

Performance of Developmental and Non-Developmental Expenditure on Agriculture Sector in Karnataka: A Trend Analysis

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Abstract—The study examines development and non-development expenditure on agriculture in Karnataka and its impact on agricultural development, employment and income generation, irrigation, agricultural production, farmers' standard of living, and allied activities. Agriculture and allied sectors are vital to Karnataka's economy and provide livelihoods to a significant share of the state's population. Public expenditure is essential for strengthening agricultural infrastructure and promoting irrigation, crop development, allied activities, research, and farmer welfare. Efficient allocation of expenditure helps improve agricultural productivity, employment, income, rural livelihoods, and sustainable agricultural development. The present study analyses the performance and trends of developmental and non-developmental expenditure in Karnataka, with special reference to agriculture and allied services, during the period 2015–16 to 2025–26.

The study examines the trends and growth patterns of Agriculture and Allied Activities expenditure in Karnataka during 2019–20 to 2025–26. The analysis employs Annual Growth Rate (AGR) and an exponential growth model to assess changes in expenditure over the study period. The findings reveal a fluctuating expenditure pattern, with expenditure declining during 2020–21 and 2021–22, followed by a recovery from 2022–23 onwards. The exponential growth model indicates a positive annual growth rate of 5.05%, with an R^2 value of 0.4395, suggesting that approximately 43.95% of the variation in expenditure is explained by the time trend. However, the estimated growth coefficient is not statistically significant at the 5% level ($p = 0.1046$). Therefore, the hypothesis of a significant increase in Agriculture and Allied Activities expenditure is not supported. The study concludes that although expenditure demonstrates an overall positive growth pattern, the increase is statistically insignificant during the study period.

Keywords: Agriculture, Developmental Expenditure, Non-Developmental Expenditure, Agriculture and Allied Services, Trend Analysis, and Exponential Growth Model.

I. INTRODUCTION

Agriculture and allied activities constitute an important sector of Karnataka's economy and play a vital role in providing employment, income, food security, and livelihoods, particularly in rural areas. The performance of the agricultural sector depends not only on natural resources and technological progress but also on the availability and effective utilisation of public expenditure. Government expenditure on agriculture supports the development of irrigation facilities, agricultural infrastructure, crop development, horticulture, animal husbandry, fisheries, agricultural research, extension services, and farmer welfare programmes. Developmental expenditure is primarily directed towards creating and improving productive infrastructure and services that contribute to long-term agricultural growth. Non-developmental expenditure, although not

directly associated with the creation of productive assets, is necessary for the administration, maintenance, and functioning of government institutions and agricultural programmes. The balance and effectiveness of both types of expenditure are therefore important for achieving sustainable agricultural development. In Karnataka, increasing agricultural productivity, improving irrigation facilities, generating employment and income opportunities, strengthening allied activities, and enhancing farmers' living standards require adequate and efficient public investment. An analysis of trends in developmental and non-developmental expenditure can help assess the changing pattern of government spending and its role in supporting the agricultural sector.

I.I. CONCEPT OF DEVELOPMENT AND NON-DEVELOPMENT EXPENDITURE

Development expenditure refers to government spending directed towards activities and programmes that promote economic growth, social development, and the creation of productive assets. Such expenditure contributes directly or indirectly to improving the productive capacity of the economy and the welfare of the population. In the agricultural sector, development expenditure includes spending on irrigation, agricultural infrastructure, crop development, horticulture, agricultural research and education, extension services, soil and water conservation, animal husbandry, fisheries, and farmer welfare programmes. These expenditures help increase agricultural productivity, employment and income, and improve the living standards of farmers. Some examples in the agriculture sector include irrigation and water-management projects, agricultural infrastructure, crop development programmes, horticulture development, agricultural research and extension services, animal husbandry and fisheries, soil and water conservation, and farmer welfare and development programmes.

Non-development expenditure refers to government expenditure that is mainly incurred for the general administration, maintenance, and functioning of government departments and institutions. It may not directly create productive assets or increase production, but it is necessary for the effective functioning of government and the implementation of public programmes. In the agricultural sector, non-development expenditure may include administrative expenses, salaries and establishment costs, maintenance of existing government institutions and infrastructure, and other routine expenditures required for the functioning of agricultural departments. For instance, Administrative and establishment expenses, Salaries and allowances of government employees, Maintenance of existing agricultural infrastructure, Office and operational expenses, administrative expenditure of agricultural departments, interest, and other obligatory government payments.

I.II. OBJECTIVES OF THE STUDY

The major objectives are:

1. To study the performance and functions of developmental and non-developmental expenditure in agriculture sector in Karnataka.
2. To examine the trend pattern of developmental and non-developmental expenditure for agricultural development in the state.

Hypothesis

1. There is a significant increase in agriculture & allied activities expenditure in Karnataka over the past few years.

II. DATA SOURCES AND METHODOLOGY

The study is based on secondary data collected from Annual Financial Statements, the Reserve Bank of India (RBI), the Department of Agriculture and Farmers Welfare, and the Economic Survey of India (2025), Government of India. State-level data were obtained from the Karnataka Economic Survey (2025), Karnataka State Budget Documents, the Finance Department, Government of Karnataka, and the Directorate of Economics and Statistics, Government of Karnataka. Additional information was collected from relevant government reports and publications, reputed journals, research articles, books,

newspapers, and other reliable sources. The study covers ten years from 2015 to 2025 to examine the trends and growth patterns of developmental and non-developmental expenditure on agriculture in Karnataka.

Statistical Techniques: The study has various statistical techniques were employed to analyse and interpret the trends and growth patterns of developmental and non-developmental expenditure on agriculture in Karnataka. The techniques include percentage analysis, Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR), trend analysis, and the exponential growth model. The data analysis was carried out using Microsoft Excel, SPSS 21, EViews, and Gretl. These techniques were used to assess the growth, direction, and changing pattern of agricultural expenditure during the study period.

AGR: It measures the percentage change in development and non-development expenditure from one year to the next, indicating annual fluctuations in expenditure. For expenditure data, the AGR formula is:

$$AGR = \frac{E_t - E_{t-1}}{E_{t-1}} \times 100$$

where,

E_t = Expenditure in the current year

E_{t-1} = Expenditure in the previous year

AGR_t = Annual growth rate in year t

CAGR: It measures the average annual compounded growth of expenditure over the entire study period, showing the overall long-term growth pattern. CAGR measures the average annual compounded growth over the entire study period.

$$CAGR = \left[\left(\frac{E_n}{E_0} \right)^{\frac{1}{n}} - 1 \right] \times 100$$

where,

E_0 = Expenditure in the initial year

E_n = Expenditure in the final year

n = Number of years/intervals

II.I. PERFORMANCE OF DEVELOPMENTAL AND NON-DEVELOPMENTAL EXPENDITURE IN AGRICULTURE SECTOR IN KARNATAKA

Agriculture and allied activities play a vital role in Karnataka's economy by contributing to employment, income generation, food security, and rural livelihoods. The performance and development of the agricultural sector depend considerably on the availability and effective utilisation of public expenditure. Government expenditure on agriculture supports irrigation, agricultural infrastructure, crop development, horticulture, animal husbandry, fisheries, agricultural research, extension services, and farmer welfare programmes. Developmental expenditure is primarily aimed at promoting economic growth and creating productive assets and services. In the agricultural sector, it contributes to the expansion of irrigation facilities, improvement of agricultural infrastructure, technological development, crop productivity, and diversification of allied activities such as expenditure has a direct and indirect impact on agricultural production, employment opportunities, farmers' income, and rural development. On the other hand, non-developmental expenditure mainly relates to administrative, establishment, maintenance, and other routine expenditures required for the effective functioning of agricultural departments and institutions. Public expenditure plays an important role in the development and functioning of the agricultural sector in Karnataka. Developmental and non-developmental expenditures perform different but complementary functions are as follows.

II.II. FUNCTIONS OF DEVELOPMENTAL EXPENDITURE

Developmental expenditure is mainly directed towards activities that increase agricultural productivity, create productive assets, and improve the economic well-being of farmers.

- To improve investment in irrigation projects, canals, tanks, groundwater development, and micro-irrigation, this improves the availability of water for agriculture.
- To support the construction and improvement of roads, markets, storage facilities, warehouses, and other agricultural infrastructure.
- To promote improved seeds, modern technology, soil management, plant protection, and other measures to increase crop productivity.
- This expenditure encourages fruit, vegetable, flower, plantation, and other horticultural activities.
- This expenditure supports research institutions, technology transfer, farmer training, and extension services.
- To promote animal husbandry, dairy, fisheries, poultry, and other activities that diversify farmers' income, and to increase investment in agriculture and allied activities, creating direct and indirect employment opportunities and strengthening rural incomes.
- The expenditure helps subsidies, financial assistance, agricultural schemes, and other programmes aimed at improving farmers' income and living standards.

II.III. FUNCTIONS OF NON-DEVELOPMENTAL EXPENDITURE

Non-developmental expenditure is mainly concerned with the administration, maintenance, and regular functioning of agricultural departments and institutions.

- It has a role in the administrative functioning expenses of agriculture-related government departments.
- This expenditure supports and provides salaries, wages, pensions, and other establishment-related expenses.
- To support the repair and maintenance of agricultural offices, irrigation facilities, equipment, and other public assets.
- This expenditure provides the administrative support necessary for implementing agricultural policies and schemes and facilitates inspection, monitoring, evaluation, and regulatory activities related to agriculture.
- This expenditure helps maintain agricultural departments, research institutions, training centres, and other government organisations.

III. RESULTS AND DISCUSSION

III.I. TRENDS IN DEVELOPMENTAL AND NON-DEVELOPMENTAL EXPENDITURE IN KARNATAKA

Karnataka's public expenditure has seen a steady expansion, driven by parallel priorities in economic infrastructure and extensive social safety nets. The trends Developmental expenditure, which fuels asset creation and social welfare, reached an all-time high of Rs.1.96 lakh crore in the revenue account by 2026. The state has directed massive resources toward economic infrastructure, such as the Rs.20,000 crore Bengaluru infrastructure package, alongside Rs.51,000 crore to fund its five welfare guarantee schemes. Non-Developmental Expenditure Trends Conversely, non-developmental expenditure is experiencing rapid upward pressure. Driven by interest payments and pensions, interest liabilities alone surged by 38.8% to Rs.53,332 crore in 2026–27. Debt servicing and administrative costs consume a growing share of the revenue space, highlighting a fiscal tightening that slightly restricts new capital outlays while keeping the overall deficit sustainable at 2.9% of GSDP.

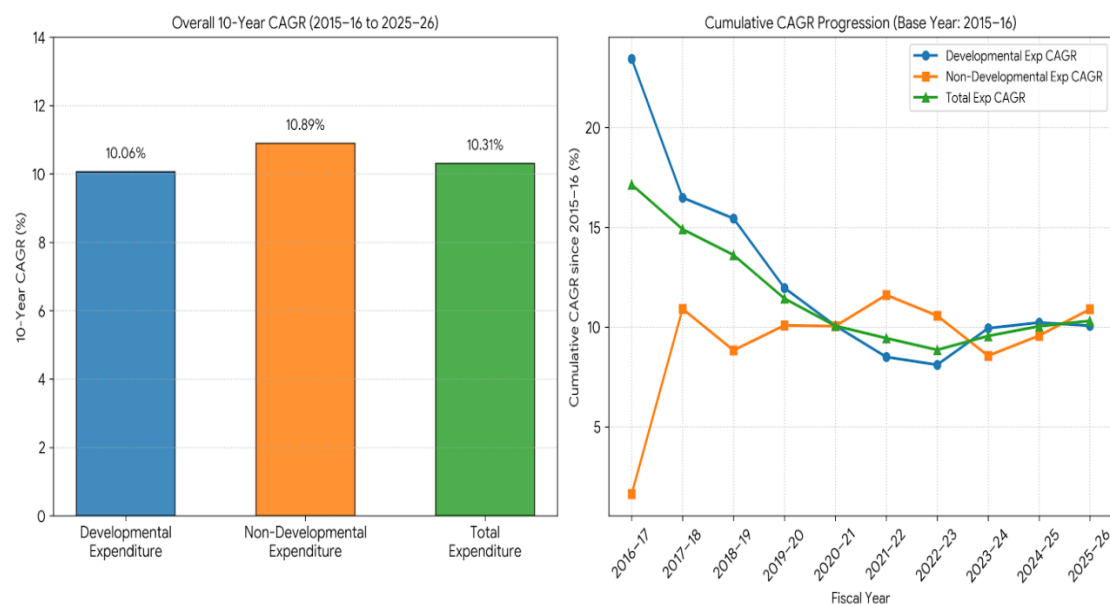
Table 1: Developmental and Non-Developmental Expenditure in Karnataka

(Periods: 2015 and 2025)

(Rs. in Crore)

Year	Developmental Expenditure	Non-Developmental Expenditure	Total of Expenditure
2015–16	100,440.69	40,794.06	141,234.75
2016–17	123,989.38	41,455.39	165,444.77
2017–18	136,285.13	50,177.82	186,462.95
2018–19	154,527.55	52,584.47	207,112.02
2019–20	157,822.41	59,903.41	217,725.82
2020–21	162,219.00	65,825.87	228,044.87
2021–22	163,825.43	78,839.40	242,664.83
2022–23	173,308.80	82,410.92	255,719.72
2023–24	214,293.99	78,684.21	292,978.20
2024–25	241,195.69	92,809.17	334,004.86
2025–26	262,001.05	114,688.25	376,689.30

Source: Government of Karnataka (2025), Karnataka Economic Survey and Finance Department – 2015 to 2025



The above table reveals the trend in developmental and non-developmental expenditure in Karnataka from 2015 to 2025. However, developmental expenditure remained substantially higher than non-developmental expenditure throughout the study period. Developmental expenditure increased from Rs.1,00,440.69 crore in 2015–16 to Rs.2,62,001.05 crore in 2025–26. Thus, it increased by about 160.86% during the study period. The developmental expenditure recorded its highest annual increase in 2016–17, when it rose from Rs.1,00,440.69 crore to Rs.1,23,989.38 crore. Thereafter, expenditure continued to increase, although the rate of growth was comparatively moderate during 2019–20 to 2022–23. A particularly strong increase occurred after 2022–23. Developmental expenditure increased from Rs.1,73,308.80 crore in 2022–23 to Rs.2,14,293.99 crore in 2023–24, followed by Rs.2,41,195.69 crore in 2024–25 and Rs.2,62,001.05 crore in 2025–26.

Non-developmental expenditure also demonstrated an increasing trend, rising from Rs.40,794.06 crore in 2015–16 to Rs.1,14,688.25 crore in 2025–26. This represents an increase of about 181.14% over the study period. The expenditure increased gradually up to 2019–20 and then rose considerably during 2020–21 and 2021–22. It increased from Rs.65,825.87 crore in 2020–21 to Rs.78,839.40 crore in 2021–22. There was a slight decline in non-developmental expenditure in 2023–24, from Rs.82,410.92 crore to Rs.78,684.21 crore. However, it subsequently increased sharply to ₹92,809.17 crore in 2024–25 and Rs.1,14,688.25 crore in 2025–26.

Table 2: CAGR Statistical Summary

(Rs.in Crore)

Indicator	Developmental	Non-Developmental	Total
2015–16	1,00,440.69	40,794.06	1,41,234.75
2025–26	2,62,001.05	1,14,688.25	3,76,689.30
Absolute increase	1,61,560.36	73,894.19	2,35,454.55
Percentage increase	160.86%	181.14%	166.79%
CAGR	10.06%	10.89%	10.31%

Source: Compiled Data by the Researcher

The analysis indicates that Karnataka's public expenditure exhibited a strong upward trend during 2015–16 to 2025–26. Developmental expenditure increased from Rs.1,00,440.69 crore to Rs.2,62,001.05 crore, recording a CAGR of 10.06%. Similarly, non-developmental expenditure increased from Rs.40,794.06 crore to Rs.1,14,688.25 crore, registering a slightly higher CAGR of 10.89%. Total expenditure increased from Rs.1,41,234.75 crore to Rs.3,76,689.30 crore, with a CAGR of 10.31%. Developmental expenditure remained considerably higher than non-developmental expenditure throughout the study period, indicating the continued importance given to development-oriented activities. However, the comparatively faster growth of non-developmental expenditure suggests increasing fiscal pressure. The substantial rise in developmental expenditure, particularly after 2022–23, indicates an expansion of government spending towards economic and social development. Through this study, it is clear that the trend demonstrates a significant expansion of Karnataka's expenditure structure, while the increasing non-developmental component highlights the need for efficient fiscal management to protect resources available for productive developmental sectors, including agriculture.

III.II. Agriculture & Allied Services Expenditure in Karnataka

This study analyses agriculture and allied activities as an important component of developmental expenditure under economic services in Karnataka. Public expenditure on agriculture and allied services plays a significant role in promoting agricultural

productivity, strengthening rural infrastructure, improving irrigation facilities, supporting horticulture and allied activities, and enhancing the economic well-being of farmers. The analysis examines the expenditure pattern and growth of agriculture and allied activities and highlights their importance in the overall developmental expenditure of the state.

Table 3: Agriculture & Allied Activities Expenditure in Karnataka (Periods: 2015 and 2025)

(Rs. in Crore)

Year	Agriculture & Allied Activities	Share in Developmental Expenditure*	Growth (%)
2019–20	23,257.69	14.74	-
2020–21	19,094.19	11.77	-17.06
2021–22	17,837.28	10.89	-6.58
2022–23	20,611.71	11.89	15.55
2023–24	23,225.77	10.84	12.68
2024–25	27,199.30	11.27	17.11
2025–26	26,649.01	10.17	-2.02

Source: Government of Karnataka (2025), Karnataka Economic Survey – 2015 to 2025

Note: * Share as reported in the respective Economic Survey expenditure tables.

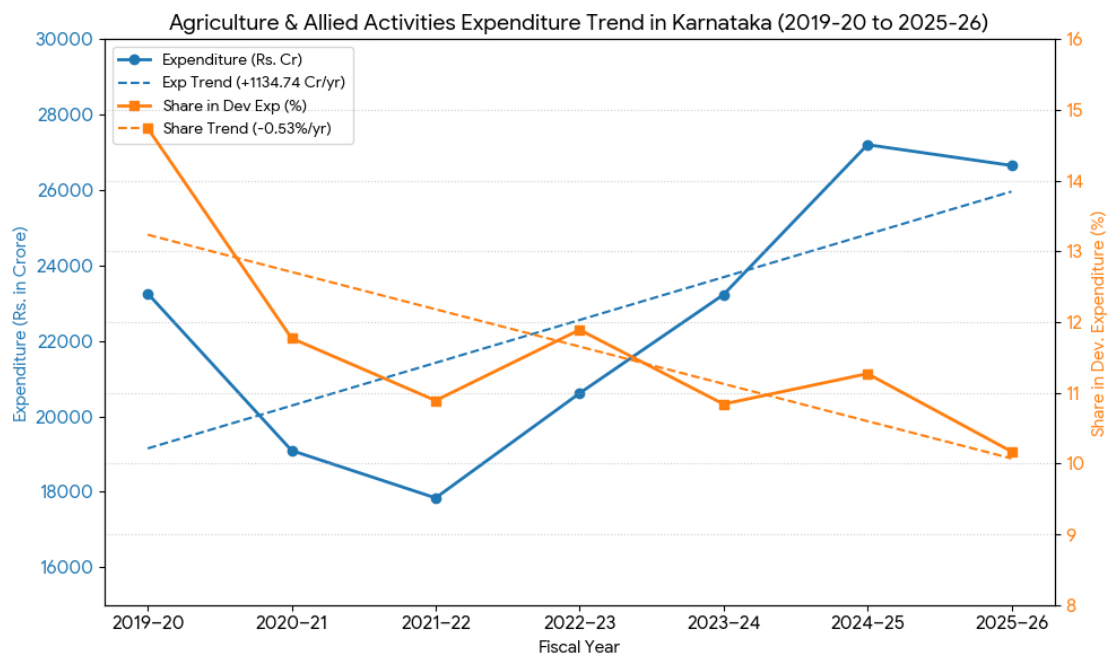


Table 3 presents the expenditure on Agriculture and Allied Activities in Karnataka from 2019–20 to 2025–26, along with its share in developmental expenditure and annual growth rate. In 2019–20, expenditure amounted to Rs.23,257.69 crore,

accounting for 14.74% of developmental expenditure. The expenditure declined considerably to Rs.19,094.19 crore in 2020–21, registering a negative growth rate of 17.06%. The declining trend continued in 2021–22, when expenditure fell to Rs.17,837.28 crore, recording a negative growth rate of 6.58%. From 2022–23 onwards, expenditure recovered and increased to Rs.20,611.71 crore, registering a growth rate of 15.55%. In 2023–24, expenditure further increased to Rs.23,225.77 crore, with a growth rate of 12.68%.

The highest expenditure during the study period was recorded in 2024–25 at Rs.27,199.30 crore, representing a growth rate of 17.11%. However, expenditure declined slightly to Rs.26,649.01 crore in 2025–26, recording a negative growth rate of 2.02%. The share of Agriculture and Allied Activities declined from 14.74% to 10.17%, indicating that its relative share in developmental expenditure decreased despite the recovery in absolute expenditure after 2021–22. Overall, the expenditure shows a fluctuating but broadly increasing trend during the study period.

III.IV. TESTING HYPOTHESIS

H₀: There is no significant increase in agriculture & allied activities expenditure in Karnataka over the past few years.

H₁: There is a significant increase in agriculture & allied activities expenditure in Karnataka over the past few years.

Table 4: Exponential Growth Model of Agriculture & Allied Activities Expenditure in Karnataka (2019 to 2025)

S. No	Parameter	Result
1	Intercept (ln a)	9.8155
2	Growth coefficient (b)(b)	0.04928
3	Estimated growth rate ($e^b - 1$) × 100	5.05%
4	R ²	0.4395
5	Adjusted R ²	0.3273
6	t-statistic for growth coefficient	1.979
7	p-value	0.1046
8	Observations	7
9	Growth pattern	Positive but statistically insignificant

Source: Compiled Data by the Researcher

Model Equation

The estimated exponential model is:

$$\ln Y = 9.8155 + 0.04928t$$

Therefore,

$$Y = e^{9.8155} e^{0.04928t}$$

The estimated annual growth rate is:

$$(e^{0.04928} - 1) \times 100 = 5.05\%$$

The exponential growth model indicates that expenditure on agriculture and allied activities expenditure in Karnataka recorded an estimated compound growth rate of 5.05% per annum during 2019–20 to 2025–26. The positive value of the growth coefficient ($b=0.04928$) indicates an overall upward growth pattern. The model explains approximately 43.95% of the variation in expenditure, as indicated by the R^2 value of 0.4395. However, the growth coefficient is not statistically significant at the 5% level, since the p-value (0.1046) is greater than 0.05. Therefore, the null hypothesis is not rejected, and the study concludes that although agriculture and allied activities expenditure shows a positive growth pattern, the increase is not statistically significant over the study period.

IV. CONCLUDING REMARKS

The study concludes that developmental and non-developmental expenditure plays an important role in the growth and functioning of the agricultural sector in Karnataka. Agriculture and allied activities remain important contributors to rural employment, income generation, food security, and livelihoods. The analysis of agriculture and allied services expenditure indicates a fluctuating but generally increasing trend in expenditure in absolute terms during the study period. Developmental expenditure has supported irrigation, agricultural infrastructure, crop development, horticulture, animal husbandry, fisheries, agricultural research, and farmer welfare programmes. These investments contribute to improving agricultural productivity, employment opportunities, farmers' income, and rural living standards. Non-developmental expenditure, although mainly administrative and maintenance-oriented, is essential for the effective implementation and continuity of agricultural programmes and government services.

The study also indicates that the share of agriculture and allied activities in total developmental expenditure has declined over time, suggesting that expenditure in other developmental sectors has grown relatively faster. Therefore, greater attention should be given to the efficient allocation and utilisation of public expenditure on agriculture. Strengthening irrigation, modern agricultural technology, research and extension services, infrastructure, and allied activities can further improve agricultural performance.

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