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PUBLIC EXPENDITURE AND AGRICULTURAL DEVELOPMENT: INSIGHTS FROM KARNATAKA

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ABSTRACT----------
This study examines public expenditure on agriculture in Karnataka from 1990 to 2023, highlighting trends and patterns in spending. It reveals that while Karnataka's total expenditure on agriculture has increased significantly, the focus remains predominantly on revenue expenditure rather than capital expenditure. This contrasts with national trends, where there's a gradual shift towards more balanced spending. The Compound Annual Growth Rate (CAGR) for Karnataka shows significant variability, including a recent decline, while other states like Maharashtra exhibit higher and more stable growth rates. The analysis includes a comparative review with other Indian states, showing Karnataka's strong emphasis on operational costs and lower capital investment compared to states with larger agricultural sectors. This study underscores the need for a more balanced approach in agricultural investment to support long-term growth and development.

KEY WORDS: *Public Expenditure, Agriculture, Revenue Expenditure and Capital Expenditure.* ----------

1. INTRODUCTION

Public spending plays a crucial role in achieving the economic and financial goals of a country, making it important to ensure that public expenditure is well-funded (Brian, 2018). To support development across all economic sectors, it is essential to analyse and manage resource limitations to assess the benefits of specific sectors. Agriculture and agro-economics are particularly important areas of research in India, especially in achieving self-sufficiency.

Investment in agriculture comes from both public and private sectors. Public investment focuses on building infrastructure, while private investment, made by companies and households, aims to boost productivity and farmers' incomes. Households account for about 90% of private investment, which includes spending on farm equipment, machinery, irrigation, and land development. Over time, the ratio of public to private investment has shifted, with private investment growing significantly. For example, in the 1950s, the ratio was 43:57 (public: private), but by 2005-06, it was 24:76 (Golait & Lokare, 2008; Malladadavar, 2022).

Public investment positively impacts private investment, but a decline in public investment has also led to increased private investment. This indicates that private investment depends on both public investment and favorable policies. Despite its importance, Indian agriculture faces challenges like traditional farming methods, reliance on monsoons, fragmented land holdings, low productivity, and low investment. Declining investment is a major concern, as it slows technological advancements and infrastructure development, affecting productivity. Therefore, accelerating and properly structuring investment in agriculture is crucial for growth (Lokesh & Vishnu, 2011; Malladadavar, 2022).

Both central and state governments have launched various programs to support agricultural growth. Central government support includes financial aid through centrally sponsored schemes, which may require states to contribute between 10% and 35% of the costs. State governments also introduce their own schemes, and some projects receive funding from foreign governments or international agencies. Agriculture is primarily managed at the state level in India, with state governments bearing most of the funding responsibility. However, the central government also supports agricultural investments, especially in research and development. This study focuses on reviewing how Karnataka's government allocates public funds for agriculture and allied activities. It aims to analyse the patterns of agricultural spending, development schemes, and programs implemented by the Karnataka state government to highlight the importance of investing in agriculture.

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2. REVIEW OF LITERATURE

A study conducted by **Rajesh and et al. (2020)** to make an in-depth assessment of the public expenditure on agricultural inputs and support services at both state and national level. Panel data on public agricultural expenditures have been compiled from the Finance accounts of different states and Combined Finance and Revenue accounts, Government of India. A comparative regional analysis revealed that the western and southern regions focused majorly on irrigation sector, whereas the eastern region has given more focus towards rural development. Study found that out of total expenditure on agricultural inputs and services, crop husbandry has gained significance with a higher expenditure percentage share over the period and observed imbalances in inter-state allocation of public expenditure in agriculture, which needs to be considered in the future to achieve the goal of inclusive growth in Indian agriculture (Rajesh 2020).

Singh and et al. (2021) assessed the impact of public expenditure on the agricultural growth in Punjab during 1990-91 to 2019-20. The expenditure on crop husbandry, dairy development, and agricultural research & education had a positive and significant impact on the state's agricultural growth, but the expenditure on soil & water conservation and forestry & wildlife did not impact it. Study also confirms that the growth in the agricultural gross domestic product has led to the growth in public expenditure in agriculture. However, the lack of reverse causal flow from the total public expenditure to agricultural growth discloses that public sector expenditure in agriculture is not optimally allocated and needs reprioritization. (Singh 2021).

Seema Bathla (2017) analyses the relationship between public investment in agriculture, irrigation and agricultural growth in the India. The study reveals that low and inadequate public capital formation during the nineties impinged upon farmers' investments and jeopardized technological change and agricultural growth. Researcher suggests a big push in resource allocation towards agriculture and irrigation from early 2000s is an important policy initiative. (Seema Bathla 2017).

Palta singh and et al. (2021) reviews the recent trends in agricultural investments (both public and private) and tries to find structural breaks in the trends over the period of 1960- 2017. Study found that the recent agricultural stagnation spawns from a low capital formation in Indian agriculture, especially low public investment. This has been further strengthened by the regression results where both public and private investments along with fertilizer consumption, HYV seeds, terms of trade, and weather pattern significantly affect the agricultural output. (Palta Singh 2021)**.**

Gerwel (2015) focused on relationship between agricultural productivity, government spending and pro-poor growth at a theoretical level. Firstly, he discusses the historical progression of thinking around the role of agriculture in development with particular focus on the international experience of agriculture and economic development and its impact on poverty reduction in developing countries. Study concludes that there is a role for agriculture in South Africa to promote pro-poor growth through more effective government investment to improve productivity and foster linkages with the non-farm economy (Gerwel 2015)

3. OBJECTIVES OF THE STUDY

1. To analyse the trends and patterns of Public Expenditure on Agriculture in Karnataka.
2. To compare the impact of Public Expenditure on Agricultural Development in Karnataka with other states of India.

4. DATA AND METHODOLOGY

The study uses secondary data from 1990-91 to 2023-24, which comes from several key sources including the Reserve Bank of India (RBI), Indian Economic Survey, and Karnataka Economic Survey. This data covers public spending on various agricultural activities like crop husbandry, soil and water conservation, animal husbandry, dairy development, fisheries, forestry, agricultural research, and irrigation. To get this information, the study relies on RBI's report titled "State Finances: A Study of Budgets," which details how money is spent on these agricultural activities. The aim of the study is to analyse how public spending in these areas has changed over time and what impact it has had. To do this, the study will use various statistical methods. These include looking at growth rates to see how spending has increased or decreased, share metrics to understand the proportion of spending on different activities, averages to find out typical spending levels, and Compound Annual Growth Rate (CAGR) to measure how spending has grown over the years. These tools will help in understanding trends and patterns in agricultural expenditure and its effects on development in Karnataka.

5. RESULT AND DISCUSSION

Public expenditure on agriculture in Karnataka has seen notable trends and patterns over the years. From 1990-91 to 2022-23, the state has significantly increased its overall expenditure on agriculture, reflecting a commitment to

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enhancing the sector. Karnataka's spending has mirrored national trends, with a substantial rise in capital expenditure, though it remains proportionally higher compared to the national average. Despite this, the state's allocation to capital investments in agriculture remains lower than operational costs, indicating a continued emphasis on immediate support rather than long-term infrastructure. The ratio of agricultural spending to Gross State Domestic Product (GSDP) has grown, highlighting the increasing importance of agriculture in Karnataka's fiscal policy. However, growth rates for agricultural expenditure in Karnataka have been more volatile compared to the national average. This suggests that while the state has made considerable strides in agricultural investment, recent challenges may affect future spending patterns.

5.1 Public Expenditure Trends and Patterns in Karnataka's Agriculture.

The table.1 presents trends in government expenditure on agriculture and allied activities in India and Karnataka from 1990-91 to 2022-23. In India, government spending on agriculture and allied activities has increased significantly over the years. From 1990-95 to 2020-23, the total expenditure (TEAA) grew from Rs. 8,585 crores to Rs. 257,188 crores. Despite this growth, a large proportion of this spending has consistently been on revenue expenditure (REAA), which includes operational costs like subsidies, support services, and other recurring expenses. In the early 1990s, REAA accounted for 92.3% of TEAA, with a slight decline to 91.8% by 2020-23. On the other hand, the share of capital expenditure (CEAA), which funds long-term investments like infrastructure and development projects, increased from 7.7% to 8.2% over the same period. This indicates that while the focus has remained largely on operational costs, there has been some increased attention to long-term investments in agriculture and allied sectors.

Karnataka shows a similar pattern but with a more pronounced focus on revenue expenditure. The state's total expenditure on agriculture and allied activities (TEAA) increased from Rs. 485 crores in 1990-95 to Rs. 19,151 crores in 2020-23. Unlike India, Karnataka has allocated an even larger proportion of its spending to revenue expenditure (REAA). In 1990-95, REAA made up 97.4% of TEAA, which slightly decreased to 95.4% by 2020-23. The share of capital expenditure (CEAA) has remained very low throughout the years, starting at 2.6% in 1990-95 and rising to just 4.6% in 2020-23. This suggests that Karnataka's focus has been heavily on operational costs rather than on infrastructure or long-term investments in the agricultural sector.

When comparing the trends in India and Karnataka, both have consistently prioritized revenue expenditure over capital expenditure in their agricultural spending. However, Karnataka's focus on REAA is even more pronounced than at the national level. For instance, in 2020-23, Karnataka allocated 95.4% of its expenditure to REAA, compared to 91.8% at the national level. This indicates that Karnataka has placed less emphasis on capital expenditure for agriculture compared to the broader national trend.

Table. 1: Trends in Government Expenditure on Agriculture and Allied Activities in India: 1990-91 to 2022-23

Year	REAA (Rs. Cr)	CEAA (Rs. Cr)	TEAA (Rs. Cr)	REAA Share to TEAAA	CEAA Share to TEAA
India					
1990-95	7924	660	8585	92.3	7.7
1995-00	12316	1197	13513	91.1	8.9
2000-05	16955	1903	18858	89.9	10.1
2005-10	32142	5462	37604	85.5	14.5
2010-15	73417	6860	80276	91.5	8.5
2015-20	156763	17402	174166	90.0	10.0
2020-23	236077	21111	257188	91.8	8.2
1990-2023	71820	7408	79228	90.7	9.3
Karnataka					
1990-95	473	13	485	97.4	2.6
1995-00	930	19	949	98.0	2.0
2000-05	1350	22	1372	98.4	1.6
2005-10	3624	47	3671	98.7	1.3
2010-15	8170	207	8377	97.5	2.5
2015-20	15924	289	16213	98.2	1.8
2020-23	18274	878	19151	95.4	4.6
1990-2023	6631	191	6822	97.2	2.8

Note: REAA Revenue Expenditure on Agriculture Allied Activities; CEAA Capital Expenditure on Agriculture Allied Activities; TEAA Total Expenditure on Agriculture Allied Activities. Source: State Finance, RBI

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While both India and Karnataka have increased their spending on agriculture and allied activities, Karnataka has done so with a stronger focus on immediate, operational expenses rather than long-term investments. This could reflect differences in policy priorities, where Karnataka may be focusing more on short-term support for the agricultural sector, while India as a whole is slowly shifting towards more balanced spending that includes infrastructure development and other capital investments. In summary, both India and Karnataka have seen significant growth in agricultural spending from 1990-91 to 2022-23, with Karnataka displaying a particularly strong preference for revenue expenditure over capital expenditure.

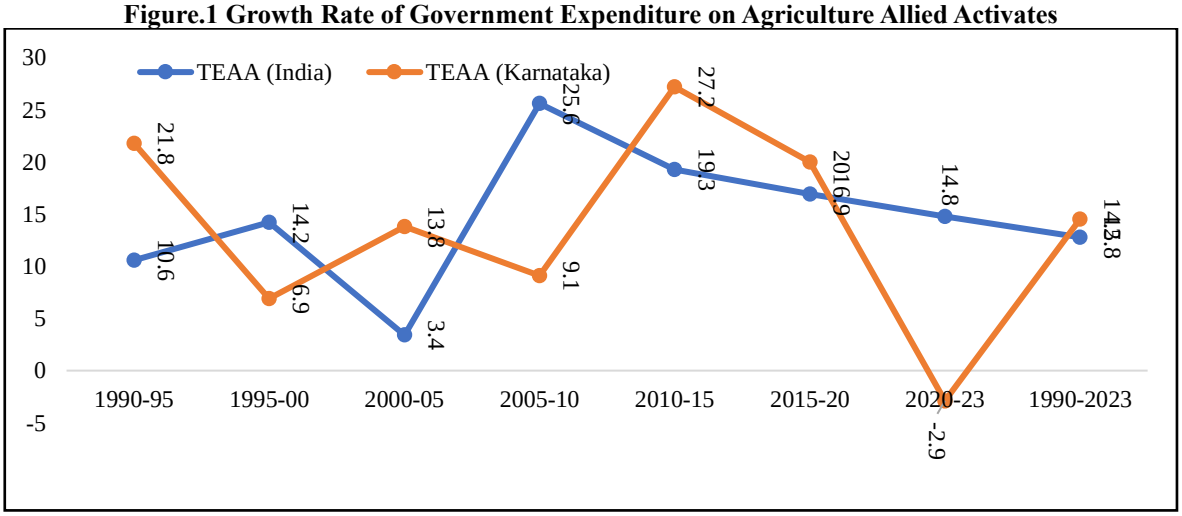
5.2 Growth Rate of Government Expenditure on Agriculture Allied Activates

The Fig.1 presents the Compound Annual Growth Rate (CAGR) of government expenditure on Agriculture and Allied Activities (TEAA) for India and Karnataka from 1990 to 2023. CAGR provides a measure of how the spending has grown on average each year over different periods. India's CAGR for TEAA started at 10.6% during 1990-95 and peaked at 25.6% during 2005-10. This period marked the highest growth in agricultural spending, reflecting likely policy shifts or increased focus on agriculture. However, this was followed by a decrease to 14.8% in the 2020-23 period. Despite fluctuations, the overall CAGR for India from 1990 to 2023 stands at 12.8%, showing a steady but moderate growth in agricultural expenditure over the long term.

Karnataka's CAGR for TEAA shows more variability compared to India. It started with a strong 21.8% growth during 1990-95, followed by a decline to 6.9% in 1995-00. Growth picked up again during 2000-05 and peaked at 27.2% during 2010-15. However, unlike India, Karnataka experienced a negative growth rate of -2.9% in the 2020-23 period, indicating a reduction in agricultural spending. Over the entire period from 1990 to 2023, Karnataka's overall CAGR for TEAA is slightly higher at 14.5%, showing a more aggressive growth in agricultural spending, despite recent declines.

Both India and Karnataka exhibit fluctuations in their agricultural expenditure growth, but Karnataka's growth rates show more volatility. For example, while India maintained a relatively steady growth, Karnataka experienced sharper increases and decreases, particularly evident in the negative growth during 2020-23. Karnataka's expenditure growth on agriculture peaked at 27.2% during 2010-15, significantly higher than India's peak of 25.6% during 2005-10. However, Karnataka's sharp decline to -2.9% in 2020-23 contrasts with India's more stable 14.8% growth during the same period, indicating differing priorities or financial constraints in recent years. Over the long term (1990-2023), Karnataka's CAGR of 14.5% outpaces India's 12.8%. This suggests that Karnataka, despite its volatility, has generally invested more aggressively in agriculture over the decades. However, the recent negative growth may indicate challenges in sustaining this trend.

Figure.1 Growth Rate of Government Expenditure on Agriculture Allied Activates



Source: Author Calculation from RBI Data

5.3 Comparative Analysis of Agricultural Public Spending: Karnataka and Other States.

A comparative analysis of agricultural public spending reveals significant differences between Karnataka and other Indian states. Karnataka has shown substantial growth in its agricultural budget, focusing heavily on immediate operational costs. In contrast, states like Maharashtra and Tamil Nadu, with larger agricultural sectors, also invest significantly but often allocate a higher proportion to capital expenditure. While Karnataka's agricultural spending has increased, its emphasis on capital investments remains lower compared to states that prioritize long-term infrastructure development. The ratio of agricultural expenditure to Gross State Domestic

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Product (GSDP) in Karnataka has grown but remains relatively modest. This comparison highlights the varied fiscal strategies across states, reflecting differing priorities and capacities in supporting agricultural development.

The table. 2 shows government total expenditure on agriculture and allied activities (AAA) across Indian states from 1990 to 2023. Among the states with the lowest average expenditures, Goa leads with an average of Rs. 223 crore, reflecting its limited investment in agriculture. Similarly, Bihar, with an average of Rs. 1,811 crores, shows relatively low spending on agricultural activities. Haryana, with an average of Rs. 1,839 crore, and West Bengal, with Rs. 2,354 crores, also demonstrate modest investments. Jharkhand, averaging Rs. 1,028 crores, further illustrates lower spending on agriculture.

Conversely, states with the highest average expenditures include Maharashtra, with an average of Rs. 9,566 crores, indicating substantial investment in agricultural infrastructure. Karnataka follows with an average of Rs. 9,155 crores, reflecting significant spending to support its extensive agricultural sector. Tamil Nadu, with an average of Rs. 5,647 crores, shows considerable expenditure, aligned with its diverse agricultural needs. Madhya Pradesh, with an average of Rs. 5,013 crores, also demonstrates high spending, driven by its major agricultural focus. Gujarat, with an average of Rs. 3,057 crores, exhibits notable expenditure, supporting its agricultural development.

Overall, higher expenditures in states like Maharashtra and Karnataka align with their larger agricultural sectors and infrastructure needs. In contrast, lower spending in states like Goa and Bihar reflects their smaller agricultural investments. The data highlights varying levels of capital expenditure on agriculture across India, driven by each state's agricultural focus and development priorities.

Table. 2: Government Total Expenditure on AAA by States: 1990-91 to 2022-23 (Rs. Cr)

Year	1990-00	2001-10	2011-20	2021-23	1990-23
AP	512	1608	6233	10526	3488
BH	404	663	3278	5441	1811
CG	NA	1108	7890	15824	4165
GA	26	75	298	530	223
GJ	520	1320	5721	8425	3057
HR	268	914	3383	5016	1839
JH	NA	601	1772	3401	1028
KA	717	2521	12295	18149	9155
KL	521	1046	4897	9225	2798
MP	948	1668	9278	15501	5013
MH	1992	4246	15638	32302	9566
OR	396	938	5903	10306	3130
PJ	312	615	4922	10510	2728
RJ	469	905	5246	12264	3121
TN	1258	2282	9062	20109	5647
UP	983	2972	9944	13728	5460
WB	518	1038	3839	7912	2354
All States	11049	28231	127221	241037	72367

Source: State Finance, RBI.

5.4 Growth Rate of Government Expenditure on Agriculture Allied Activities by States

The table. 3 shows that Compound Annual Growth Rate (CAGR) of Government Expenditure on Agriculture Allied Activities (AAA) from 1990-91 to 2022-23 reveals diverse trends across states. The states with the highest CAGR include Bihar, which shows a dramatic increase from 2.1% in 1990-00 to an extraordinary 68.0% in 2020-23, averaging 10.7% over the entire period. Similarly, Odisha and Punjab also experienced notable growth, with CAGR rates of 14.1% and 14.1%, respectively. Punjab's growth spiked from 1.6% in 2000-10 to 25.0% in 2020-23. Andhra Pradesh, despite a recent slowdown, has a strong overall CAGR of 12.7%, while Gujarat maintained a steady CAGR of 12.3%.

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Table.3 CAGR of Government Expenditure on AAA by States: 1990-91 to 2022-23

Year	1990-00	2000-10	2010-20	2020-23	1990-23
AP	8.9	16.8	10.4	3.5	12.7
BH	2.1	16.1	6.4	68.0	10.7
CG	NA	24.7	24.2	18.4	20.7
GA	5.2	17.9	8.6	31.1	12.4
GJ	11.8	12.7	11.7	9.0	12.3
HR	7.6	10.6	14.5	20.0	12.5
JH	NA	NA	14.4	38.7	11.1
KA	14.8	19.4	16.9	-2.9	14.6
KL	13.9	11.7	9.8	-16.4	12.1
MP	8.5	10.7	15.7	9.7	11.8
MH	11.6	11.9	18.9	4.9	11.2
OR	9.7	15.9	13.8	15.9	14.1
PJ	9.8	1.6	34.9	25.0	14.1
RJ	11.5	14.3	14.9	-3.1	13.3
TN	9.7	16.5	16.8	23.0	11.2
UP	10.3	14.5	21.6	38.2	11.5
WB	9.2	8.2	14.6	42.5	10.7
All States	10.1	13.8	17.2	14.8	12.8

Source: Author Calculation from RBI Data

In contrast, the states with the lowest CAGR include Karnataka, which experienced a significant decline, from 14.8% in 1990-00 to a negative 2.9% recently, resulting in an overall CAGR of 14.6%. Kerala also faced a sharp drop in growth, averaging 12.1% but declining by -16.4% in the last period. Rajasthan saw a negative CAGR of -3.1% in the recent decade, leading to an average CAGR of 13.3%. Tamil Nadu's recent growth at 23.0% boosted its overall CAGR to 11.2%, while Maharashtra's CAGR reduced to 11.2%, showing a significant decrease in growth momentum over time.

Overall, while states like Bihar and Odisha have shown impressive growth in their expenditure on AAA, others like Karnataka and Kerala have struggled with lower or negative growth rates. This variability highlights the different approaches and fiscal challenges faced by states in supporting agriculture over the decades.

6. CONCLUSIONS AND POLICY IMPLICATIONS

Over the past three decades, from 1990-91 to 2022-23, government expenditure in both India and Karnataka has experienced substantial growth, reflecting a shift in fiscal priorities and economic strategies. Nationally, there has been a significant increase in total spending, with a notable shift from revenue expenditure to capital expenditure, which rose from 10.8% to 14.8% of the total. Karnataka's expenditure patterns follow a similar trend, with an even higher proportion dedicated to capital investments, increasing from 14.0% to 18.7%. While both India and Karnataka have enhanced their agricultural budgets, Karnataka's focus remains stronger on immediate operational costs, evidenced by its lower allocation to capital expenditure compared to the national trend. The ratio of total expenditure to GDP has surged in Karnataka, contrasting with the modest increase observed nationally, indicating a faster rise in state spending relative to economic growth. Disparities in expenditure patterns across Indian states are significant, with higher spending in populous and economically active states like Maharashtra, Uttar Pradesh, and Tamil Nadu, while smaller states such as Goa and Sikkim report lower expenditures. States with substantial agricultural sectors, including Maharashtra and Karnataka, allocate more to agriculture, whereas others like Gujarat and Haryana spend less. Variations in expenditure relative to GSDP show substantial increases in states like Bihar and Madhya Pradesh, while economically stronger states such as Maharashtra maintain more conservative spending ratios. The Compound Annual Growth Rate (CAGR) of agricultural expenditure underscores these differences, with Bihar and Odisha showing strong growth, whereas Karnataka and Kerala face challenges or reduced focus in this area.

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