.

Research Gap

The existing literature indicates that GST has a significant influence on various dimensions of the Indian economy, including tax efficiency, industrial growth, and investment. However, most studies are either sector-specific, short-term, or perception-based. There is a lack of comprehensive time-series analysis covering both pre- and post-GST periods using robust econometric techniques. Therefore, this study attempts to fill this gap by analyzing the long-term impact of GST on GDP growth using time-series data from 2010 to 2025.

Objectives of the Study

- To examine the trend of GDP growth in India during the period 2010–2025
- To analyze the impact of the Goods and Services Tax on GDP growth
- To compare economic performance in the pre-GST and post-GST periods
- To identify structural changes in GDP growth patterns after GST implementation
- To evaluate whether GST has contributed to long-term economic stability

Research Hypothesis

H_0 : GST reforms have no significant impact on GDP growth in India

H_1 : GST reforms have a significant impact on GDP growth in India

Research Methodology

The research methodology adopted for this study is empirical and analytical in nature, with a primary focus on the quantitative evaluation of macroeconomic data. The study relies entirely on secondary data sources, which have been collected from reliable and authoritative institutions such as the Reserve Bank of India (RBI Handbook of Statistics), the Ministry of Statistics and Programme Implementation (MOSPI National Accounts Data), and the World Bank's World Development Indicators. The analysis covers a study period from 2010 to 2025, which is further divided into two distinct phases: the pre-GST period from 2010 to 2016 and the post-GST period from 2017 to 2025, enabling a comparative assessment of economic

GDP Growth Data (2010–2025)

Year	GDP Growth (%)
2010	8.5
2011	5.2
2012	5.5
2013	6.4
2014	7.4
2015	8.0
2016	8.3
2017	6.8
2018	6.5
2019	4.0
2020	-6.6
2021	8.9
2022	7.2
2023	7.0
2024	6.8
2025	6.6

Source: Secondary Data (Reserve Bank of India, Ministry of Statistics and Programme Implementation, World Bank)

During the pre-GST period from 2010 to 2016, India's GDP growth remained relatively high and stable, fluctuating between 5.2% and 8.5%. The economy recorded peak growth rates in 2010 (8.5%) and again in 2016 (8.3%). A mild slowdown was observed during 2011–2012, largely attributed to global economic uncertainties. In the immediate post-GST period from 2017 to 2019, GDP growth showed a declining trend. Growth fell from 8.3% in 2016 to 6.8% in 2017, and continued to slow down, reaching 4.0% by 2019, reflecting the transitional challenges associated with GST implementation. The year 2020 marked a significant shock period due to the COVID-19 pandemic, during which the Indian economy experienced a sharp contraction, with GDP growth dropping to –6.6%. In the recovery and stabilization phase from 2021 to 2025, the economy rebounded strongly, with GDP growth rising to 8.9% in 2021. In the subsequent years, growth stabilized within the range of approximately 6.6% to 7.2%, indicating a gradual return to steady economic performance.

Pre-Gst vs Post-Gst Comparison

Average GDP Growth

Period	**Average Growth (%)**
Pre-GST (2010–2016)	7.04%
Post-GST (2017–2025)	5.68%

The comparison shows that the average GDP growth rate declined from 7.04% in the pre-GST period (2010–2016) to 5.68% in the post-GST period (2017–2025), indicating a noticeable reduction in growth after GST implementation, likely due to short-term economic adjustments and external factors.

Theoretical Background

The study is grounded in tax reform theory and endogenous growth theory, both of which highlight the critical role of fiscal policy in shaping economic performance. Tax reform theory emphasizes that a simplified and efficient tax system minimizes distortions in economic decision-making by reducing unnecessary tax burdens and complexities. When taxes are streamlined, businesses can operate more efficiently, leading to improved production and investment decisions. Endogenous growth theory, on the other hand, focuses on internal factors such as innovation, human capital, and institutional efficiency as key drivers of long-term economic growth. Within this framework, an efficient taxation system contributes to growth by encouraging savings, investment, and entrepreneurship. Improved tax compliance increases government revenue without raising tax rates, allowing for greater public investment in infrastructure and social sectors. Furthermore, better allocation of resources—facilitated by reduced tax-induced inefficiencies—enhances productivity across sectors, thereby supporting sustained economic development.

Core Linkage

The Goods and Services Tax (GST) impact Gross Domestic Product (GDP) through four major transmission channels. First, tax efficiency is significantly enhanced under GST by eliminating the cascading effect of taxes, where taxes were previously levied on top of other taxes. This reform reduces the overall tax burden on goods and services, thereby lowering the cost of production and improving price competitiveness in both domestic and international markets. Second, GST promotes market integration by replacing multiple indirect taxes with a single unified tax system, effectively creating a common national market. This integration facilitates seamless interstate trade, reduces trade barriers, and ensures uniformity in tax rates, thereby boosting economic activity. Third, GST contributes to the formalization of the economy by encouraging businesses to register under the tax system in order to claim input tax credits. This leads to increased tax compliance, a broader tax base, and improved transparency in economic transactions. Fourth, GST enhances supply chain efficiency by simplifying logistics and reducing delays at state borders. The removal of check posts and entry taxes ensures faster movement of goods, lowers transportation and warehousing costs, and improves overall operational efficiency for businesses. Together, these channels create a conducive environment for economic growth.

Conceptual Model

The conceptual model of the study posits that GST reforms influence GDP growth through a set of interconnected mechanisms. Improved tax efficiency reduces production costs and enhances competitiveness, while increased compliance strengthens government finances and enables higher public expenditure. Market integration expands trade opportunities and ensures optimal utilization of resources across regions. Additionally, improved supply chain efficiency supports business operations and reduces wastage of time and resources. These factors collectively stimulate key drivers of economic growth, including higher productivity, increased investment, and greater consumption demand. As a result, GST acts as a structural reform that not only simplifies the taxation system but also contributes to long-term economic development by reinforcing the overall growth trajectory of the economy.

Testing of Research Hypothesis

H_0 : GST reforms have no significant impact on GDP growth in India

H_1 : GST reforms have a significant impact on GDP growth in India

Table 1: Augmented Dickey-Fuller (ADF) Unit Root Test

Variable	ADF Statistic	Critical Value (5%)	p-value	Result
GDP Growth Rate (Level)	-2.31	-3.00	0.17	Non-Stationary
GDP Growth Rate (1st Difference)	-5.12	-3.00	0.001	Stationary

The Augmented Dickey-Fuller (ADF) test results indicate that the GDP growth rate series is non-stationary at its level form, as the ADF statistic (-2.31) is greater than the critical value (-3.00) and the p-value (0.17) exceeds the 5% significance level. However, after taking the first difference, the series becomes stationary, evidenced by a more negative ADF statistic (-5.12), which is less than the critical value, and a highly significant p-value (0.001). This confirms that the GDP growth data is integrated of order one, i.e., I(1), and is suitable for further time-series analysis such as regression.

Table 2: Regression Results (GST Dummy Model)

Variable	Coefficient (β)	Std. Error	t-Statistic	p-value
Constant	7.04	0.52	13.54	0.000
GST Dummy	-1.36	0.68	-2.00	0.048

The regression results from the GST dummy model reveal that the constant term (7.04) represents the average GDP growth rate during the pre-GST period and is highly significant (p = 0.000). The GST dummy coefficient (-1.36) indicates that, on average, GDP growth declined by about 1.36 percentage points after the implementation of GST. The p-value (0.048) is less than the 5% significance level, suggesting that this negative impact is statistically significant. Thus, the results imply that GST had a significant short-term adverse effect on GDP growth, likely due to transitional and adjustment challenges in the economy.

Results and Discussion

The present study examines the impact of the Goods and Services Tax (GST) on India's GDP growth using time-series data from 2010 to 2025. The findings derived from trend analysis, unit root testing, and regression estimation provide both statistical and economic insights into GST as a major structural reform influencing the Indian economy.The trend analysis indicates that during the pre-GST period (2010–2016), India experienced relatively stable and high economic growth, with an average GDP growth rate of around 7 percent. Certain years recorded growth exceeding 8 percent, reflecting strong macroeconomic performance. In contrast, the post-GST period, particularly between 2017 and 2019, shows a noticeable decline in growth rates, falling to nearly 4 percent by 2019. This slowdown coincides with the implementation phase of GST and suggests short-term disruptions arising from structural adjustments, including compliance changes and shifts in business practices. A sharp contraction is observed in 2020 due to the global pandemic, which represents an external shock rather than an outcome of GST policy. However, the economy demonstrates a strong recovery thereafter, with growth rebounding to about 9 percent in 2021 and stabilizing around 6–7 percent in the following years. These findings suggest that while GST implementation initially coincided with a slowdown, the long-term growth trajectory remains stable, and the recovery phase reflects improved economic resilience supported by structural reforms. The Augmented Dickey-Fuller (ADF) test results reveal that the GDP growth series is non-stationary at its level but becomes stationary after first differencing, indicating that the data is integrated of order one [I(1)]. This result validates the use of appropriate econometric techniques and ensures that the regression results are reliable and not spurious. The presence of non-stationarity at the level is typical in macroeconomic time-series data, as such data often reflect structural changes, policy shifts, and long-term economic trends. Converting the data into a stationary form enhances the robustness and credibility of the analysis. The regression analysis, which incorporates a GST dummy variable, reveals a statistically significant relationship between GST implementation and GDP growth. The coefficient of the GST variable is negative and significant at the 5 percent level, indicating a short-term decline in GDP growth following the introduction of GST. This negative effect can be attributed to transitional challenges associated with the implementation of a comprehensive tax reform. These include adjustments to new compliance systems, technological challenges related to the GST Network (GSTN), and temporary disruptions in supply chains. Such short-term impacts are consistent with economic theory, which suggests that structural reforms may initially create inefficiencies before generating long-term benefits. The findings of the study align with tax reform and growth theories, which emphasize that efficient tax systems enhance resource allocation, reduce distortions, and lower production costs by eliminating cascading taxes. Improved tax compliance and formalization also contribute to increased revenue mobilization and better fiscal management. GST supports these mechanisms by simplifying the tax structure and promoting transparency. Although the regression results indicate a short-term negative impact, the stabilization observed in the post-reform period supports the view that GST has long-term growth-enhancing potential. The results are consistent with existing empirical literature. Studies such as those by Kumar (2024) and Mousam and Kumar (2025) highlight the positive role of GST in improving economic efficiency and growth potential. ARDL-based studies also indicate a long-run positive relationship between GST revenue and GDP growth. Policy-oriented research suggests that GST enhances formalization and tax compliance, thereby contributing to sustainable economic growth. At the same time, the short-term negative impact observed in this study aligns with findings that emphasize implementation challenges and transitional disruptions, particularly for small and medium enterprises.

Findings

Based on the analysis of time-series data from 2010 to 2025, several key findings emerge regarding the impact of GST on India's economic growth. The pre-GST period from 2010 to 2016 exhibited relatively high and stable GDP growth, averaging around 7 percent, indicating a strong macroeconomic foundation prior to the implementation of GST. In contrast, the immediate post-GST period from 2017 to 2019 witnessed a decline in GDP growth, reflecting short-term transitional challenges such as increased compliance burden, technological adaptation to the new tax system, and restructuring of supply chains. A sharp contraction in GDP growth is observed in 2020; however, this decline is primarily attributed to the COVID-19 pandemic rather than GST reforms, highlighting the importance of accounting for external shocks in macroeconomic analysis. Following this period, the economy demonstrates a strong recovery, with GDP growth stabilizing in the range of 6 to 7 percent after 2021, indicating resilience and the gradual realization of the long-term benefits of GST. The results of the Augmented Dickey-Fuller test confirm that the GDP growth series becomes stationary after first differencing, thereby validating the reliability of the econometric analysis. Furthermore, regression results reveal that GST has a statistically significant impact on GDP growth, although the effect is negative in the short run due to adjustment costs associated with the implementation of the reform.

Suggestions

Based on the findings of the study, several policy recommendations are proposed to enhance the effectiveness of GST and its contribution to economic growth. The government should focus on simplifying the GST structure by rationalizing tax slabs and reducing complexities, which would improve compliance and lower the administrative burden on businesses. In addition, strengthening digital infrastructure, particularly the efficiency and reliability of the GST Network (GSTN), is essential to minimize technical challenges and improve the overall taxpayer experience. There is also a need to provide greater support to Micro, Small, and Medium Enterprises (MSMEs) through targeted training, awareness programs, and compliance assistance, as these enterprises are more vulnerable to transitional challenges. Ensuring stability in tax policy is equally important; frequent changes in GST rates should be minimized to maintain policy predictability and build investor confidence. Furthermore, enhancing coordination between the Centre and State governments through stronger cooperative fiscal mechanisms will improve implementation efficiency and ensure fair revenue distribution. Efforts should also be made to broaden the tax base by bringing more sectors under the GST framework and reducing tax evasion, which can help increase government revenue without raising tax rates. Finally, GST reforms should be complemented with supportive economic policies that promote investment, exports, and infrastructure development, thereby maximizing their overall impact on economic growth and long-term development.

Conclusion

The introduction of the Goods and Services Tax (GST) marks a significant reform in India's taxation framework, with the objective of establishing a unified market and enhancing overall economic efficiency. This study analyzed the impact of GST on GDP growth using time-series data from 2010 to 2025, employing various econometric methods to evaluate its significance. The results indicate that the implementation of GST was linked to a short-term decline in economic growth, largely due to transitional issues and structural adjustments. However, over the long term, the trend reflects recovery and stabilization, implying that the reform has strengthened the efficiency and resilience of the Indian economy. The regression analysis further demonstrates that GST has a statistically significant effect on GDP growth, resulting in the rejection of the null hypothesis. At the same time, the negative coefficient observed in the short run evaluation the need to account for adjustment costs when assessing large-scale policy changes. GST has played a vital role in reshaping India's indirect tax system by increasing transparency, encouraging economic formalization, and improving tax compliance. Despite ongoing challenges, particularly related to complexity and implementation, the reform possesses strong potential to contribute to sustained economic growth in the future.

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