

# A Statistical Analysis of the Union Budget of India with Policy Implications for the Next Budget

Author Name-Pratiksha Rajendra Sawant\*

Department of Statistics

Dr. D. Y. Patil Arts, Commerce & Science College,  
Pimpri, Pune, Maharashtra, India.

Author Name-Pratiksha Bhagwan Jagtap

Department of Statistics

Dr. D. Y. Patil Arts, Commerce & Science College,  
Pimpri, Pune, Maharashtra, India.

**Abstract** - The Union Budget is a crucial policy instrument that reflects the government's economic priorities and development strategy. This study presents a sector-wise statistical analysis of the Union Budget of India over a ten-year period from 2015–16 to 2026–27, with estimates extending to 2027–28. The primary objective of this research is not only to examine historical budget allocation patterns but also to derive implementation-oriented insights that can support the formulation of future budgets. The study uses official government data and applies descriptive statistics, trend analysis, growth rate analysis, funding stability measures, sectoral priority shift analysis, and capital versus revenue expenditure comparison. In addition, a pre- and post-2020 structural analysis is conducted to assess changes in budgetary behavior following major economic disruptions.

The findings reveal significant variation in funding stability across sectors, with some key development and social sectors exhibiting high volatility despite increasing allocations. The analysis also indicates a shift in government priorities over time, along with an imbalance between capital and revenue expenditure that may affect long-term economic growth. Based on these results, the study proposes implementation-focused recommendations such as multi-year stable funding frameworks, outcome-based budgeting, enhanced capital expenditure planning, and sector-wise priority realignment. Overall, this research provides an evidence-based analytical framework that can assist policymakers in improving the effectiveness, efficiency, and strategic implementation of the next Union Budget.

**Keywords** - Union Budget, Sector-wise Analysis, Budget Allocation, Funding Stability, Capital Expenditure, Policy Implementation, Statistical Analysis, India, Budget Forecasting, Evidence-Based Budgeting.

## 2. INTRODUCTION

The Union Budget is one of the most important fiscal policy instruments of a government, as it determines the allocation of public resources across different ministries and sectors, thereby shaping the overall economic direction of the country. It reflects the government's policy priorities, developmental objectives, and macroeconomic strategy for achieving sustainable growth and social welfare. Public finance theory emphasizes that government budgeting plays a central role in economic management and resource allocation [7]. An analysis of budgetary allocations over time helps in understanding trends in public expenditure, sectoral priorities, and shifts in fiscal policy [10].

In the Indian context, the Union Budget plays a critical role in promoting economic development through targeted investments in infrastructure, social welfare, and productive sectors. According to Keynesian economic theory, government spending acts as a catalyst for economic growth, particularly during periods of economic slowdown, by stimulating aggregate demand and employment [6]. Therefore, examining long-term budget patterns provides valuable insights into how fiscal policy supports national development goals.

This study examines the budget allocation trends of selected major ministries in India from 2015–16 to 2026–27, with forecasts for 2027–28. The analysis focuses on both Capital and Revenue Expenditure, sector-wise allocation patterns, pre- and post-2020 comparisons, and Compound Annual Growth Rate (CAGR) analysis. Special emphasis is given to identifying structural changes in expenditure patterns, especially after the economic disruptions caused by the COVID-19 pandemic, which led to significant shifts in public spending priorities [4].

By employing statistical analysis and data visualization techniques, this research aims to evaluate whether government spending in India has shifted toward long-term capital investment or continued to emphasize revenue expenditure. The findings contribute to a better understanding of India's fiscal strategy, growth orientation, and evolving sectoral development priorities over the past decade, and provide evidence-based insights for future budget planning [11].

## 3. LITERATURE REVIEW

Public expenditure analysis has long been a central theme in fiscal policy research. According to Keynesian economic theory, government spending plays a crucial role in stimulating economic growth, particularly during periods of economic slowdown [6]. Increased public expenditure, especially on capital formation, is often associated with higher output, employment generation, and long-term economic stability [7].

Several empirical studies highlight the importance of capital expenditure in promoting infrastructure development and productivity growth. Aschauer [1] found that public investment in infrastructure has a significant positive impact on economic performance. Similarly, Barro [2] argued that productive government spending contributes to long-term

economic growth by enhancing the efficiency of private investment. Bose et al. [3] also observed that capital expenditure has a stronger growth impact compared to revenue expenditure.

Post-2020 fiscal studies emphasize the impact of global economic disruptions, particularly pandemic-related shocks, which led to expansionary fiscal policies across countries. Governments significantly increased allocations to welfare schemes, healthcare, and economic stimulus packages to stabilize economic activity [4]. At the same time, international policy reports highlight a strategic shift toward infrastructure-led recovery and long-term capital investment [8].

Sector-specific literature suggests that ministries such as Finance and Defence typically receive higher allocations due to their strategic importance, while Rural Development and Consumer Affairs play a critical role in social welfare and inclusive growth [10]. Comparative studies of pre- and post-crisis fiscal patterns reveal structural adjustments in spending priorities, with greater emphasis on resilience, sustainability, and growth-oriented expenditure frameworks [5].

Overall, existing literature supports the view that a balanced yet growth-focused allocation—particularly increased capital expenditure—enhances long-term economic development and fiscal sustainability [2]. This study builds upon previous research by analyzing sector-wise trends, proportional changes, CAGR comparisons, and forecasted allocations to evaluate evolving fiscal priorities over time in the Indian context [9], [11].

#### 4. RESEARCH METHODOLOGY

The study follows a quantitative, descriptive, and analytical research design. It applies statistical techniques to examine sector-wise budget allocation patterns, expenditure structure, and growth dynamics over the period 2015–2026, with projections for 2027.

##### 1. Statistical Tools and Techniques Used

###### (A) COMPOUND ANNUAL GROWTH RATE (CAGR)

USED TO MEASURE LONG-TERM GROWTH TREND OF ALLOCATIONS.

$$CAGR = \left( \frac{V_{final}}{V_{initial}} \right)^{\frac{1}{n}} - 1$$

WHERE:

$V_{final}$  = FINAL YEAR ALLOCATION

$V_{initial}$  = INITIAL YEAR ALLOCATION

$n$  = NUMBER OF YEARS

PURPOSE:

1. TO COMPARE GROWTH PERFORMANCE ACROSS MINISTRIES
2. TO EXAMINE PRE- AND POST-2020 GROWTH DIFFERENCES

###### (B) Coefficient of Variation (CV)

Used to measure funding stability and volatility.

$$CV = \text{MeanStandard / Deviation} \times 100$$

Interpretation:

- Higher CV → Greater volatility
- Lower CV → Stable funding pattern

###### (C) Proportional (Share) Analysis

Sectoral share of total budget:

$$\text{Share}(\%) = \text{Total Budget} / \text{Sector Allocation} \times 100$$

Used to analyze shifting fiscal priorities.

###### (D) Capital vs Revenue Expenditure Analysis

This technique compares capital and revenue expenditure to assess the government's orientation toward long-term investment versus operational spending. The relative shares and growth rates of both components are analyzed to evaluate fiscal sustainability and development strategy.

###### (E) Pre- and Post-2020 Structural Analysis

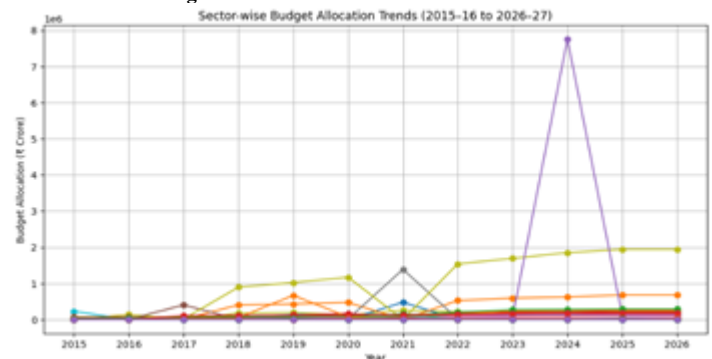
To capture the impact of major economic disruptions, especially the COVID-19 pandemic, the study divides the time period into two phases:

- Pre-2020 period (2015–2019)
- Post-2020 period (2020–2026)

#### 5. RESULTS AND DISCUSSION:-

##### 5.1 Results:-

###### 5.1.1 sector-wise budget allocation trends from 2015–16 to 2026–27



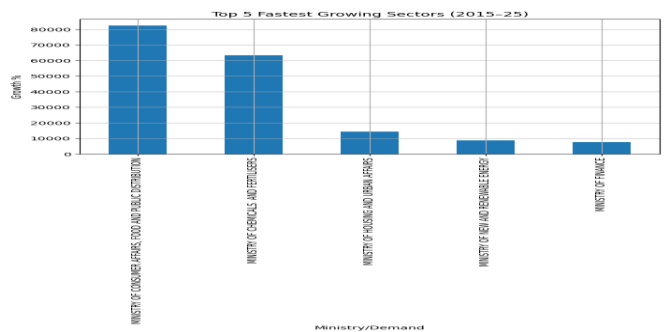
MINISTRY OF AGRICULTURE AND FARMERS WELFARE
DEPARTMENT OF ATOMIC ENERGY
MINISTRY OF AYUSH
MINISTRY OF CHEMICALS AND FERTILISERS
MINISTRY OF CIVIL AVIATION
MINISTRY OF COAL
MINISTRY OF COMMERCE AND INDUSTRY
MINISTRY OF COMMUNICATIONS
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION
MINISTRY OF CORPORATE AFFAIRS
MINISTRY OF CULTURE
MINISTRY OF DEFENCE
MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION
MINISTRY OF EARTH SCIENCES
MINISTRY OF EDUCATION
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE
MINISTRY OF EXTERNAL AFFAIRS
MINISTRY OF FINANCE
MINISTRY OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING
MINISTRY OF FOOD PROCESSING INDUSTRIES
MINISTRY OF HEALTH AND FAMILY WELFARE
MINISTRY OF HEAVY INDUSTRIES
MINISTRY OF HOME AFFAIRS
MINISTRY OF HOUSING AND URBAN AFFAIRS
MINISTRY OF INFORMATION AND BROADCASTING
MINISTRY OF JAL SHAKTI
MINISTRY OF LABOUR AND EMPLOYMENT
MINISTRY OF LAW AND JUSTICE
MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES
MINISTRY OF MINES
MINISTRY OF MINORITY AFFAIRS
MINISTRY OF NEW AND RENEWABLE ENERGY
MINISTRY OF PANCHAYATI RAJ
MINISTRY OF PARLIAMENTARY AFFAIRS
MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS
MINISTRY OF PETROLEUM AND NATURAL GAS
MINISTRY OF PLANNING
MINISTRY OF PORTS, SHIPPING AND WATERWAYS
MINISTRY OF POWER
THE PRESIDENT, PARLIAMENT, UNION PUBLIC SERVICE COMMISSION AND THE SECRETARIAT OF THE VICE PRESIDENT
MINISTRY OF RAILWAYS
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS
MINISTRY OF RURAL DEVELOPMENT
MINISTRY OF SCIENCE AND TECHNOLOGY
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP
MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION
MINISTRY OF STEEL
MINISTRY OF TEXTILES
MINISTRY OF TRIBAL AFFAIRS
MINISTRY OF WOMEN AND CHILD DEVELOPMENT
MINISTRY OF YOUTH AFFAIRS AND SPORTS
DEPARTMENT OF SPACE
MINISTRY OF TOURISM

Ministry / Department	Growth %
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION	82326.21003
MINISTRY OF CHEMICALS AND FERTILISERS	63370.96559
MINISTRY OF HOUSING AND URBAN AFFAIRS	14355.76351
MINISTRY OF NEW AND RENEWABLE ENERGY	8656.103031
MINISTRY OF FINANCE	7697.550388
MINISTRY OF JAL SHAKTI	4357.154312
MINISTRY OF CORPORATE AFFAIRS	4152.313521
MINISTRY OF STEEL	3953.044002
MINISTRY OF RURAL DEVELOPMENT	2441.084974
MINISTRY OF WOMEN AND CHILD DEVELOPMENT	2379.203585
MINISTRY OF AGRICULTURE AND FARMERS WELFARE	2120.500979
MINISTRY OF TRIBAL AFFAIRS	1300.997775
MINISTRY OF PANCHAYATI RAJ	1150.659631
MINISTRY OF DEFENCE	975.268055
MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION	947.384637
MINISTRY OF SCIENCE AND TECHNOLOGY	906.682483
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY	889.591255
MINISTRY OF HEALTH AND FAMILY WELFARE	779.191407
MINISTRY OF FOOD PROCESSING INDUSTRIES	775.452849
MINISTRY OF LABOUR AND EMPLOYMENT	722.975157
MINISTRY OF COMMUNICATIONS	702.288009
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS	570.686493
MINISTRY OF RAILWAYS	538.61295
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION	523.930571
MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT	433.057363
MINISTRY OF HEAVY INDUSTRIES	372.708081
MINISTRY OF AYUSH	345.636161
MINISTRY OF PARLIAMENTARY AFFAIRS	327.48876
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP	295.222422
MINISTRY OF COMMERCE AND INDUSTRY	262.290362
MINISTRY OF HOME AFFAIRS	255.227376
MINISTRY OF EDUCATION	249.19873
MINISTRY OF POWER	224.817535
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE	177.453762
MINISTRY OF YOUTH AFFAIRS AND SPORTS	171.246175
MINISTRY OF MINES	162.868713
MINISTRY OF PORTS, SHIPPING AND WATERWAYS	141.047653
MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS	129.229506
MINISTRY OF EARTH SCIENCES	125.338643
DEPARTMENT OF ATOMIC ENERGY	120.391312
MINISTRY OF LAW AND JUSTICE	97.604242
DEPARTMENT OF SPACE	81.589808
MINISTRY OF TOURISM	63.615291
THE PRESIDENT, PARLIAMENT, UPSC & VICE PRESIDENT SECRETARIAT	60.778726
MINISTRY OF CULTURE	54.954357
MINISTRY OF EXTERNAL AFFAIRS	37.080531
MINISTRY OF MINORITY AFFAIRS	34.31645
MINISTRY OF TEXTILES	23.327407
MINISTRY OF INFORMATION AND BROADCASTING	17.441412
MINISTRY OF COAL	-17.293729
MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES	-22.791929
MINISTRY OF CIVIL AVIATION	-28.166692
MINISTRY OF PETROLEUM AND NATURAL GAS	-35.845487
MINISTRY OF PLANNING	-54.510474
MINISTRY OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING	-96.675885

**Interpretation:-**

The budget trends indicate a clear shift in government priorities towards infrastructure development, food security, and renewable energy, as reflected in the significant increases in allocations for Consumer Affairs, Housing and Urban Affairs, and New and Renewable Energy. At the same time, social sectors such as Health, Education, Agriculture, and Rural Development show steady growth, highlighting a sustained commitment to welfare objectives. Overall, the expenditure pattern suggests an infrastructure-driven development strategy complemented by social investment and sustainability considerations.

**Sector-wise Growth:**



**Interpretation:-**

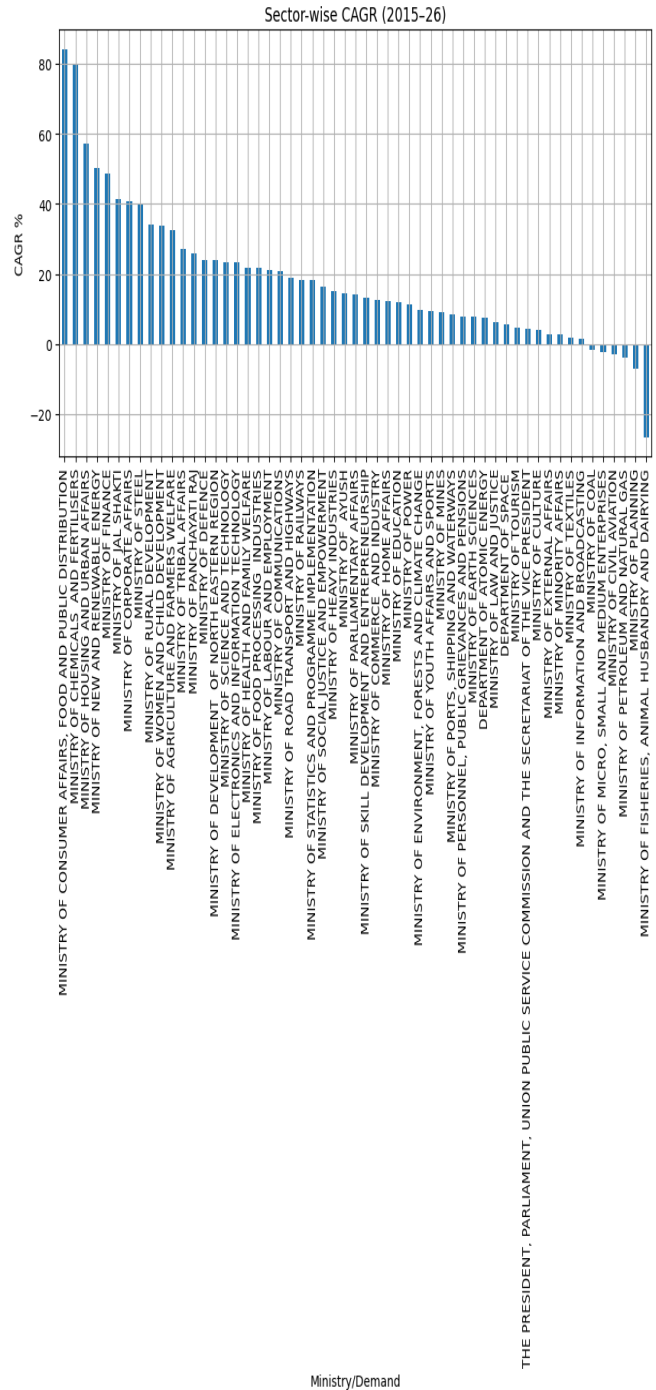
The fastest-growing sectors are Consumer Affairs, Chemicals and Fertilisers, and Housing and Urban Affairs, showing a strong focus on food security and urban development. High growth in New and Renewable Energy and Finance further indicates priority given to sustainable energy and economic stability. Overall, the trend reflects increasing investment in essential services and long-term development goals.

5.1.2 growth rates and variability in budget allocations

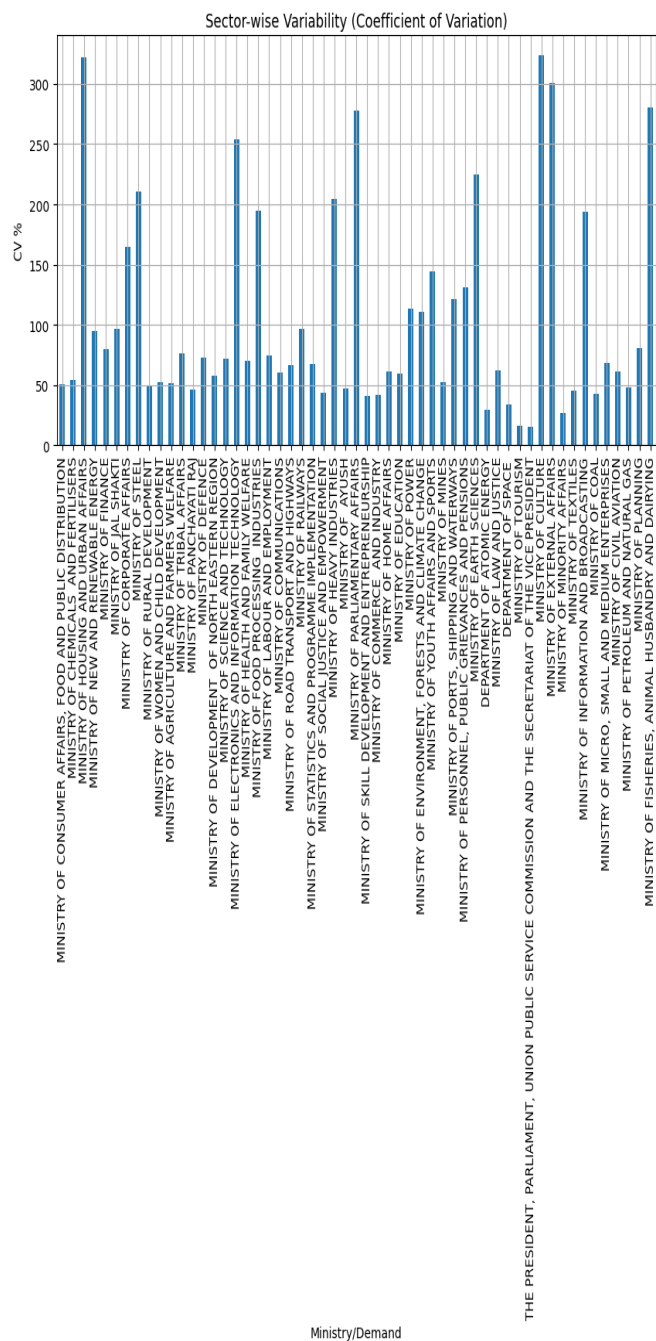
Ministry/Demand	CAGR_%	Std.Dev	CV_%
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION	84.118254	83501.564	50.97703
MINISTRY OF CHEMICALS AND FERTILISERS	79.795805	54678.576	53.86753
MINISTRY OF HOUSING AND URBAN AFFAIRS	57.169173	2224078.9	321.7913
MINISTRY OF NEW AND RENEWABLE ENERGY	50.166727	8762.3107	94.76937
MINISTRY OF FINANCE	48.592264	805433.23	79.74116
MINISTRY OF JAL SHAKTI	41.225894	44730.173	96.66797
MINISTRY OF CORPORATE AFFAIRS	40.623157	4244.8168	164.9733
MINISTRY OF STEEL	40.010929	1738.3727	210.3502
MINISTRY OF RURAL DEVELOPMENT	34.192739	61124.472	49.8737
MINISTRY OF WOMEN AND CHILD DEVELOPMENT	33.892316	10138.186	52.7867
MINISTRY OF AGRICULTURE AND FARMERS WELFARE	32.5576	51904.532	51.7157
MINISTRY OF TRIBAL AFFAIRS	27.122254	5051.3137	76.62163
MINISTRY OF PANCHAYATI RAJ	25.817173	375.09627	46.1418
MINISTRY OF DEFENCE	24.100705	273776.28	72.86537
MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION	23.804642	1983.9417	57.44304
MINISTRY OF SCIENCE AND TECHNOLOGY	23.359343	11520.437	72.03294
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY	23.16746	113460.23	253.857
MINISTRY OF HEALTH AND FAMILY WELFARE	21.850065	39203.986	69.86301
MINISTRY OF FOOD PROCESSING INDUSTRIES	21.802871	24524.543	194.7115
MINISTRY OF LABOUR AND EMPLOYMENT	21.12031	9910.2324	74.95668
MINISTRY OF COMMUNICATIONS	20.840314	43937.801	60.17143
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS	18.888033	102402.52	66.75256
MINISTRY OF RAILWAYS	18.359584	177049.95	96.92317
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION	18.109577	3296.2921	67.53406
MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT	16.431464	4520.8594	43.8483
MINISTRY OF HEAVY INDUSTRIES	15.166625	53364.274	203.9982
MINISTRY OF AYUSH	14.550825	1185.0823	47.23772
MINISTRY OF PARLIAMENTARY AFFAIRS	14.118694	593.63025	277.9092
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP	13.307413	1401.7955	41.25249
MINISTRY OF COMMERCE AND INDUSTRY	12.414762	4815.3968	41.88153
MINISTRY OF HOME AFFAIRS	12.21374	80896.234	61.524881
MINISTRY OF EDUCATION	12.039262	46319.589	59.679026
MINISTRY OF POWER	11.304489	27388.102	113.07545
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE	9.7210756	4500.5964	111.11381
MINISTRY OF YOUTH AFFAIRS AND SPORTS	9.4956064	9927.6145	144.74453
MINISTRY OF MINES	9.1837689	1073.161	52.139528
MINISTRY OF PORTS, SHIPPING AND WATERWAYS	8.326978	3880.1137	121.05045
MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS	7.8330441	4072.44	130.74483
MINISTRY OF EARTH SCIENCES	7.6653534	26313.164	224.96431
DEPARTMENT OF ATOMIC ENERGY	7.4482873	5466.8694	29.402879
MINISTRY OF LAW AND JUSTICE	6.3874917	3415.5803	62.447646
DEPARTMENT OF SPACE	5.5732205	3646.2206	33.518449
MINISTRY OF TOURISM	4.5775674	358.37774	16.425708
THE PRESIDENT, PARLIAMENT, UNION PUBLIC SERVICE COMMISSION AND THE SECRETARIAT OF THE VICE PRESIDENT	4.4114322	243.6631	15.091493
MINISTRY OF CULTURE	4.0617808	137254.96	324.01373
MINISTRY OF EXTERNAL AFFAIRS	2.9087596	395169.45	300.58362
MINISTRY OF MINORITY AFFAIRS	2.7183677	1051.4463	26.453181
MINISTRY OF TEXTILES	1.9243958	2476.6399	45.708455
MINISTRY OF INFORMATION AND BROADCASTING	1.4722728	18708.061	193.81865
MINISTRY OF COAL	-	232.54529	42.911236
MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES	-	9901.7009	68.05633
MINISTRY OF CIVIL AVIATION	-	2430.9334	61.232064
MINISTRY OF PETROLEUM AND NATURAL GAS	-	13009.788	48.076981
MINISTRY OF PLANNING	-	636.45425	80.327591
MINISTRY OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING	-	64291.825	280.14796

Interpretation:-

The data shows that the Ministry of Communications and the Ministry of Road Transport and Highways recorded the highest growth, reflecting strong investment in connectivity and infrastructure. In contrast, sectors such as Space, Law and Justice, and Atomic Energy experienced comparatively slower growth, indicating more stable or limited expansion in these areas.



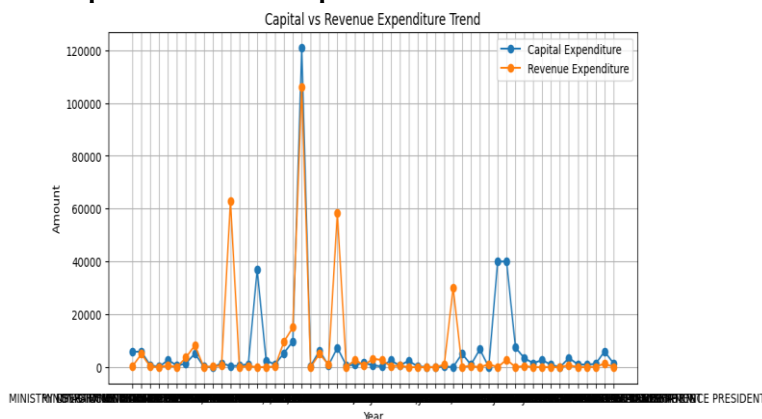
**Interpretation:-** The CAGR analysis shows that Consumer Affairs, Chemicals and Fertilisers, and Housing and Urban Affairs recorded the highest long-term growth in budget allocations, indicating strong and sustained government focus on these sectors. Moderate growth is observed in areas such as Health, Education, Finance, and Rural Development, reflecting consistent policy support. In contrast, sectors like Fisheries, Animal Husbandry, and Dairying, along with Petroleum and Natural Gas, show low or negative growth, suggesting relatively reduced budgetary emphasis over the period.



**Interpretation:-**

The variability results show that sectors like Housing and Urban Affairs, Electronics and IT, Steel, and Heavy Industries have highly fluctuating budgets, indicating irregular funding. In contrast, sectors such as Atomic Energy, Space, and Tourism receive relatively stable allocations. Overall, government spending is consistent in some sectors but volatile in others.

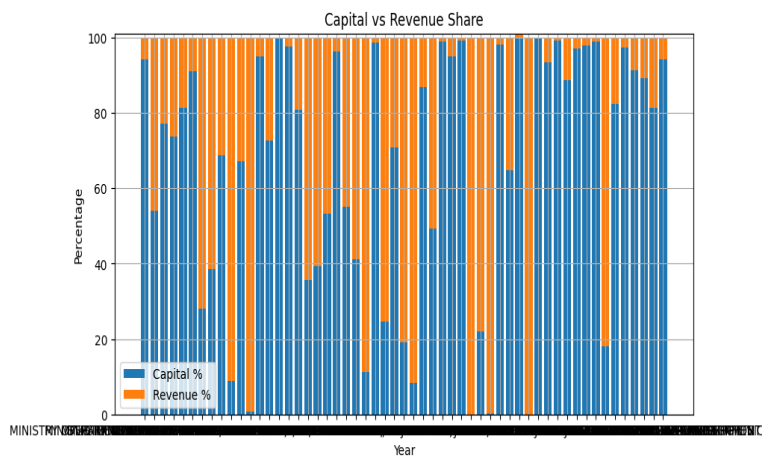
**5.1.3 capital and revenue expenditure**



Capital Growth %: -74.97  
 Revenue Growth %: -74.9

**Interpretation:-**

The analysis shows a sharp decline in both capital and revenue expenditure, with capital spending decreasing by 74.97% and revenue spending by 74.9%. This indicates a significant overall contraction in government expenditure, suggesting reduced fiscal activity or a major shift in budgetary priorities during the period.

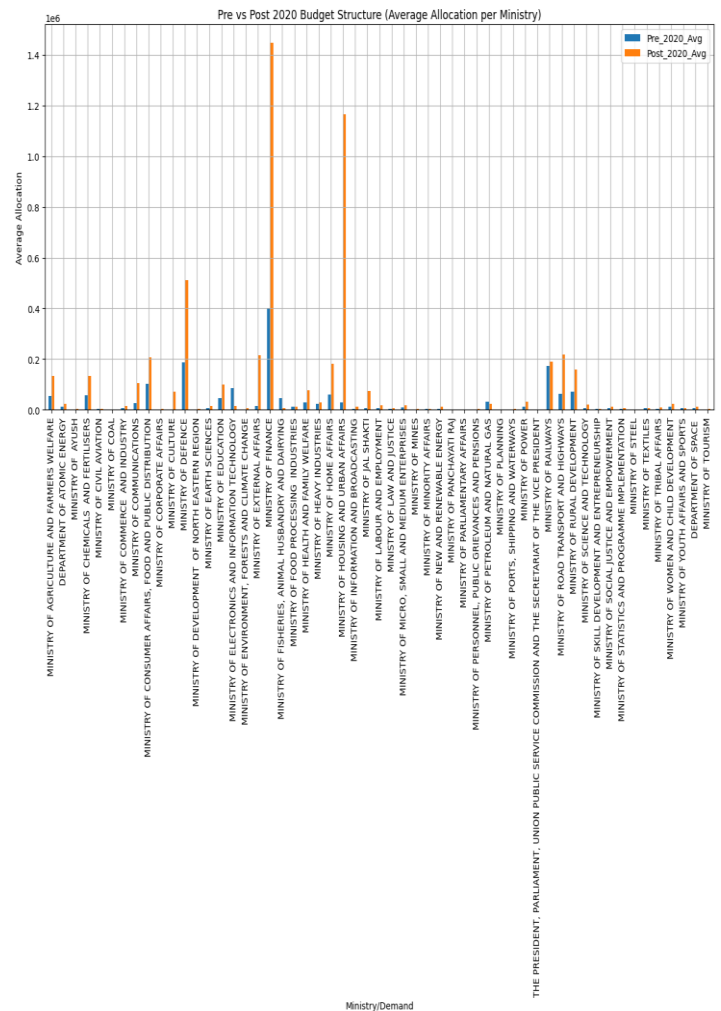


**Interpretation:-**

The chart shows that capital expenditure forms the major share of total spending in most years, while revenue expenditure remains relatively smaller. This pattern indicates a stronger focus on long-term investments compared to routine operational expenses.

### 5.1.4 pre- and post-2020 budget structure.

(Ministry / Department)	Pre2020	Post2020
MINISTRY OF AGRICULTURE AND FARMERS WELFARE	53911.13	134000
DEPARTMENT OF ATOMIC ENERGY	13150.52	22500
MINISTRY OF AYUSH	1323.396	3360
MINISTRY OF CHEMICALS AND FERTILISERS	57389.606	133000
MINISTRY OF CIVIL AVIATION	3947.408	3990
MINISTRY OF COAL	661.012	457
MINISTRY OF COMMERCE AND INDUSTRY	7441.18	14400
MINISTRY OF COMMUNICATIONS	27352.972	106000
MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION	103167.47	207000
MINISTRY OF CORPORATE AFFAIRS	436.426	4100
MINISTRY OF CULTURE	2118.628	71100
MINISTRY OF DEFENCE	186409.23	511000
MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION	2015.44	4480
MINISTRY OF EARTH SCIENCES	5853.998	15900
MINISTRY OF EDUCATION	45447.378	101000
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY	84455.764	163000
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE	2229.992	5350
MINISTRY OF EXTERNAL AFFAIRS	15100.164	215000
MINISTRY OF FINANCE	398144.9	1450000
MINISTRY OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING	47032.054	5750
MINISTRY OF FOOD PROCESSING INDUSTRIES	11546.226	13300
MINISTRY OF HEALTH AND FAMILY WELFARE	27905.176	76300
MINISTRY OF HEAVY INDUSTRIES	22856.432	28500
MINISTRY OF HOME AFFAIRS	60978.376	182000
MINISTRY OF HOUSING AND URBAN AFFAIRS	28139.786	1160000
MINISTRY OF INFORMATION AND BROADCASTING	4133.586	13600
MINISTRY OF JAL SHAKTI	6117.496	75000
MINISTRY OF LABOUR AND EMPLOYMENT	7084.134	17600
MINISTRY OF LAW AND JUSTICE	4037.18	6490
MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES	10703.61	17300
MINISTRY OF MINES	1350.03	2560
MINISTRY OF MINORITY AFFAIRS	3782.718	4110
MINISTRY OF NEW AND RENEWABLE ENERGY	4242.66	12800
MINISTRY OF PANCHAYATI RAJ	670.082	915
MINISTRY OF PARLIAMENTARY AFFAIRS	17.798	353
MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS	1461.402	4300
MINISTRY OF PETROLEUM AND NATURAL GAS	32489.156	23200
MINISTRY OF PLANNING	632.068	907
MINISTRY OF PORTS, SHIPPING AND WATERWAYS	1625.496	4330
MINISTRY OF POWER	12756.304	32400
PRESIDENT, PARLIAMENT, UPSC & VP SECRETARIAT	1383.882	1780
MINISTRY OF RAILWAYS	172371.33	190000
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS	61748.124	219000
MINISTRY OF RURAL DEVELOPMENT	71080.422	159000
MINISTRY OF SCIENCE AND TECHNOLOGY	7648.538	22000
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP	2550.618	4000
MINISTRY OF SOCIAL JUSTICE AND EMPOWERMENT	5879.964	13500
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION	3307.098	6010
MINISTRY OF STEEL	100.38	1350
MINISTRY OF TEXTILES	5615.066	5280
MINISTRY OF TRIBAL AFFAIRS	2558.794	9470
MINISTRY OF WOMEN AND CHILD DEVELOPMENT	11500.112	24700
MINISTRY OF YOUTH AFFAIRS AND SPORTS	7259.058	6570
DEPARTMENT OF SPACE	7398.276	13400
MINISTRY OF TOURISM	1864.676	2410



### Interpretation:-

The data shows that government spending is concentrated mainly in infrastructure, agriculture, defence, and social welfare sectors. Ministries such as Road Transport and Highways, Railways, Defence, Agriculture, and Education receive the highest allocations, reflecting a focus on economic growth, connectivity, and public welfare. At the same time, smaller but steady funding for areas like environment, science, and social justice indicates a balanced approach toward long-term development and inclusiveness.

### Interpretation:-

The chart shows that average budget allocations increased for most ministries after 2020. The largest rises are seen in Defence, Railways, Road Transport, and Social Welfare, indicating a stronger focus on infrastructure, security, and public support in the post-2020 period. Overall, the budget structure has shifted toward higher spending to support economic recovery and long-term development.

### 5.1.5 data-driven policy recommendations for the next budget

Ministry / Department	CAGR. %	CV. %	Policy Recommendation
Ministry of Consumer Affairs, Food and Public Distribution	84.118254	50.977035	High Volatility - Review Allocation
Ministry of Chemicals and Fertilisers	79.795805	53.867533	High Volatility - Review Allocation
Ministry of Housing and Urban Affairs	57.169173	321.79129	High Volatility - Review Allocation
Ministry of New and Renewable Energy	50.166727	94.769373	High Volatility - Review Allocation
Ministry of Finance	48.592264	79.741162	High Volatility - Review Allocation
Ministry of Jal Shakti	41.225894	96.66797	High Volatility - Review Allocation
Ministry of Corporate Affairs	40.623157	164.97331	High Volatility - Review Allocation
Ministry of Steel	40.010929	210.35021	High Volatility - Review Allocation
Ministry of Rural Development	34.192739	49.873698	High Volatility - Review Allocation
Ministry of Women and Child Development	33.892316	52.786696	High Volatility - Review Allocation
Ministry of Agriculture and Farmers Welfare	32.5576	51.715701	High Volatility - Review Allocation

Ministry of Agriculture and Farmers Welfare	32.5576	51.715701	High Volatility - Review Allocation
Ministry of Tribal Affairs	27.122254	76.621633	High Volatility - Review Allocation
Ministry of Panchayati Raj	25.817173	46.141795	High Volatility - Review Allocation
Ministry of Defence	24.100705	72.865368	High Volatility - Review Allocation
Ministry of Development of North Eastern Region	23.804642	57.443037	High Volatility - Review Allocation
Ministry of Science and Technology	23.359343	72.032945	High Volatility - Review Allocation
Ministry of Electronics and Information Technology	23.16746	253.85702	High Volatility - Review Allocation
Ministry of Health and Family Welfare	21.850065	69.863009	High Volatility - Review Allocation
Ministry of Food Processing Industries	21.802871	194.71145	High Volatility - Review Allocation
Ministry of Labour and Employment	21.12031	74.956679	High Volatility - Review Allocation
Ministry of Communications	20.840314	60.171434	High Volatility - Review Allocation
Ministry of Road Transport and Highways	18.888033	66.752557	High Volatility - Review Allocation
Ministry of Railways	18.359584	96.923167	High Volatility - Review Allocation
Ministry of Statistics and Programme Implementation	18.109577	67.534064	High Volatility - Review Allocation
Ministry of Social Justice and Empowerment	16.431464	43.848296	High Volatility - Review Allocation
Ministry of Heavy Industries	15.166625	203.99816	High Volatility - Review Allocation
Ministry of AYUSH	14.550825	47.237724	High Volatility - Review Allocation
Ministry of Parliamentary Affairs	14.118694	277.90919	High Volatility - Review Allocation
Ministry of Skill Development and Entrepreneurship	13.307413	41.252495	High Volatility - Review Allocation
Ministry of Commerce and Industry	12.414762	41.881526	High Volatility - Review Allocation
Ministry of Home Affairs	12.21374	61.524881	High Volatility - Review Allocation
Ministry of Education	12.039262	59.679026	High Volatility - Review Allocation
Ministry of Power	11.304489	113.07545	High Volatility - Review Allocation
Ministry of Environment, Forests and Climate Change	9.721076	111.11381	High Volatility - Review Allocation
Ministry of Youth Affairs and Sports	9.495606	144.74453	High Volatility - Review Allocation
Ministry of Mines	9.183769	52.139528	High Volatility - Review Allocation
Ministry of Ports, Shipping and Waterways	8.326978	121.05045	High Volatility - Review Allocation
Ministry of Personnel, Public Grievances and Pensions	7.833044	130.74483	High Volatility - Review Allocation
Ministry of Earth Sciences	7.665353	224.96431	High Volatility - Review Allocation
Department of Atomic Energy	7.448287	29.402879	Maintain Current Level
Ministry of Law and Justice	6.387492	62.447646	High Volatility - Review Allocation
Department of Space	5.57322	33.518449	Maintain Current Level
Ministry of Tourism	4.577567	16.425708	Needs Policy Support
President/Parliament/UPSC/Vice President Secretariat	4.411432	15.091493	Needs Policy Support
Ministry of Culture	4.061781	324.01373	Needs Policy Support
Ministry of External Affairs	2.90876	300.58362	Needs Policy Support
Ministry of Minority Affairs	2.718368	26.453181	Needs Policy Support
Ministry of Textiles	1.924396	45.708455	Needs Policy Support
Ministry of Information and Broadcasting	1.472273	193.81865	Needs Policy Support

### Interpretation:-

The analysis reveals that several ministries exhibit high compound annual growth rates (CAGR) alongside considerable volatility, indicating that while budget allocations are increasing, they also experience substantial year-to-year fluctuations.

In contrast, a small number of ministries, such as Atomic Energy and Space, demonstrate relatively stable and consistent growth patterns.

Meanwhile, certain ministries including Coal, MSME, Civil Aviation, Petroleum, Planning, and Fisheries record low or

even negative growth, suggesting a potential need for renewed policy attention and targeted support.

Overall, although aggregate budget expansion remains strong, the stability of allocations across many sectors appears limited, reflecting uneven funding patterns within the fiscal framework.

### 5.2 Discussion:-

This study provides a comprehensive statistical assessment of sector-wise budget allocations in the Union Budget of India over the period 2015–16 to 2026–27, with projections for 2027–28. The analysis reveals that government expenditure has increasingly aligned with an infrastructure-led growth model, supported by substantial allocations to ministries such as Consumer Affairs, Housing and Urban Affairs, Road Transport and Highways, Railways, and Defence. These trends are consistent with India's long-term development agenda, which emphasizes physical infrastructure, urbanization, and connectivity as drivers of economic growth. The growth rate analysis highlights that ministries like Consumer Affairs, Chemicals and Fertilisers, and New and Renewable Energy have experienced the highest long-term growth, indicating a strong policy focus on food security, agricultural inputs, and sustainable energy. At the same time, social sectors such as Health, Education, Rural Development, and Women and Child Development show steady but moderate growth, reflecting sustained welfare orientation. This suggests that the government has attempted to maintain a balance between growth-oriented capital investments and inclusive social spending.

However, the variability analysis using the Coefficient of Variation reveals that many high-growth sectors also exhibit significant volatility. Ministries such as Housing and Urban Affairs, Electronics and IT, Steel, and Heavy Industries show large year-to-year fluctuations in budget allocations. Such instability may affect long-term project planning, implementation efficiency, and policy continuity. In contrast, relatively stable funding patterns observed in Atomic Energy, Space, and Tourism suggest that predictable allocations may enhance institutional planning and performance.

The capital versus revenue expenditure analysis indicates that capital expenditure constitutes a major share of total spending in most years, signaling a strategic shift toward asset creation and long-term economic capacity building. This aligns with contemporary fiscal policy thinking, which emphasizes infrastructure investment as a catalyst for private sector participation and productivity growth. However, the sharp decline observed in both capital and revenue growth rates in certain periods may point to fiscal consolidation pressures or re-prioritization of resources.

The pre- and post-2020 comparison highlights a structural transformation in budgetary behavior. Post-2020 budgets show increased allocations to Defence, Railways, Road Transport, and social welfare ministries, reflecting the government's response to economic disruptions and the need for recovery-oriented spending. This period also marks greater emphasis on resilience, public health, and infrastructure development, indicating a more interventionist and expansionary fiscal stance.

Overall, the findings suggest that while India's fiscal policy framework has become more growth-focused and infrastructure-oriented, it continues to face challenges related to funding volatility, uneven sectoral prioritization, and the sustainability of long-term investments. The coexistence of high growth and high volatility in several ministries implies that policy effectiveness may be constrained by inconsistent budgetary support.

## 6. CONCLUSION:-

The present study concludes that the Union Budget of India has undergone significant structural and strategic changes over the last decade. The sector-wise statistical analysis reveals a clear shift toward infrastructure-driven development, supported by rising capital expenditure and increased allocations to key ministries such as Defence, Transport, Housing, and Energy. At the same time, the government has maintained consistent support for social sectors, indicating an effort to balance economic growth with inclusive development.

The results also demonstrate that although several ministries show strong long-term growth in budget allocations, funding stability remains a concern. High volatility in many sectors suggests that budgetary planning lacks consistency, which may limit the effectiveness of policy implementation and long-term project execution. Stable sectors such as Atomic Energy and Space provide useful benchmarks, showing that predictable funding enhances institutional capacity and strategic planning.

Furthermore, the post-2020 period marks a decisive shift toward expansionary and recovery-oriented fiscal policies, with increased emphasis on infrastructure, security, and social welfare. This reflects the government's adaptive response to economic shocks and its focus on building long-term resilience.

In conclusion, the study emphasizes the need for a more stable, outcome-oriented, and strategically aligned budgeting framework. Policy recommendations emerging from this research include the adoption of multi-year funding commitments, enhanced capital expenditure planning, outcome-based budgeting, and targeted support for underperforming sectors. By integrating statistical evidence with policy design, future Union Budgets can achieve greater efficiency, predictability, and developmental impact, thereby strengthening India's fiscal governance and long-term economic prospects.

## 7.ACKNOWLEDGEMENTS:-

I would like to acknowledge and give my sincere thanks to Dr. Ranjit patil Principal, Dr.D.Y.Patil ACS College, Pimpri., & Ms.Deepali Akolkar Head Department of Statistics and our guide Mr.Abhijeet Swami. Who encourage us to work and guided us through all stages of writing our paper.I would like to thank all those persons who gave their invaluable support and guidance to us and last we greatly indebted to our family for their support, unconditional love & care which made all ways easy to us.

## 7.1.AUTHOR'S STATEMENTS

The paper is original and is not submitted to any other journal for publication.

## 7.2.CONFLICT OF INTEREST

The author declares there is no conflict of interest.

## 8. REFERENCES:-

- [1] Aschauer, D. A. (1989). Is public expenditure productive? *Journal of Monetary Economics*, 23(2), 177–200.
- [2] Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), S103–S125.
- [3] Bose, N., Haque, M. E., & Osborn, D. R. (2007). Public expenditure and economic growth: A disaggregated analysis. *The Manchester School*, 75(5), 533–556.
- [4] IMF. (2021). *Fiscal Monitor: Strengthening the Credibility of Public Finances*. International Monetary Fund.
- [5] IMF. (2022). *World Economic Outlook*. International Monetary Fund.
- [6] Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. Macmillan.
- [7] Musgrave, R. A., & Musgrave, P. B. (1989). *Public Finance in Theory and Practice*. McGraw-Hill.
- [8] OECD. (2020). *Fiscal Policy and Recovery from COVID-19*. OECD Publishing.
- [9] Rangarajan, C., & Srivastava, D. K. (2008). *Reforming India's Fiscal System*. Oxford University Press.
- [10] Rao, M. G., & Chakraborty, P. (2013). *Public Finance in India: Structure and Reform*. Oxford University Press.
- [11] World Bank. (2020). *India Public Expenditure Review*. World Bank Group.