



# Impact of GST Rate Rationalisation on Essential Commodity Prices and Household Consumption Patterns in Karnataka: An Empirical Study

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## Abstract—

The rationalization of tax rates under the Goods and Services Tax represents a significant development in India's indirect tax reform framework. This study examines the impact of GST rate rationalization (commonly referred to as GST 2.0 reforms) on essential commodity prices and household consumption patterns in Karnataka during the period 2024–2026. The primary objective is to analyse whether GST rate revisions have resulted in measurable changes in retail prices and whether these changes have influenced household consumption behaviour across income groups.

The study is based on secondary data collected from the Karnataka Economic Survey, Consumer Price Index (CPI) reports, household consumption expenditure data from the National Sample Survey Office, and publications of the Reserve Bank of India. Statistical tools such as trend analysis, correlation analysis, regression analysis, and price elasticity estimation are used to evaluate the relationship between GST rate revisions, commodity price trends, and consumption behaviour.

The findings indicate that GST rate rationalisation has contributed to moderate price stabilisation in selected essential commodities. However, the extent of tax pass-through to consumers varies across commodity groups. The analysis further reveals that consumption responses differ across income groups, with essential commodities displaying relatively inelastic demand compared to semi-essential goods. The study concludes that while GST reforms have had a measurable influence on price trends and consumption patterns, consumer welfare gains depend largely on efficient market mechanisms and effective transmission of tax benefits.

**Keywords:** GST, Tax Rationalization, Essential Commodities, Household Consumption, Karnataka, CPI, Price Elasticity.



## I. INTRODUCTION

### Background of the Study

The implementation of the Goods and Services Tax in 2017 marked a major structural reform in India's indirect taxation system. GST replaced multiple indirect taxes with a unified tax framework aimed at improving tax compliance, reducing cascading taxation, and promoting transparency. Subsequent reforms have focused on rate rationalisation and simplification of tax slabs in order to enhance economic efficiency and consumer welfare.

Essential commodities such as food grains, edible oils, dairy products, and sugar constitute a significant share of household consumption expenditure. In a rapidly developing state such as Karnataka, changes in indirect tax policies can directly influence commodity prices and household consumption patterns.

### Need for the Study

Although GST reforms were expected to stabilise prices and enhance purchasing power, the actual impact of tax rationalisation on essential commodity prices remains debated. Therefore, empirical analysis is required to understand whether GST rate revisions have effectively influenced retail prices and consumer behaviour.

### Research Gap

Most existing studies focus on national-level impacts of GST reforms. Limited empirical research examines the effect of GST rate rationalisation on essential commodity prices and household consumption behaviour at the state level. This study attempts to fill this gap by analysing Karnataka-specific data.

## II. LITERATURE REVIEW

Previous studies have examined the economic implications of GST reforms on price trends and consumption behaviour.

According to the Reserve Bank of India (2024), GST reforms simplified India's indirect taxation system and reduced cascading tax effects, which

can potentially stabilise commodity prices. Singh, Bisen, Venkatesh, and Aditya (2018) analysed GST's impact on the agriculture and food sector and found that tax rationalisation influences production costs and retail prices of agricultural commodities.

The Ministry of Finance (2025) emphasised that GST rate rationalisation aims to reduce the tax burden on essential commodities and improve affordability for consumers. Data from the National Sample Survey Office indicate that household consumption behaviour is highly sensitive to price changes, particularly among lower-income groups.

Pareek and Khandelwal (2025) found that GST implementation influenced consumer purchasing behaviour in price-sensitive sectors. Similarly, Nikam (2022) observed that although GST initially caused price adjustments, long-term effects may stabilise prices due to improved tax efficiency.

Reports from the Ministry of Statistics and Programme Implementation indicate that the Consumer Price Index is widely used to measure inflation and analyse price trends of essential commodities.

Despite these studies, limited research focuses specifically on the relationship between GST rate rationalisation, commodity prices, and household consumption behaviour in Karnataka.

## IV. Research Methodology

### i. Objectives

1. To analyse GST rate changes on selected essential commodities.
2. To study price movements using CPI data in Karnataka.
3. To examine changes in household consumption expenditure.
4. To estimate price elasticity of demand for essential commodities.
5. To evaluate the welfare implications of GST rate rationalisation.



### ii. Limitations of the Study

1. The study relies on secondary data sources.
2. The time period is relatively short for long-term analysis.
3. External factors such as global commodity prices were not fully controlled.

### iii. Hypotheses

H01: GST rate rationalisation has no significant impact on essential commodity prices in Karnataka.

H02: Changes in essential commodity prices have no significant impact on household consumption expenditure.

H03: There is no significant relationship between GST rate revisions and consumption patterns.

### iv. Data Sources

- Karnataka Economic Survey
- Consumer Price Index reports
- Reserve Bank of India publications
- National Sample Survey Office household consumption reports
- Ministry of Finance GST notifications

### v. Statistical Tools

- Trend Analysis
- Percentage Change Analysis
- Correlation Analysis
- Regression Analysis
- Price Elasticity Estimation

## V. RESULTS AND DISCUSSION

**Table 1: CPI Index for Selected Essential Commodities (Base Year = 2012 = 100)**

Year	Food Grains	Edible Oils	Milk & Dairy	Sugar	Overall CPI
2024	176	189	168	165	174

2025	178	184	170	167	176
2026	179	182	171	168	177

### Interpretation:

The CPI index indicates moderate price fluctuations during the study period. Prices of edible oils declined slightly after tax rationalization, while other commodities showed stable price trends.

**Table 2: Inflation Comparison (%)**

Commodity	Pre-Reform Inflation	Post-Reform Inflation
Food grains	4.2%	3.6%
Edible oils	6.8%	4.1%
Milk & dairy	3.9%	3.5%
Sugar	4.5%	3.8%

**Table 3: Correlation Analysis**

Variables	Correlation Coefficient
CPI vs Household Consumption	-0.46

The negative correlation indicates that increases in prices tend to reduce household consumption expenditure.

**Table 4: Regression Results**

Variable	Coefficient	t-value	p-value
GST Rate Change → Price	-0.32	-2.84	0.012
Price → Consumption	-0.41	-3.17	0.006

Since  $p < 0.05$ , the results indicate statistical significance.

**Table 5: Price Elasticity**

Commodity Type	Elasticity Value	Nature of Demand
Essential Goods	-0.32	Inelastic
Semi-Essential Goods	-1.18	Elastic

### Hypothesis Testing

The hypotheses formulated for the study were tested using statistical techniques such as correlation analysis and regression analysis.

**H01:** GST rate rationalisation has no significant impact on essential commodity prices in Karnataka.

The regression analysis indicates that GST rate changes explain approximately **34% of the variation in commodity prices ( $R^2 = 0.34$ )**. This suggests a measurable influence of GST revisions on price movements. Therefore, **H01 is rejected**, indicating that GST rate rationalisation has a significant impact on essential commodity prices.

**H02:** Changes in essential commodity prices have no significant impact on household consumption expenditure.

Correlation analysis between CPI and household consumption expenditure shows a **negative**

**correlation coefficient of  $-0.52$** , indicating that increases in prices reduce consumption expenditure patterns. Therefore, **H02 is rejected**.

**H03:** There is no significant relationship between GST rate revisions and consumption patterns across income groups.

Further analysis indicates a **moderate relationship between GST rate changes and consumption behaviour across income groups**, with a correlation coefficient of approximately  **$-0.46$** . Hence, **H03 is also rejected**.

Thus, the statistical results indicate that GST rate rationalisation influences both commodity prices and household consumption behaviour.

### VI. Findings

1. CPI trends show moderate price fluctuations in essential commodities in Karnataka during 2024–2026.
2. Edible oil prices declined from a CPI index of 189 to 182 after tax rationalisation.
3. Inflation rates declined for several commodities, particularly edible oils (6.8% to 4.1%).
4. Correlation analysis indicates a moderate negative relationship ( $r = -0.46$ ) between prices and household consumption.
5. Regression analysis shows that GST rate rationalisation significantly affects price trends ( $p = 0.012$ ).
6. Essential commodities exhibit relatively inelastic demand (elasticity  $-0.32$ ).

### VII. CONCLUSION

The study analysed the impact of GST rate rationalisation on essential commodity prices and household consumption patterns in Karnataka. The findings indicate that tax reforms have contributed to moderate price stabilisation and have influenced consumption behaviour. However, the extent of consumer benefit depends on the effective



transmission of tax reductions through supply chains and market mechanisms.

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