

**ALLOCATION AND EXPENDITURE PATTERNS OF
MUNICIPAL CORPORATIONS: AN INTER
CORPORATION AND SECTOR-WISE ANALYSIS IN
KERALA (2016–2026)**

*Major project submitted to St. Teresa's College (Autonomous), Ernakulam in Partial
Fulfillment of the requirement for the Award of PG of*

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BY

SANRA VARGHESE (Reg. No: AMI21ECO022)

Under the guidance of and Supervision of

DR. RAJESH K

SENIOR URBAN FELLOW, KERALA INSTITUTE OF LOCAL ADMINISTRATION



DEPARTMENT OF ECONOMICS AND CENTRE FOR RESEARCH

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ERNAKULAM

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Author Name SANRA VARGHESE

Course of Study Integrated MA Programme in Social Sciences-
Economics

Name of Guide Dr. Rajesh K

Department Dept. of Economics & Centre for Research

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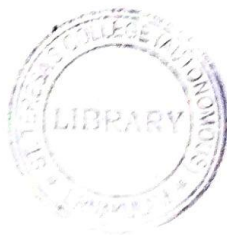
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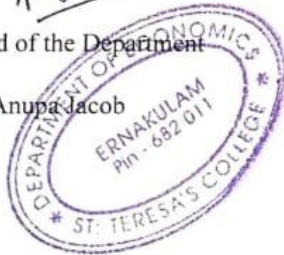


CERTIFICATE

This is to certify that the dissertation titled "**ALLOCATION AND EXPENDITURE PATTERNS OF MUNICIPAL CORPORATIONS: AN INTER CORPORATION AND SECTOR-WISE ANALYSIS IN KERALA (2016-2026)**", submitted in partial fulfilment of the requirement for Post Graduation of Integrated M.A Programme in Social Science-Economics to St. Teresa's College, Ernakulam (Autonomous) affiliated to **MAHATMA GANDHI UNIVERSITY, KOTTAYAM**, is a true record completely done by the student under supervision and guidance.


Head of the Department

Dr. Anupa Jacob




Under the guidance of

Dr. Rajesh K




27/3/26
Name and Signature of External Examiner

DECLARATION

I hereby declare that the dissertation titled **"ALLOCATION AND EXPENDITURE PATTERNS OF MUNICIPAL CORPORATIONS: AN INTER CORPORATION AND SECTOR-WISE ANALYSIS IN KERALA (2016-2026)"** submitted by me for partial fulfilment of the requirement for postgraduation of Integrated M.A programme in Social Science- Economics in original work.



Signature of the Supervisor



Signature of the Candidate

Sanra Varghese



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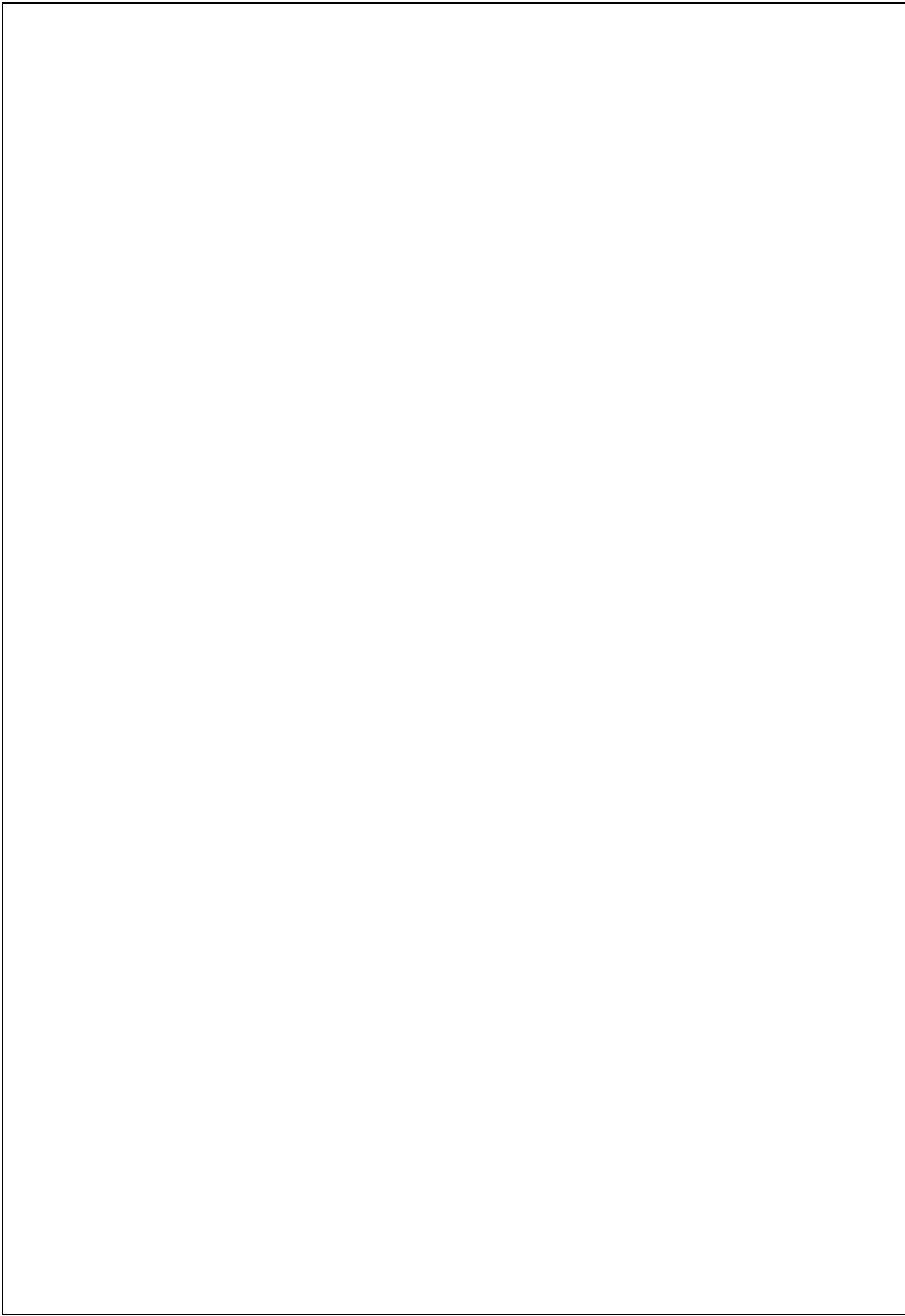
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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The foundation of Kerala's decentralised government is urban local governance, and Municipal serve as the top level of urban local bodies and have the responsibility for urban planning, developing infrastructure, ensuring public health and sanitation, providing housing and education, delivering essential services to the public. The adequacy of financial resources and the efficiency in the use of those funds across various sectors are key factors in the effectiveness of these responsibilities. A significant advancement towards decentralized urban governance in India occurred with the enactment of the 74th amendment to the constitution in 1992, which acknowledged the role of urban local bodies. The goal of this amendment was to empower local entities to design and implement development projects that cater to the needs of their respective communities.

The success of this decentralization does not solely depend on the delegation of duties and authority on how funding is directed and how well municipal administrations handle their financial resources. Kerala occupies a notable position in the narrative of decentralization in India. The state formalized democratic decentralization through a planning initiative in the after 1990s that involved significant financial transfer to local governments. According to Oomen, Kerala strengthened the financial foundations and decision-making capabilities of local bodies by providing them with an unprecedented share of development.

Researchers have pointed out that disparities in institutional readiness, financial management skills, and administrative capabilities have led to inequalities among local authorities due to the fiscal transfer of powers. In Kerala, there are six municipal corporations, each responsible for a substantial urban area, representing the highest level of local urban governance. The government of Kerala has equipped these corporations with considerable authority, responsibilities, and resources to facilitate effective urban planning and management.

Each corporation is headed by a mayor who is elected by the people, and council members representing various wards help him/her. The administrative apparatus is controlled by secretary that is appointed by the government and managed the day-to day running of the country ensures adherence to the state laws. The administrative and elected wings collaborate to organize, supervise, and implement development projects in various sectors.

Municipal corporations play a crucial part in urban development, as evidenced by their powers and functions. These include creating plans for social welfare and economic development, keeping track of finances and records, supplying public facilities like street lighting, drainage, sanitation, and waste management. Encouraging public health and education, carrying out government-sponsored urban development projects. Controlling land use and construction and safeguarding the environment. Municipal corporations are facing growing challenges to find a balance between advancing the social sector, ensuring environmental sustainability, and expanding infrastructure as cities grow. Kerala is divided into 14 revenue districts, which are further divided into 941 gramapanchayats, 87 municipalities, and 6 municipal corporations.

The Local Self-Government Department (LSGD) serves as the key organization responsible for policy formulation and the management of local bodies. The urban affairs department manages Municipal Corporations, the head acts as the main authority within the LSGD. They function under the same institutional and financial guidelines, municipal corporations vary significantly from each other. The six municipal corporations are spread across the state, with two located in South Kerala, two located in Central Kerala, and the other two located in North Kerala. These corporations show notable variations in their population size, density, urban pressures, economic foundations, and socio-economic features, such variations naturally influence the allocation of financial resources and the expenditure patterns in different sectors. In the standardized guidelines and funding systems, differences often occur in the total funds received. Levels of usage, and priority sectors among the Municipal Corporations.

In Kerala, the allocation of funds to municipal corporation is significantly influenced by state budget policies and legal mandates. The financial assistance from the state government, especially the development funds detailed in the Kerala Budget documents, which constitutes that a substantial share of the funding available to municipalities. The distribution of these funds varies among corporations based on factors such as population size, responsibilities, and policy goals. The expenditures show the efficiency with which municipal corporations utilize these funds, allocations determine the financial resources that are accessible. Increased funding during the period of decentralization did not consistently lead to effective spending, highlighted by the research conducted by Issac and Franke.

Differences in the spending performance of various local bodies were attributed to disparities in planning skills, administrative efficiency, and the implementation of projects. Issac observed that equalities among local bodies persisted due to varying levels of institutional capability and

governance quality, with improvements in local democracy brought about by participatory planning. A sector wise analysis of allocation and expenditure shed light on municipal development priorities. Municipal expenditures cover various sectors such as infrastructure, clean water supply, sanitation, health care, education, housing, and social welfare. The emphasis placed on each sector varies among municipal corporations, highlighting in administrative priorities, financial capabilities, and urban needs. Institutional analyses from the Kerala State Planning Board also reveals that differences in technical expertise, planning efficiency. Monitoring process contribute to inconsistencies in spending across sectors. Certain sector allocations go underused, while spending may be concentrated in a few areas, resulting in uneven urban development. The analysing allocation spending patterns across corporations becomes essential.

Determining if sector -wise allocation are in line with demographic and developmental needs and whether financial resources are allocated among Municipal Corporations fairly. Examining how allocation and spending patterns have changed over time to reflect shifting institutional performance and policy agendas is made possible by time- trend analysis.

My current study analyses allocation and spending trends in Kerala municipal corporations across many corporations. The study aims to improve understanding of urban fiscal decentralisation in Kerala. Offer insights for bettering municipal financial management and urban development outcomes. Analysing corporation- wise disparities, sector-wise allocation and expenditure, and time trends using secondary data from Kerala Budget documents and institutional reports.

1.2 RESEARCH GAP

The past studies explored municipal finance in Kerala and India, focusing on revenue structure, fiscal decentralisation, fiscal sustainability and reliance on intergovernmental transfers. It has been known in the literature that urban local bodies are challenged by structural problems, including low own-source revenues, rising dependency on grants, and institutional limits to financial independence and effectiveness. However, little information regarding sector-wise allocation and actual expenditure pattern at the individual municipal corporation level in Kerala. There is detailed financial data to analyse, little research has been conducted on the inter-corporation differences in allocation priorities and expenditure behaviour using the empirical and statistical approach. This implies that there exists a bid gap in the literature on the comparative analysis of the allocation -expenditure relationship and time-related financial

trends of municipal corporations. Of particular significance in this gap is the reality of the current rapid urbanisation and the increase in the need to have efficient resource use and service delivery. This gap in the literature is critical for explaining how corporations differ in their financial management, allocation preferences, and expenditure efficiency. To address this gap, the current study conducts an inter-corporation study of sector-wise allocation and expenditure patterns in the municipal corporations of Kerala, based on recent available official data and a statistical software package. This study thus adds empirical evidence to the existing body of knowledge, supporting the understanding of the financial performance of municipal corporations.

1.3 STATEMENT OF THE RESEARCH PROBLEM

Kerala municipal corporations are mandated with the obligation to provide the required urban facilities, including infrastructure development, sanitation, housing, water supply, and social welfare. Balanced urban development is important because of good allocation of funds and effective utilisation of funds, which are managed properly. These corporations operate within a similar legal and institutional framework, variations in the size of population, geographic territory, economic foundations, administrative capacity might cause differences in prioritisation of allocation and expenditure patterns. Inequality between the funds allocated and the final expenditure may bring about inefficiency in service delivery lead to uneven development within corporations.

The available literature on municipal finance is mainly concerned with the structure of revenue, fiscal sustainability, and reliance on grants, little has been done on the comparison of allocation and expenditure by the corporations, sectors in Kerala. There exists no empirical study that will analyse whether there are substantial differences in allocation and expenditure patterns in municipal corporations and over time using statistical tools. My research aims at considering sector-specific allocation and spending patterns in the municipal corporations in Kerala. Determining the existing variations are statistically significant, helping to understand the financial management in the city better.

1.4 SCOPE OF THE STUDY

The paper will review the distribution and spending patterns of municipal corporations in Kerala concerning the financial performance comparison among the six municipal corporations within the state. It considers the distribution of financial resources in the key sectors and sub-sectors and the extent to which they are converted to real spending. The paper focuses on the

inter-corporation comparison in order to learn the differences in the financial priorities and spending trends of various urban local authorities.

The research addresses the sector-based distribution and spending of municipal corporations in selected financial years, allowing one to find out the trends and changes in financial management. It also looks at the disparities in allocation and expenditure among corporations and sectors to see how urban financial governing disparities. This paper is limited to municipal corporations and not municipalities or rural local governments.

The results of the research give some information on the financial system and spending priorities of the municipal corporations in Kerala. The improved knowledge of the urban financial management on the local government level.

1.5 OBJECTIVES OF THE STUDY

The aim of the study is as follows:

- To analyse the variation in budgetary allocation and spending in the municipal corporations in Kerala.
- To explore allocation and expenditure trends across sectors coming under major sector types.
- To determine the trends in sectoral allocation and expenditure through data visualization tools.

1.6 HYPOTHESIS OF THE STUDY

1. Hypothesis for Inter-Corporation Analysis (ANOVA Test)

Null Hypothesis (H_0):

There is no significant difference in the mean allocation and expenditure among the municipal corporations in Kerala.

Alternative Hypothesis (H_1):

There is a significant difference in the mean allocation and expenditure among the municipal corporations in Kerala.

2. Hypothesis for Sector-wise Analysis (Paired t-Test)

Null Hypothesis (H_0):

There is no significant difference between sector-wise allocation and expenditure among the major sectors in municipal corporations.

Alternative Hypothesis (H_1):

There is a significant difference between sector-wise allocation and expenditure among the major sectors in municipal corporations.

1.7 METHODOLOGY OF THE STUDY

1.7.1 Nature of the Study

The current research is comparative and analytical. It studies the variation in budgetary allocation and areas of expenditure by the municipal corporations in Kerala. The research aims at determining sector-based, corporation-based, and time-based fluctuations in allocation and expenditure. The comparative financial performance between the municipal corporations is done by using statistical tools and graphical analysis.

1.7.2 Source of Data

The study is based entirely on secondary data collected from official and reliable government sources. The major sources of data include:

- Sulekha Plan Monitoring System, Government of Kerala
- Local Self Government Department (LSGD), Government of Kerala
- Kerala State Planning Board reports and official publications
- Budget documents and financial reports of Municipal Corporations

These sources provide detailed information on allocation and expenditure under various sectors and sub-sectors for municipal corporations.

1.7.3 Period of the Study

The study covers the period from 2016-17 to 2025-26, depending on the availability of allocation and expenditure information at the Sulekha Portal, Kerala State Planning Board, and LSGD official sources.

1.7.4 Tools and Techniques of Analysis

The collected data were classified, tabulated, and analysed using statistical and graphical tools.

Graphical and Visualisation Tools

Charts and graphs were prepared using Microsoft Power BI to visually present:

- Sector-wise allocation and expenditure
- Corporation-wise comparison
- Time-wise trends
- Sub-sector distribution patterns

Statistical Tools

The data collected was analysed in Microsoft Excel and IBM Statistical Package for Social Science (SPSS).

To analyse the inter-corporation differences in funds allocation and expenditure of the selected. One-Way Analysis of Variance was used in municipal corporations. Levene's Test was done to test the hypothesis of homogeneity of variances. Where any serious disparities were observed, proper post hoc tests were used like Tukey HSD or Games-Howell calculated to determine a given pairwise difference. For sector-wise analysis, Paired Sample t-test was used to examine whether differences exist between fund allocation and expenditure within the same sector. This test was appropriate as it compares two related sets of observations.

1.8 LIMITATIONS OF THE STUDY

The study is subject to the following limitations:

- The study is based entirely on secondary data obtained from government sources.
- The accuracy of analysis depends on the availability and reliability of published data.
- The study is limited to municipal corporations in Kerala and does not include municipalities or panchayats.
- The study focuses on allocation and expenditure patterns and does not examine administrative or political factors in detail.

1.9 SCHEMATIC ARRANGEMENT

The project report is organised into 5 chapters. They are:

Chapter 1: Introduction -This chapter includes introduction, statement of the research problem, objectives of the study, scope of the study, methodology and limitations of the study.

Chapter 2: Review of Literature- The second chapter includes review of literature, concepts and definitions.

Chapter 3: Profile of Municipal Corporation in Kerala- This chapter provides an extensive overview on the Municipal Corporations of Kerala.

Chapter 4: Analysis and Interpretation- This chapter comprises of the analysis and interpretation of the data. It includes Inter corporation analysis and Sectoral analysis

Chapter 5: Findings, Conclusions, and recommendations

CHAPTER 2

REVIEW OF LITERATURE

2. REVIEW OF LITERATURE

Thomas and Kuriakose (2024) investigate the structure and patterns in the revenue collections of municipal corporations within Kerala. They aimed at valuating the financial capabilities and fiscal sustainability of urban local authorities. This study delves into key elements of municipal revenue, including tax income, non-tax income, assigned funds, and aid grants, over an extended timeframe to pinpoint structural shifts and new trends. The results of this study reveal that municipal corporations remain largely reliant on grants and allocations from state and central governments, indicating a lack of fiscal independence. Revenues sourced by the municipalities, property tax stands out as the primary contributor; its efficacy is hindered by flaws in valuation, assessment, and collection processes. The research highlights variations in non-tax revenues, suggesting erratic revenue generation and inadequate administrative efficiency. The authors emphasise that the rising demands for urban services necessitate enhanced financial resources and better strategies for revenue generation.

Maheshwari and Tak (2025) performed a bibliometric study to investigate the research patterns and scholarly contributions regarding the financial efficacy of municipal corporations. The study reveals that the role of municipal corporations as a vital level of governance, tasked with the delivery of urban infrastructure and crucial public services. The use of VOS viewer software, the authors evaluated 2,649 publications from the years 1995-2023 to pinpoint trends in research productivity, themes, and academic focal points. This indicates an increasing interest in the financial performance of municipalities in domains like income generation, management of expenses, and sustainable finance. It stresses the importance of financial independence and effective resource management as key factors for enhancing municipal performance. The bibliometric analysis shows light on significant advancements in research and identifies gaps within the current body of literature. The study aids in comprehending the development of research concerning municipal financial performance. Calling attention to the necessity for more empirical investigations to bolster financial planning and governance in municipal corporations.

The article by Nallathiga (2023) presents a review of the urban public finance in India in terms of fiscal structure, financial resources and governance of urban local bodies. The research indicates that the accelerated urbanisation has escalated the demand for infrastructure and other important services to the people, necessitating high financial strength and resource management. The main factors including the own-source revenues, intergovernmental

transfers, decentralisation. The availability of alternative financing facilities, including the municipal bonds. It is found that property is not fully exploited because of old valuation procedures and poor collection systems. Factor that is highlighted is the widening fiscal gap between rising expenditure demands and constrained revenue capability that impacts the financial viability of urban local governments. It emphasises the role of financial reforms, the system of tax management and institutional enhancement. The article is a contribution to the literature because it concludes the available literature and highlights how there should be enhanced financial planning and revenue mobilisation to enable sustainable urban development.

Ahmed (2023) studies how urban local governments react to the rapid urbanisation and its effects on municipal finance in India. Urbanisation has placed a lot of financial burden on urban local governments. As it greatly promoted the demand for infrastructure and other basic amenities that are needed by the population, water supply, transportation, health and sanitation. The municipal governments are experiencing the increasing disparity between the financial resources they have and the increasing demands of expenditure, influence on the capacity of municipal governments to offer quality services effectively. It examines the economies of the big city corporations in order to comprehend the difficulties of revenue collection and financial sustainability. Review establishes the following major problems are; insufficient own-source income, reliance on government transfers, and financial independence. It summarises that empowering municipal financial resources, enhancing revenue collection and raising institutional and administrative performance are key measures in solving the problems that emerge as a result of the rapid urbanisation.

Rao and Bird (2010) review the urban governance and city finance in India and discuss the issues associated with the financial sustainability of urban local bodies and their ability to deliver services effectively. It indicates that the pace of urbanisation has enhanced the demands of infrastructure and other social services; municipal corporations do not have sufficient funds and powers to cater to them. The study underlines that own-source revenues are not developed enough, especially property tax, because of ineffective administrative systems, ineffective assessment practices, and political restrictions. The role played by intergovernmental transfers, where too much reliance on higher-level government funding results in a decrease in fiscal independence and accountability. The institutional and governance concerns influencing financial performance, such as low levels of decentralisation and financial mismanagement, are also studied. The urban financial management and sustainable urban development require

the reinforcement of the local revenue system, better governance, and further fiscal decentralisation improvement.

Mehta, Mehta and Bhavsar discuss the issues and possible approaches to enhancing the financial position of municipalities in India, paying attention to the enhancement of the financial sustainability of urban local governments. The study points out the fact that city councils have to shoulder the growing expenditure burden as a result of accelerated urbanisation, their sources of revenue are constrained. The authors highlight the fact that property tax is the most significant source of own-source revenue, but its potential remains unexploited due to old policy, weak enforcement and poor administration. It includes the importance of user charges, municipal bonds, and public-private partnerships. The research emphasises institutional changes, better financial management and more fiscal decentralisation to help increase revenue collection. To provide financial stability and allow the municipalities to effectively combat increasing urban infrastructure and services requirements. The enhancement of local revenue systems and governance and the promotion of innovative financing strategies are needed.

Mehta, Mehta, and Bhavsar examine how the Sixteenth Finance Commission has empowered the financial status and independence of urban local governments in India. The paper I reviewed the Finance Commission as vital in recommending grants and financial transfers to local governments in the urban areas to assist in the development of infrastructure and key public services. It shows Sixteenth Finance Commission has worked on raising the amount of financial assistance in the form of basic and performance-oriented grants and stimulation of enhancing accountability and service delivery. It emphasises the need to boost the own-source revenues, especially the property taxes. To decrease the reliance on the higher-level government transfers. The research paper indicates that the Commission encourages decentralisation in the fiscal activities, strengthening of institutions, and improved financial management practices. The authors conclude that empowering urban local governments should be done by a balance between financial transfers, revenue reforms, and enhanced governance to make the urban development sustainable and deliver municipal services effectively.

Gupta, Gupta, and Gupta (2025) substantiate the financial situation of municipal corporations in India based on audited financial reports of 166 municipal corporations in 22 states in 2019-20 and 2021-22. The paper points out that local governments lack financial resources, with their revenue vouchers accounting for approximately 0.28-0.30 per cent of the national GDP,

which portrays low fiscal stability. The largest part of its own revenue is property tax, which is estimated to contribute 69%-70%, the total ownership source of revenue is inadequate. The small municipal corporations are highly dependent on the intergovernmental transfers, and their own revenues cover only 37-42 per cent of the expenditure, the medium-sized corporations work rather well. The paper concludes that over fifty per cent of local governments are running revenue short, which points to the structural financial problems. It necessary to reinforce own-source revenues, increase taxation administration and optimise financial management systems. I conclude that fiscal autonomy and revenue mobilisation are critical towards sustainable infrastructural development and good governance of the cities.

Alwin (2024) analyses the financial organisational framework and performance of the Thiruvananthapuram Municipal Corporation in terms of income and expenditure patterns and financial viability. The study indicates that the corporation relies on the state government transfer and grants, which are significant proportions of its overall revenues. The own-source revenues, property tax and professional tax contribute to a majority of the tax revenue, which is over 90 per cent of the general tax revenue. the absence of revision of tax rates, restricted autonomy in revenue mobilization and subsumption of entertainment tax by the GST, which decreased the revenue ability of the municipalities. Potential approach that the study sees has been on increasing non-tax revenue by implementing trade licenses and building permits, municipal property rents. To conclude that it is necessary to reinforce the administration of taxation, revise the taxation rates, and cement the strategies of revenue mobilisation to improve the levels of financial sustainability and provide effective delivery of municipal services.

Mohanty, Misra, Goyal, and Jeromi (2007) review that the existence of municipal finance in India based on the fiscal performance of 35 metropolitan municipal corporations. The paper reviews that source of revenue, expenditure pattern, and the financial capacity of the urban local bodies to provide civic services. The findings show that municipalities are under financial situation with poor own sources of income, property tax, which is still not to cover the increasing spending requirements. There is major discrepancy between demand and the financial capability to provide infrastructure, leading to insufficient expenditure in key services in urban areas. The authors mention the high reliance of municipal corporations on state and central government transfers. It limits the fiscal autonomy and efficiency, and flows in tax management, lack of skills and lack of access to other financing mechanisms.

In the economic review 2024 released by the State Planning Board, Govt of Kerala (2025), the report also investigates the role of municipal corporations in urban development and the implementation in infrastructure of Kerala. The review shows the fact that municipal corporations are the best of institutions that play a major role in offering the services. Sanitation, housing, road network, and the provision of utilities are the main services offered. Accelerated urbanization and economic growth trends has grown significantly by stressing the investment in urban infrastructure. Municipal corporations serve as implementing agencies with respect to other infrastructure projects that are funded by State Plan funds and institutional mechanisms. Various urban local governments have variations in financial performance of the sector wise allocation and expenditure. They also found differences in the efficiency in fund utilization. Because of that there are differences in planning of projects or activities, institutional services and administrative capacity. Major focus on to strengthen financial management systems. To facilitate good utilization of the money allocated. Infrastructure such as roads, sanitation, housing and urban services are mainly comprised of municipal expenditure. The effective use of funds by the municipal corporations is the key to the enhancement pf the service delivery. Its shows that there are an inter corporation disparities in allocation and expenditure and infrastructure spending of Kerala.

Oommen analyses the phenomena of fiscal decentralization in Kerala in detail. Defines the structural and institutional factors that impact local government finances. Local governments become more financially independent in Kerala by the reforms of decentralization. The reforms have raised the fund allocation and widened the functions of the local government. The local bodies have significant differences is fiscal capacity because of differences in tax base, economic activity and administrative efficiency. Author claims that municipal corporations and other urban local entities that have more effective revenue mobilization mechanisms. It shows improved expenditure performance and growth results. There is ahigh priority to the role of intergovernmental transfers on dealing with vertical and horizontal differences. Both resource allocation and institutional capacity and financial management practices is based on fiscal decentralization.

Shah, Ghata (2025) focusing on financial sustainability and efficiency, it looks at the financial organization, revenues and spending rates of local corporations in India. They point ou that local governments have been heavily dependent in the inter-governmental transfers. Through taxes and user charges, there is poor mobilization of their own sources of income. The structural shortcomings in the finance of municipalities, such as lack of tax independence, inefficient

revenue management, and increasing spending burdens. The financial performance of different corporations has a lot of variability based on the economic base, level of urbanization and the ability to govern. Shah points that ineffective use of funds and time lag in the implementation of the project make the resources allocated less efficient. The research enhances the financial management system, improving efficiency in tax allocation and reform, and decentralising fiscal systems

Bandyopadhyay (2014) takes a critical look at structural and institutional issues that confront municipal finance in India. Poor fiscal autonomy of Urban Local bodies (ULBs) and their high reliance on inter-governmental transfers, opposed to self-generated revenues through property taxes and user charges. Inadequate use of innovative financing tools and access of municipalities to capital market are discussed in the paper. To administrative inefficiency in the administration of taxes and outmoded models of valuation and weak systems of recovery of costs as the key limits to revenue collection. It focusses on the necessity of fiscal decentralization better fiscal management, and institutional changes to increase municipal capacity.

In the book *Local Planning and Democracy: Lessons from Kerala*, Rajesh K. (2015) critically analyses the concept of decentralised planning and the Kerala democratisation within Kerala between the years of 1996 and 2010. The importance of the People Planning Campaign (PPC) initiated in 1996 as a significant effort to enhance the democracy of the grassroots and facilitate participatory development. It outlines that the Kerala Panchayat Raj Act gave constitutional support to local self-governments. Decentralisation could only be effective through an active political commitment and involvement of the people. The successes and deficiencies of decentralised planning with the help of micro and macro-level data, since implementation and performance changes depending on the period of the plan. The author finds that decentralised planning in Kerala improved local governance, transparency and effectiveness in development. But long-term success and institutional support, political will and capacity building are critical to achieve long term success and make democratic decentralisation stronger.

In the article *Plan Performance of Municipal Corporations in Kerala*, Prakash, B. A., assesses the efficacy of the urban planning and development efforts by the municipal corporations in Kerala. The issues of decentralised planning in enhancing the outcome of infrastructure, service delivery, and local development in urban settings. It shows the fact that the municipal corporations have been successful in putting in place development initiatives. Focus in areas

like sanitation, roads, housing, and public utilities. There are a number of limitations that influence the performance of the plan. Among them, being delays in allocating funds, poor financial management and insufficient technical and administrative capacity. It also observes performance differences between various municipal corporations because of differences in institutional efficiency and availability of resources. The effectiveness of the municipal planning process and the realisation of its sustainable development objectives cannot be attained without the enhancement of financial independence.

Chandrakala (2017) reviews the management and organisation of the Indian municipal corporations, their use in urban management, and the services provided by this administrative system. The paper describes the structure of the municipal corporations, which comprise the positions of the electives, the mayor, the council and the administrative bodies like the municipal commissioner. It highlights that municipal corporations have the duty to offer basic public services, including the supply of water, sanitation, waste management, and urban infrastructure. Another issue that is addressed in the paper is the problem of administrative efficiency such as the problem of bureaucratic delays. Inability to coordinate political and administrative branches, and insufficient financial and human resources. It comes to the end that to ensure efficiency in the governance of urban areas, administrative capacity, higher accountability and coordination between the various departments. Administrative reforms should be administered effectively to make the municipal corporations perform better and help in sustainable urban development.

2.1 CONCEPTS AN DEFINITIONS

i) Municipal Corporations: A Municipal Corporation is an urban local self-government body responsible for governing large cities. It provides essential public services such as sanitation, infrastructure, health, and welfare.

ii) Urban Local Body (ULB): an urban local body refers to a local government institution responsible for urban governance. Municipal Corporations are one category of ULBs, mainly governing large cities.

iii) Decentralized Governance: Decentralized governance refers to the transfer of administrative, financial, and planning powers from the state government to local self-government institutions to improve efficiency and local participation in development.

CHAPTER 3
PROFILE OF MUNICIPAL CORPORATIONS
IN KERALA

3. PROFILE OF MUNICIPAL CORPORATIONS IN KERALA

3.1 INTRODUCTION

In Kerala, municipal corporations are the state's highest level of urban local self-government organizations, which are essential to the growth, provision of civic services and administration in the state's largest cities. Kannur, Kollam, Kozhikode, Thiruvananthapuram, Thrissur, and Kochi are the six main municipal corporations that currently govern a significant metropolitan region in Kerala. They all operate in accordance with the Kerala Municipal Act of 1994. These companies were established to oversee densely populated urban regions typically with a population of one lakh or more. They are charged with a variety of duties, urban infrastructure, social development, and regulatory duties. Municipal corporations hold a unique and superior position within Kerala's urban local body structure, distinct from municipalities that serve smaller urban communities. The organizations are expected to offer quality financial management, responsive urban planning and maximization of services in the conditions of working under the general speaking, direction of the Local Self-Government Department. The importance of a comparative evaluation of the financial performance already working in the same institutional and legal environment, one can still see some differences between them in regard to financial ability, spending habits, administration productivity and industry distribution.

3.2 ORIGINS AND EARLY FORMATION

The formation of Kerala's municipal corporation reflects an orderly and slow shift in urban local governance influenced by colonial administration, princely state governance, constitutional decentralization changes and post-independence consolidation. By the mid-1800s, the areas that now constitute Kerala established urban local self-government in response to the administrative demands posed by increasing urban local self-government in response to the administrative demands posed by increasing urban population, public health concerns of the new towns and the cities and the emerging state networks. The early municipalities established during this time were the institutional foundations for the current municipal corporation systems. Municipal governance was introduced in the Malabar region, which was a part of madras presidency and in 1886, when municipalities were established in major cities like Thalassery, Kozhikode, Palakkad, and Kannur. Unlike in the case of democratic decentralization, the limited powers of these municipalities and the elected councils

were indicative of colonial concerns for revenue collection, sanitation, and public order. In a similar vein, the fort cochin municipality came into being in 1866.

These municipalities had limited powers and elected councils that reflected those colonial concerns for revenue collection, sanitation and the maintenance of public order, as opposed to democratic decentralization. Something like this, the fort cochin municipality was established in 1866 as an early attempt at urban governance in the princely state of cochin, particularly in the context of port and harbour administration. After the establishment of sanitary boards in mattancherry and Ernakulam, they took over urban administration responsibilities such as water supply, road maintenance and public health. In the case of Travancore, where the system of administration was highly centralized under a monarchical system, the urban administration of Travancore emerged late. One of the primary reasons that led to the formation of the Thiruvananthapuram municipality in 1920 was the administrative demands of the capital city that was witnessing an unprecedented population growth.

In 1940, these municipalities became a municipal corporation and a mayor council system and a greater administrative autonomy was introduced as a measure of the expanded complexity of urban administration. In addition, even under these development colonial and princely governments continued to exercise significant influence over the early municipal institution across the state of Kerala, with the administrative necessity rather than popular government dominating the early municipal institution. Kerala's municipal corporation development reflects the transformation of urban local governance from colonial rule, princely state governance, post-independence consolidation, and constitutional decentralization changes. The early nineteenth century saw the emergence of modern urban local self-government in present-day Kerala, where growing urban populations, public health issues, and thriving trade in developing towns and port cities resulted in the need for institutional development. Institutional groundwork for subsequent municipal corporations to be built.

As urban populations increased, public health issues and burgeoning trade in developing towns and port cities in the middle of 1800s, urban local self-government began to take shape in modern day Kerala. Early municipal institutions, which served as administrative mechanisms of civic control and service provision, laid the institutions, which served as administrative mechanisms of civic control and service provision, laid the institutional groundwork for the subsequent growth of municipal corporations.

In 1866, municipalities were established in urban centres such as Kozhikode, Kannur, Palakkad, and Thalassery in the Malabar region of the madras presidency, bringing official municipal government with elected councils but with little autonomy. These did not emphasize democratic decentralization but focused on cleanliness, maintenance of municipal order, and collection of taxes to serve a colonial administration. The main state of cochin expanded urban governance in 1866 with the water creation of fort cochin municipality, and subsequently, sanitary boards in mattancherry and Ernakulam, which expanded to include road maintenance, water supply, and community health. The city of Travancore came later due to its monarchical centralisation and governance, and in 1920s, Thiruvananthapuram 23 municipality was formed to manage the administrative needs of the capital city that had undergone massive urbanization.

Thiruvananthapuram was promoted to a municipal corporation to introduce a mayor-council system. Administrative independence in view of the emerging complexity in urban governance. Most of early municipal institutions in Kerala still were administratively minded, with the colonial and princely states rulers still having much power.

In Kerala, the period that followed independence was a decisive period on the institution of local government and its empowerment. The state creation in 1956 that demanded a coherent law system led to the passage of Kerala Municipalities Act of 1960 that standardized the municipal powers and made possible the upgrading of the qualified urban centers into municipal corporations. This was continued by the Constitution (Seventy- fourth Amendment) Act of 1992 the Kerala Municipality Act of 1994 that reinforced elected leadership and increased budgetary development and institutionalized decentralization of democracy. The rising urbanization in Kerala has been at an indication of great establishment of municipal corporations in Kannur, Kollam, Kochi, Thrissur, and Kozhikode.

3.3 FRAMEWORK FOR GOVERNANCE

The governance is through the municipal corporation system in Kerala which has a comprehensive institutional and legislative setup that aims to promote democratic decentralization, effective administration and effective management of urban centers. Kerala municipal act 1994(Act 20 of 1994), which consist of a compilation of the earlier municipal legislations which received the urban governance in the state to bring it into compliance with Part of IXA of the Indian Constitution Act 1992. Municipal corporations are in operation. Constitutional amendment strengthens the role of municipal corporations as institutions of

urban self-government. It involves transfer of authority and responsibility of Urban Local Bodies (ULBs) the tasks specified in the Twelfth Schedule.

Kerala Municipality Act empowers the state government to establish the areas as municipal corporations under objective criteria like the nature of urban areas, ability to generate revenue and population. They are established, municipal companies become bodies corporate with perpetual succession. Which gives them the ability to possess property, make agreements and file lawsuits. The legislative character of this means that the municipal corporations are in charge of the management of the cities, the execution of development projects, the collection of revenue. To ensure there is administrative consistency and accountability.

This dual governance structure consisting of an executive administrative wing and an elected deliberative council, that governs Keralan municipal corporations institutionally. The highest policy-making body is the Corporation Council. It is made up of directly elected council members who represent territorial wards. The council is mandated to charge taxes, grant development projects, formulate policies, budget and supervise municipal management. The quota system of scheduled Tribes, scheduled Castes and women will ensure an inclusive representation by incorporating the social justice into the system of governance.

Mayor is the political leader of the municipal corporation and chairman of council meetings. The mayors are elected by the members of the council. With the help of the Deputy Mayor, the Mayor guide the operations of several Standing Committees established by the Council to manage important functional areas such as education, town planning, taxation, public health, welfare, public works. These Committees improve the effectiveness of decision-making in the municipal by facilitating specialized review of proposals, sector-wise plan creation.

The secretary who serves as the chief administrative officer and is selected by the government, has executive responsibility over the municipal corporation, implementing Council resolutions, regulating daily operations, preserving records, enforcing municipal rules and bylaws, and managing municipal finances are all under the Secretary's purview. Technically skilled officers who control functional units guarantee the professional performance of municipal duties, of the Finance Manager, Health Officer, Chief Engineer, support the executive wing. Elected bodies are established, a Special Officer or Administrative Committee may act as administrative responsibilities of newly founded municipal corporations.

Kerala's municipal corporation governance structure combines professional executive management. With elected representation in an organized and institutional urban administration

system. to effectively administer metropolitan regions, a cohesive framework comprising the legal foundation, functional arrangements and organizational structure is necessary. This framework guarantees accountability, administrative continuity, and the methodological provision of civic services.

3.4 EXISTING MUNICIPAL CORPORATIONS IN KERALA

Classification and Key Characteristics

The Kerala municipality act of 1994 established Kerala's six municipal corporations, each of which is responsible for a significant urban center within the state. They are in charge of providing basic amenities like health, water supply, sanitation and urban infrastructure within their respective territories. They are top of urban local self-government. Key factors are the district of administration, population as reported in the 2011 Indian census, and geographic area are taken into account or analytical reasons in order to evaluate the administrative complexity, density and size of each municipal corporation. Among corporations' population statistics are consistent and comparable. They only include the boundaries of municipal corporations and do not include larger urban agglomerations.

District-wise Spatial Distribution

Kerala's six municipal corporations are spread throughout the state's six districts, which are situated in the northern, southern and central parts. There is only one municipal corporation per district, suggesting that higher-order urban government is selectively concentrated in regions with substantial administrative significance, population and economic activity. Kerala's districts are administered by panchayats or municipalities, which are rural local government entities. This pattern draws attention to regional disparities in the degree of urbanization and crucial background information for comprehending variances in the roles that municipal corporations play in service demands, resource allocation and governance.

Table 3.1 presents the population and geographical area of six municipal corporations in Kerala based on the 2011 Census. Among the corporations, Thiruvananthapuram has the highest population of 743,691 and also covers the largest area of 213.58 km², indicating its dominance as the state capital and a major urban center. Kochi follows with the population of 602,046 and an area of 97.49 km², indicating its importance as a commercial and economic hub. Kozhikode has a population of 341,560 and an area of 117.88 km², showing a relatively large spatial extent compared to its population size.

Thrissur and Kollam have moderate population levels of 315,957 and 348,657 respectively, with areas of 101.54km² and 72.13 km². Kannur has the lowest population among the six corporations, with 56,823, and an area of 80.76 km². The variations in population and area among the municipal corporations highlight differences in urban size, density, and administrative coverage.

TABLE. 3.1
POPULATION AND AREA PROFILE OF MUNICIPAL CORPORATIONS
(2011 CENSUS)

Municipal Corporation	District	Population (2011)	Area (km²)
Kannur	Kannur	56823	80.760328
Kochi	Kochi	602,046	97.488556
Kollam	Kollam	348657	72.128598
Kozhikode	Kozhikode	431560	117.883125
Thrissur	Thrissur	315,957	101.539858
Thiruvananthapuram	Thiruvananthapuram	743691	213.581527

Source: <https://censusindia.gov.in/census.website/>

3.5 POWERS AND FUNCTIONS OF MUNICIPAL CORPORATIONS IN KERALA

Kerala Municipal Corporations, act I accordance to the Kerala Municipality Act, 1994, with the Seventy-Fourth Constitutional Amendment Act, 1992. The Act gives a variety of both statutory and mandatory responsibilities which corporations can manage urban areas in an efficient manner. The city planning and development of infrastructure, health and sanitation and regulatory management of people. To have systematic urban development and better service delivery corporations are mandated to make development plans, master plans, and sectoral action plans.

One of its responsibilities involves control of land use and construction of buildings, protection of encroachment of open spaces, prescribing street alignments. Setting conditions on building development are enforced by the Municipal Corporations to facilitate a well-organized growth of cities. They also have the responsibility of building, repairing and enhancing of the public streets and roads, bridges and street lighting systems. The corporations operate water supply networks, wells, reservoirs, pipelines, and traditional drinking water sources, which are supplied with sufficient and healthy water supply to the population.

Mandatory functions are the public health and sanitation. These are solid waste management, promotions of street cleanliness, maintenance of the public latrines, drainage systems, and sanitation programs. Disease preventive activities like immunization campaigns, control of vectors and regulation of activities, which can impact on the health of people are also carried out by the Municipal Corporations. The licensing and regulatory roles are extended to slaughterhouses, markets, food establishments, and other trades to stop any nuisance to the community, as well as maintain the safety of the food.

Slum refurbishment, guarding of water bodies, and environmental resources, parks and play grounds, registration of births and deaths, administration of communal amenities and control of fairs and group meetings. These roles are affected with special standing committees like the finance, public health, development and town planning committees. Municipal Corporations also have the power to impose taxes, collect fees, to give penalties. And to administer municipal funds as a making their statutory roles effective in their operation.

3.6 REVENUE AND FINANCIAL MANAGEMENT

Kerala Municipal Corporations collect revenue through a mixture of local sources and external transfers of state and central sources. Tax and non-tax collections are the major part of the own revenue. The biggest part is tax revenue which comprises of profession tax, advertisement property tax and other taxes as stipulated in the Kerala Municipality Act, 1994. Property tax is the main and the most reliable sources of the municipal revenue. The non tax revenue consists of fees and charges on building permits, trade licenses, service fee, rent on municipal property and user charges of municipal services. Municipal corporations are allocated with revenue and own source revenue. That is which are part of taxes collected by the state based on the suggestion of the State Finance Commission. These revenue allocated are extra to local revenues. They change according to state fiscal policies and allocation services.

Reliance on grants and transfers are the revenue structure of the municipal corporations in Kerala has conveyed to rise over the years. Difference of aggregate financial data 2014-15 to 2022-23 shows that the total revenue receipt is more in aggregate financial data. Earlier own revenue had a significant percentage of the total receipts. The figure had steadily declined and the grants and transfers have become the main part of municipal finances.

The pattern shows the increased dependency of local government on government assistance at higher levels. Profession tax and property tax have still emerged as the most significant part of the revenue tax and grants. It dominates in terms of financing infrastructure development and delivery of services. According to Kerala Municipality Act, to manage their finances, the municipal corporations used methods like annual budgeting and financial planning. To allocate funds for vital urban services like water supply, road cleanup, public health and infrastructure development. Municipal corporations create yearly budgets that value project revenues and unfunded by program specificity. Development initiatives and social programs are mostly financed by specific grants from the state and federal governments. The efficient use of existing financial resources is restricted by administrative limitations, delays in completion of project, inefficiencies in fund usage.

A number of administrative and system barriers are there when it comes to managing their finances and generating income in municipal corporations. The chance for expanding one's own revenue streams is reduced by outdated tax assessment methods. Municipal corporations' financial independence and fiscal autonomy are declined by their growing reliance on grants. To increase municipal financial sustainability and guarantee efficient urban governance, it is easy to implement digital financial management systems. Expand administrative capacity, support collection efficiency, and improve tax assessment systems.

TABLE. 3.2

**REVENUE COMPOSITION OF MUNICIPAL CORPORATIONS IN KERALA BY
SOURCE**

Revenue Component	Share in 2014-15 (%)	Share in 2022-23 (%)
Tax Revenue	29.95	25.90
Non-Tax Revenue	11.60	9.50
Grants/Transfers	58.45	64.60

Source: Data adapted from Thomas and Kuriakose (2024)

The federal and state government tax revenue, non-tax revenue, and grants and transfers are the three major sources of financing in Kerala Municipal Corporations. According to the grants and transfers account take the most of the current data, which is currently presented in the table 3.2 Municipal Revenue. As in 2014-15, whereby the tax revenue constituted approximately 29.95 percent of the total revenues. By 2022-23, the percent had gone down to 25.90 percent. During the same time period, the non-tax revenue also declined as it dropped to approximately 9.50 percent. Previously, it was 11.60 percent. Grants and transfers., on the contrary, increased to 58.45 percent, which was 64.60 percent due to the growing dependency on external assistance. These trends indicate a limited growth in own source revenue and increased reliance upon intergovernmental fiscal transfers to finance infrastructure.

3.7 CONCLUSION

This chapter has depicted an elaborate profile of the municipal corporations in Kerala which is Thiruvananthapuram, Kochi, Kozhikode, Thrissur, Kollam, and Kannur which are the topmost level of urban local self-government in the state. It followed their history, system of governance, powers and functions as stipulated by the Kerala Municipality Act, 1994. This chapter has highlighted the differences in population, spatial area and administrative capacity among corporations which show different demands of urban services and fiscal requirements. Revenue composition analysis revealed that it grew to rely on grants and transfers, with minimal own-source revenue. In general, the chapter gives an institutional and financial backdrop to the allocation and expenditure analysis that takes place in the following chapters.

CHAPTER 4
ANALYSIS AND INTERPRETATION OF THE
STUDY

4. INTRODUCTION

The chapter has been structured into four broad parts comprising of graphical representation and statistical test hypothesis in offering a detailed study of fund allocation and expenditure patterns. The following sections are:

4.1 Inter-Corporation Analysis -Graphical representation of fund allocation and expenditure among the six municipal corporations.

4.2 Sectoral Analysis- Analyses the allocation and expenditure of funds in the three key sector types Production, Infrastructure, and Services.

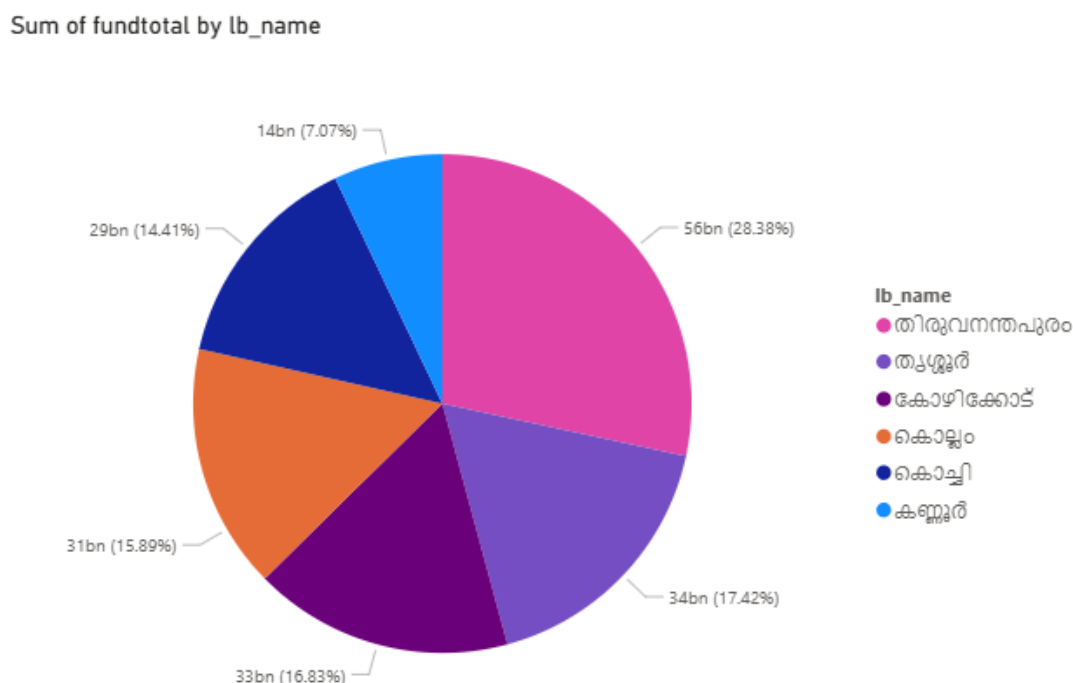
4.3 Hypothesis testing of fund allocation and expenditure among municipal corporations using ANOVA and Post Hoc Test.

4.4 Paired Sample t-Test to analyses sector wise differences in allocation and expenditure.

4.1 INTER-CORPORATION ANALYSIS

This section looks at the patterns of allocation and expenditure of six municipal corporations in Kerala within the study period of 2016-2026. The graphical visualizations are presented and the analysis is supported by Microsoft Power BI. The pie charts are employed to demonstrate the percentage of the total fund allocation and total expenditure per local body, so that relative distribution may be clearly understood. Besides these, there are also clustered column charts that are used to show yearly changes in funds allocation and spending among corporations. These graphical illustrations will assist in detecting patterns and trends, dominance patterns and comparative performance of the corporations.

FIGURE 4.1
SUM OF FUND TOTAL BY LB NAME

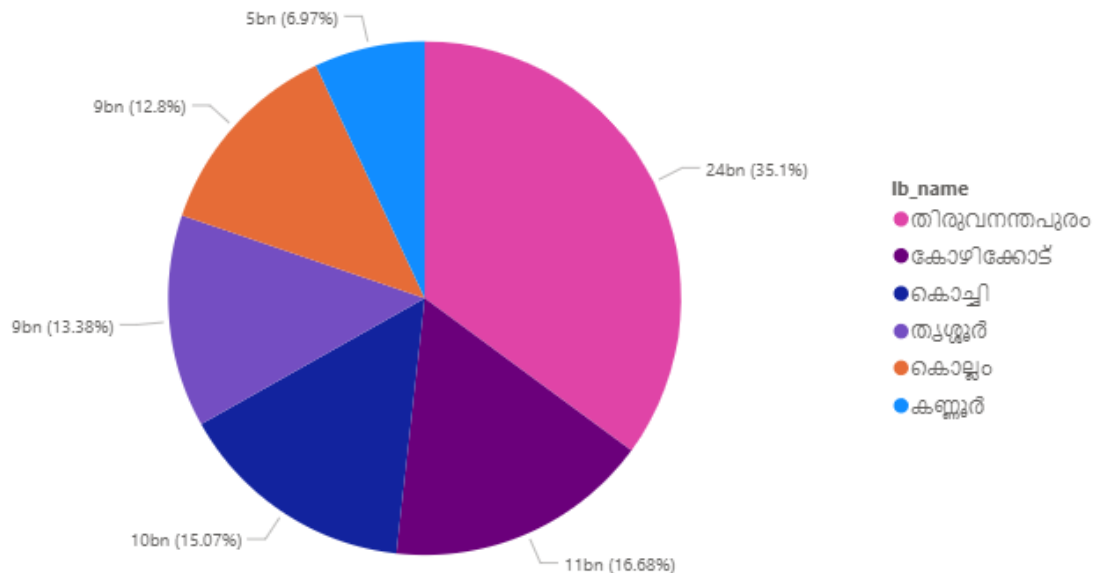


Source: Primary Data

The pie chart illustrates the total fund allocation among six municipal corporations over the study period. Thiruvananthapuram receives the highest amount of total funds 56 billion (28.38%) which implies that it is the dominant point of funds distribution. Thrissur comes next with 34 billion (17.42%), and Kozhikode is with 33 billion (16.83%). Kochi gets 31 billion (15.89%), with a similar proportion of allocations in the mid-level. Kollam receives 29 billion (14.41%), which is a bit less than Kochi and Kozhikode. Kannur has the lowest share of 14 billion (7.07%), which is the lowest share between the six corporations. In general, the distribution pattern indicates clearly that Thiruvananthapuram dominates over one-fourth of the total funds, and Kannur gets less than one-tenth of total allocation.

FIGURE 4.2
SUM OF EXPENDITURE BY LB NAME

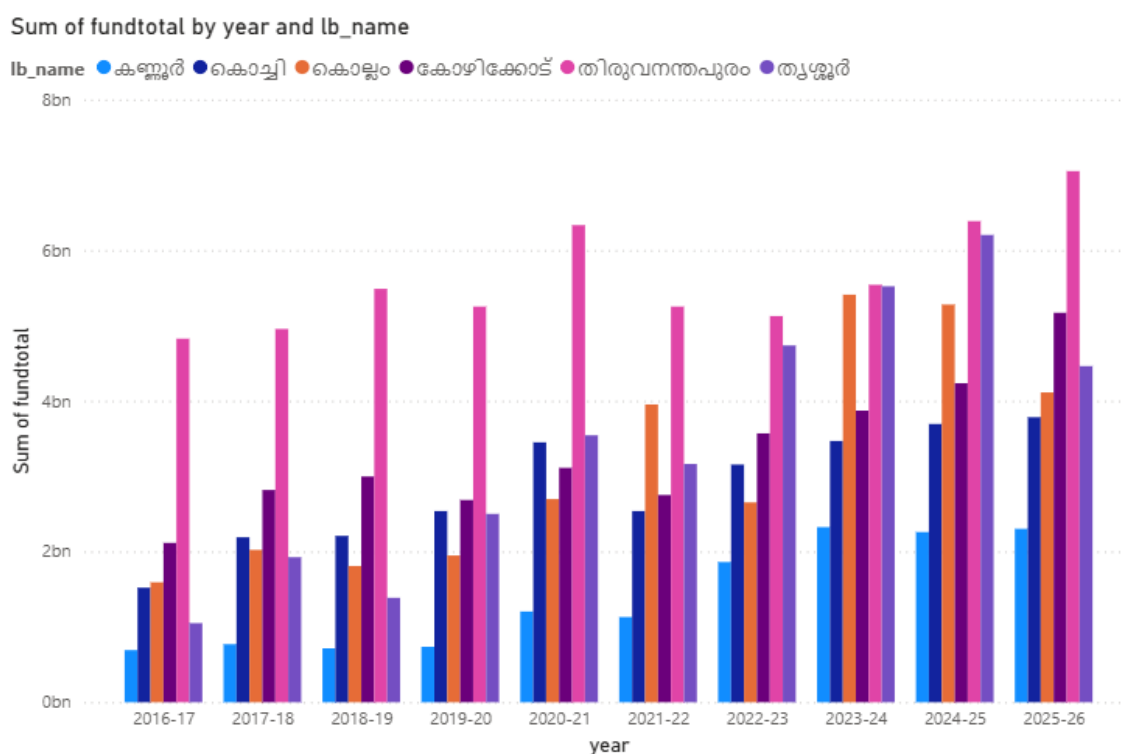
Sum of expenditure by lb_name



Source: Primary Data

The pie chart shows the amount of fund that the six municipal corporations spent within the period of study. Thiruvananthapuram is the largest in terms of spending of 24 billion (35.1%), which is more than one-third of the total purchasing. Kozhikode is next with 11 billion (16.68%), and Kochi records 10 billion (15.07%) and can be considered moderate in terms of expenditure. Thrissur is recorded to contribute 9 billion (13.38%), which more or less the same as that of Kollam which stands at 9 billion (12.8%). Kannur has the least spending amount of 5 billion (6.97%), which is the least square of expenditure among the corporations. Its spending pattern is more or less similar to the fund allocation with Thiruvananthapuram taking up the biggest share at the expense of Kannur that is on the lowest in the amount of spending in the period.

FIGURE 4.3
SUM OF FUND TOTAL BY YEAR AND LB NAME

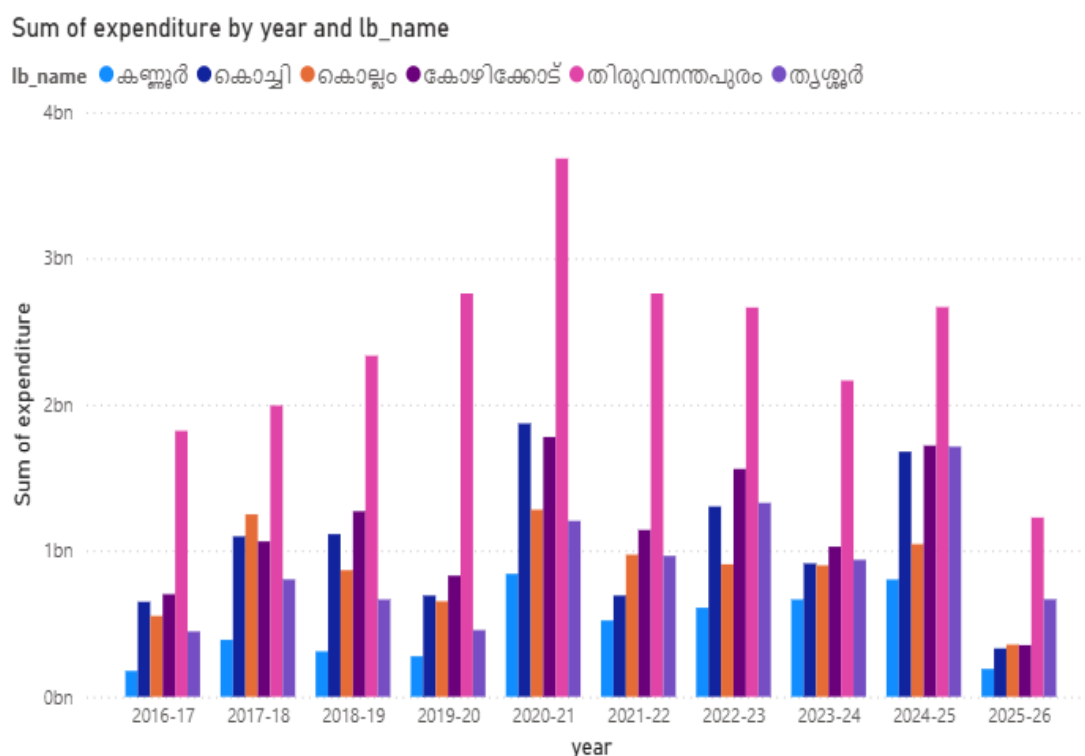


Source: Primary Data

The chart illustrates the total funds allocated from 2016-17 to 2025-26 across six local bodies: Kannur, Kollam, Kochi, Kozhikode, Thiruvananthapuram, and Thrissur. Thiruvananthapuram received the highest allocation 4.8 billion in 2016-17, 6.3 billion in 2020-21 and 7.0 billion in 2025-26. Kozhikode has stable increase of 2.1 billion in 2016-17, 5.0 billion in 2025-26 but a increase after 20220-21. Clear improvement in Thrissur to 1.0 billion in 2016-17, 4.5 billion in 2025-26 and after 2022-23. Kochi had average growth with between 1.5 billion and 3.8 billion in 2016-17 to 2025-26. Same medium trend is shown in Kollam with close to 1.6 billion to 4.1 billion. Kannur gets the least allocation starting around 0.7 billion in 2016-17 to 2.3 billion 20225-26.

. most local entities are characterized by a noticeable funding boom near 2020-21 followed by a steady increase in allocations which reach their highest points in 2024-25 and 2025-26. In general, the data shows a consistent rise in fund distribution which is headed by Thiruvananthapuram as other local bodies steadily raise their allocations.

FIGURE 4.4
SUM OF EXPENDITURE BY YEAR AND LB NAME



Source: Primary Data

This chart represents the pattern of the spending of the six local bodies during the ten years between 2016-17 and 2025-26. Thiruvananthapuram yields the most annual spending rising more than 1.5 billion in the year 2016-17 to almost 3.7 billion in the year 2020-21. Its expenditure in the subsequent year levels off 3.2-3.4 billion then slightly declines in 2025-26. Kozhikode demonstrates the intermediary growth as it is increasing by approximately 1.1 billion to 2.6 billion, especially in 2019-20 to 2024-25, which signifies the financial activity. Kochi also increases gradually between 0.9 billion and almost 2.3 billion during the same time. Thrissur shows a steady rise as it is estimated that it grew to around 2.4 billion after being about 0.8 billion, with evident growth in 2020-21 and 2024-25.

Kollam and Kannur record comparatively lower expenditure levels. Kollam rises gradually from about 0.9 billion to nearly 2.0 billion, while Kannur increases from roughly 0.5 billion to around 1.2 billion. Most local bodies show a distinct expenditure peak in 2020-21, possibly reflecting intensified development activities that year, followed by slight decreases in 2025-26.

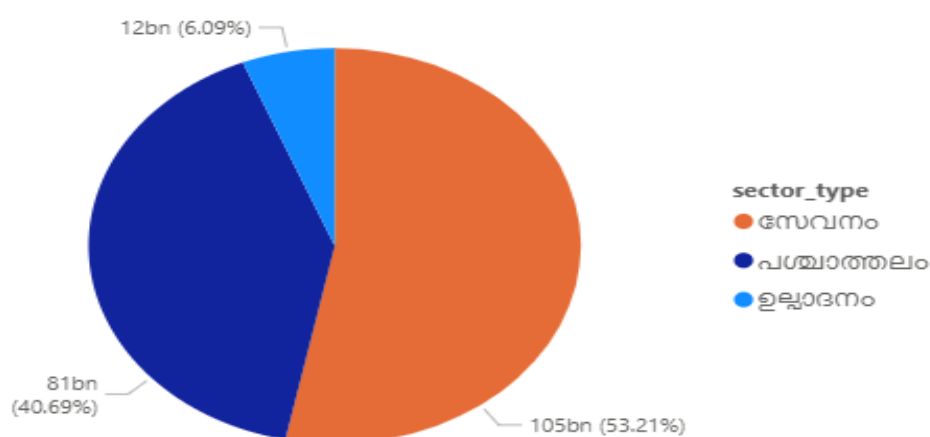
Overall, the spending trend closely mirrors the fund allocation pattern, with Thiruvananthapuram leading and others showing steady but smaller growth.

4.2 SECTORAL ANALYSIS

This section evaluates the distribution and spending of funds in the various sectors in municipal corporations. It assists in knowing the allocation and of financial resources by the major sectors. The allocation and expenditure pattern are presented in graphs created with the help of Power BI regarding sectors. The comparative analysis of funds allocated and real expenditure in every sector is also done. This assists in priority areas and trends of utilization. It gives a good picture of the municipal corporation sectoral financial management.

FIGURE 4.5
SUM OF FUND TOTAL BY SECTOR TYPE

Sum of fundtotal by sector_type

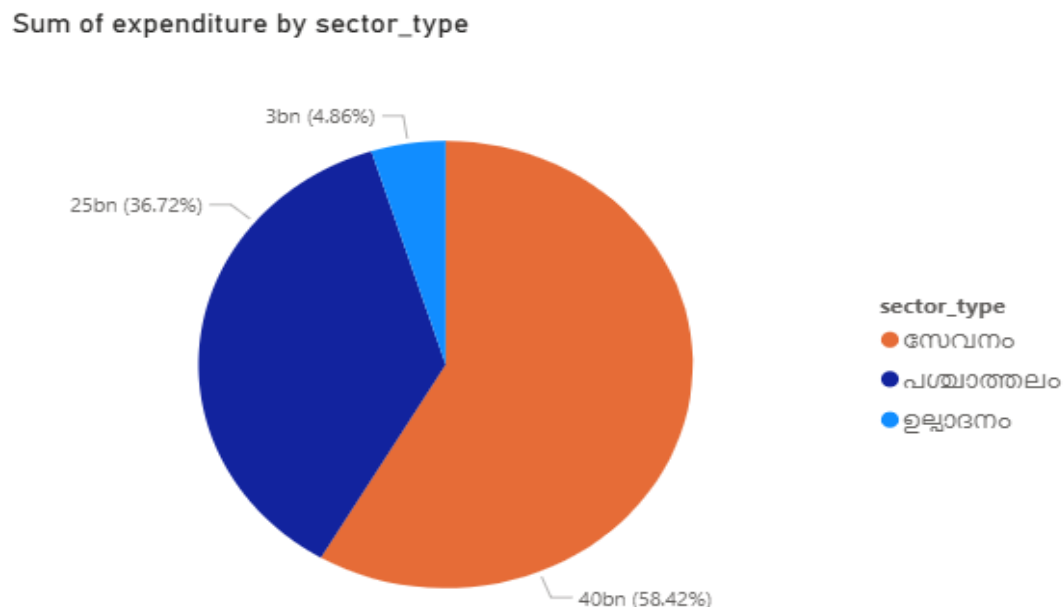


Source: Primary Data

Figure 4.5 shows the general allocation of total funds in the three sectors that include Production, Infrastructure, Services. The highest amount of funding is in Services where it is appropriated 105 billion (53.21%) of the total amount. It means that over 50 percent of the overall financial resources are channeled toward the Service sector, which is important as a strategic part. Infrastructure comes second with 81 billion (40.69%) of the total amount. This

high percentage indicates high investment in physical and structural development. Production sector, on the other hand, gets 12 billion, which constitute (6.09%) of the total amount. Production is allotted much less sum of money compared to the other sectors. In general, it is evident through the chart that a funding priority is placed on Services, then Infrastructure and Production is given minimal financial consideration as compared to the other two sectors.

FIGURE 4.6
SUM OF EXPENDITURE BY SECTOR TYPE



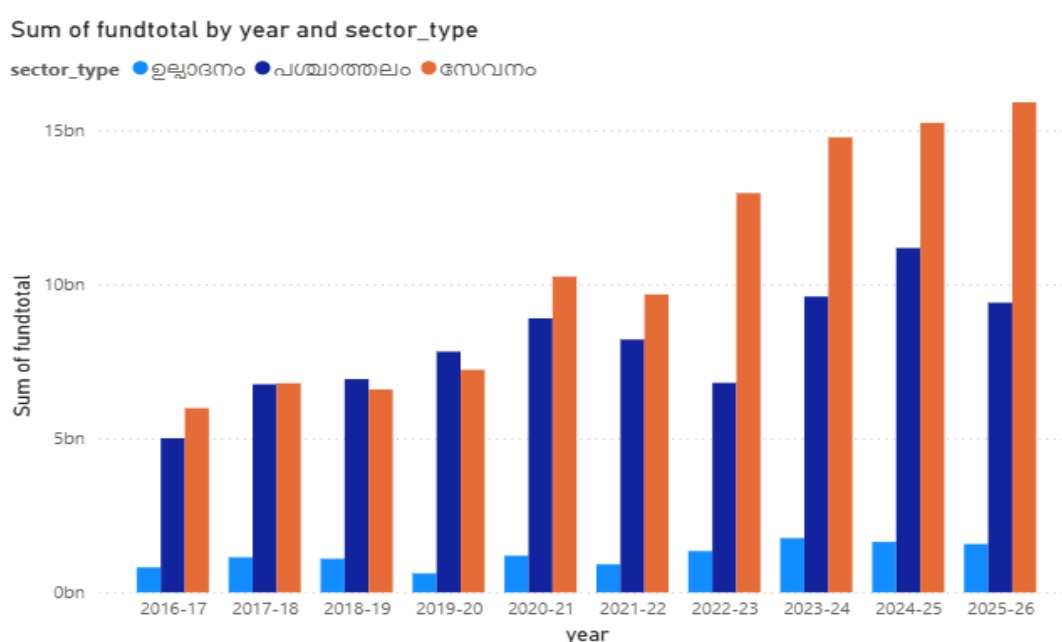
Source: Primary Data

Figure 4.6 shows the total expenditure amount broken down into Production, Infrastructure Services. The highest expenditure is on Services which stand at 40 billion which represents 58.42% of total expenditure. This indicates that, the Services sector has a dominant position in the financial utilization of the sector as over half the total expenditure in the sector is concentrated in that sector. Next, Infrastructure with 25 billion, which is equivalent to (36.72%) of the total expenditure. This shows that there is a big but a relatively low expenditure in comparison to Services. Production sector is the least in terms of expenditure as it has only 3

bullion and contributes only (4.86%) of the total. The difference in Services and Production is very large, which proves unequal expenditure patterns of sectors. In general, the expenditure pattern is more or less the same as the funding pattern with Services occupying the top spot, Infrastructure occupied the secondary place, and Production experienced the little outflow of money in comparison with the other sectors.

FIGURE 4.7

SUM OF FUND TOTAL BY YEAR AND SECTOR TYPE



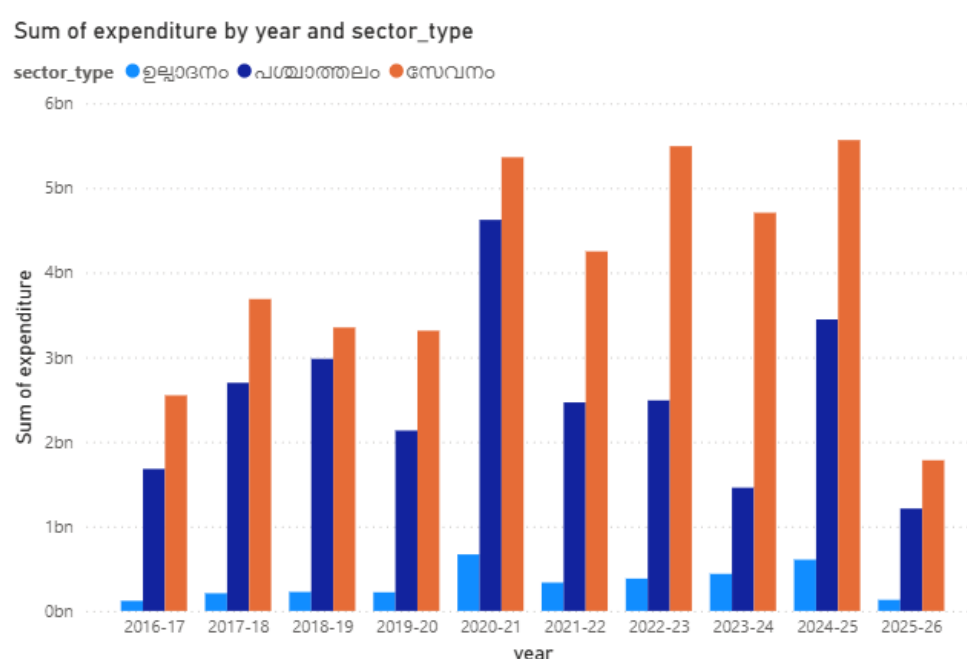
Source: Primary Data

Figure 4.7 indicates the sum of money that was dedicated to Production, Infrastructure, Services sectors between the years 2016-17 to 2025-26. Service sector has been the best performing sector in regard to financing overall years and the trend shows a high and constant growth. The level of funding would go up considerably after 2019-20 with the figure starting at approximately 7 billion and going close to 16 billion by 2025-26. The second category in terms of funds allocated is the Infrastructure, which is increasing by approximately 5 billion in 2016-17 to reach its highest point of more than 11 billion in 2024-25, with a slight decreasing

trend in the latter year. The Production category gets the least investment during the period as it does not go above 2 billion although there is a slight improvement over time. The small decrease can be seen around 2021-22, but thereafter, allocations resume its growth. Comprehensively, the chart shows that there is a strong policy focus on services, and then Infrastructure, and Production has relatively small amount of financial support despite its incremental growth.

FIGURE 4.8

SUM OF EXPENDITURE BY YEAR AND SECTOR TYPE



Source: Primary Data

Figure 4.8 will give expenditure patterns on Production, Infrastructure, Services sectors between the years 2016-17 to 2025-26. Service sector will be the most spending with expenditure growing steadily, but with a rise of about 2.5 billion to over 5.5 billion by 2024-25, and then drop by 2025-26. There is moderate increase in Infrastructure expenditure, which increases to almost 3.5 billion, in 2024-25 compared to approximately 1.7 billion 2016-17, with variations in other years. The lowest expending area is Production, which is usually less than 1 billion, but its gradually increasing with a significant peak of around 2020-21. The spending

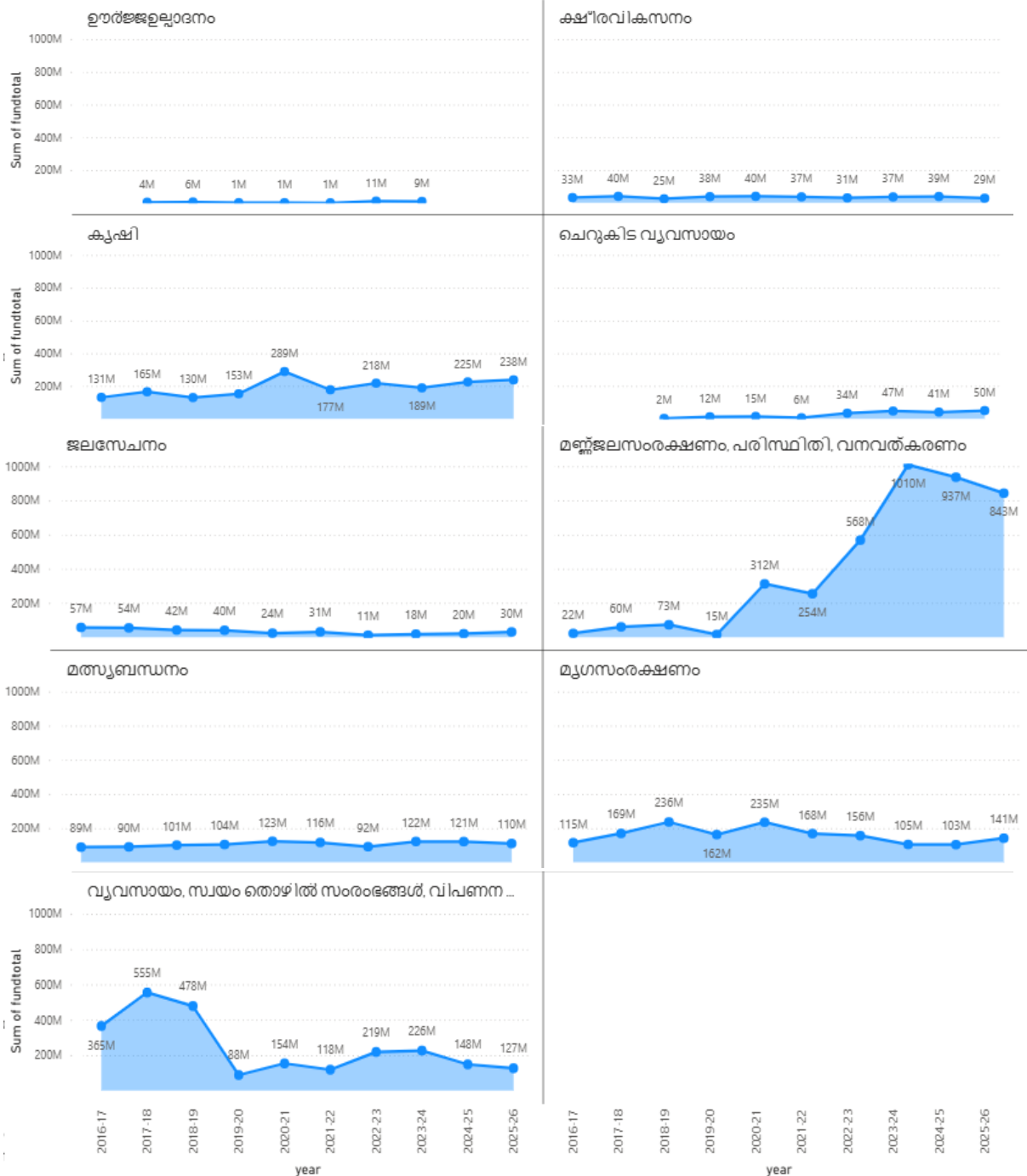
patterns in general are similar in direction with funds allocation patterns, though there are not as large, which implies that there is partial or gradual utilization of allocated funds. In general, the rate of spending is growing with the years, with the major part of the expenditures contributed by the Service sector, the Infrastructure and Production are relatively stable but show lower rates of expenditures.

FIGURE 4.9

SUM OF FUND TOTAL BY YEAR, SECTOR TYPE AND SECTOR (Production)

Sum of fundtotal by year, sector_type and sector

sector_type ● ഉല്പാദനം



Source: Primary Data

Figure 4.9 shows the pattern of allocation during the year 2016-17 to 2025-26 under Production sector type and the growth trends and fluctuation differ in sectors. Energy Production starts at 4 million in 2016-17, steadily increases and peaks at 11 million and slightly decreases to 9 million in 2025-26 and this means that there is a steady and low allocation of energy. Dairy Development begins at 33 million, increases and decreases moderately over the years, to 39 million in 2024-25 and 29 million in 2025-26, and is supported moderately and steadily. Agriculture records high numbers with the figure starting at 131 million, reaching the highest point at 289 million and finally having 238 million at the end of the 2025-26, reflecting a constant prioritization regardless of the fluctuations.

Micro Enterprises is one of the mid-level sectors which have allocated with 2 million and increases gradually over the year to reach 50 million in 2025-26 hence reflecting the increasing focus over the recent years. On the other hand, Minor Irrigation allocated with an initial value of 57 million, varies and tends to decrease to 30 million towards the year 2025-26, representing a lack of concentration in the allocation. The most dramatic growth is shown in Soil and Water Conservation, with the growth beginning at 22 million, the rapidly up to 312 million, the to a ver high 1010 million, then to very low 843 million which shows a high level of prioritization in the mid -to-late period.

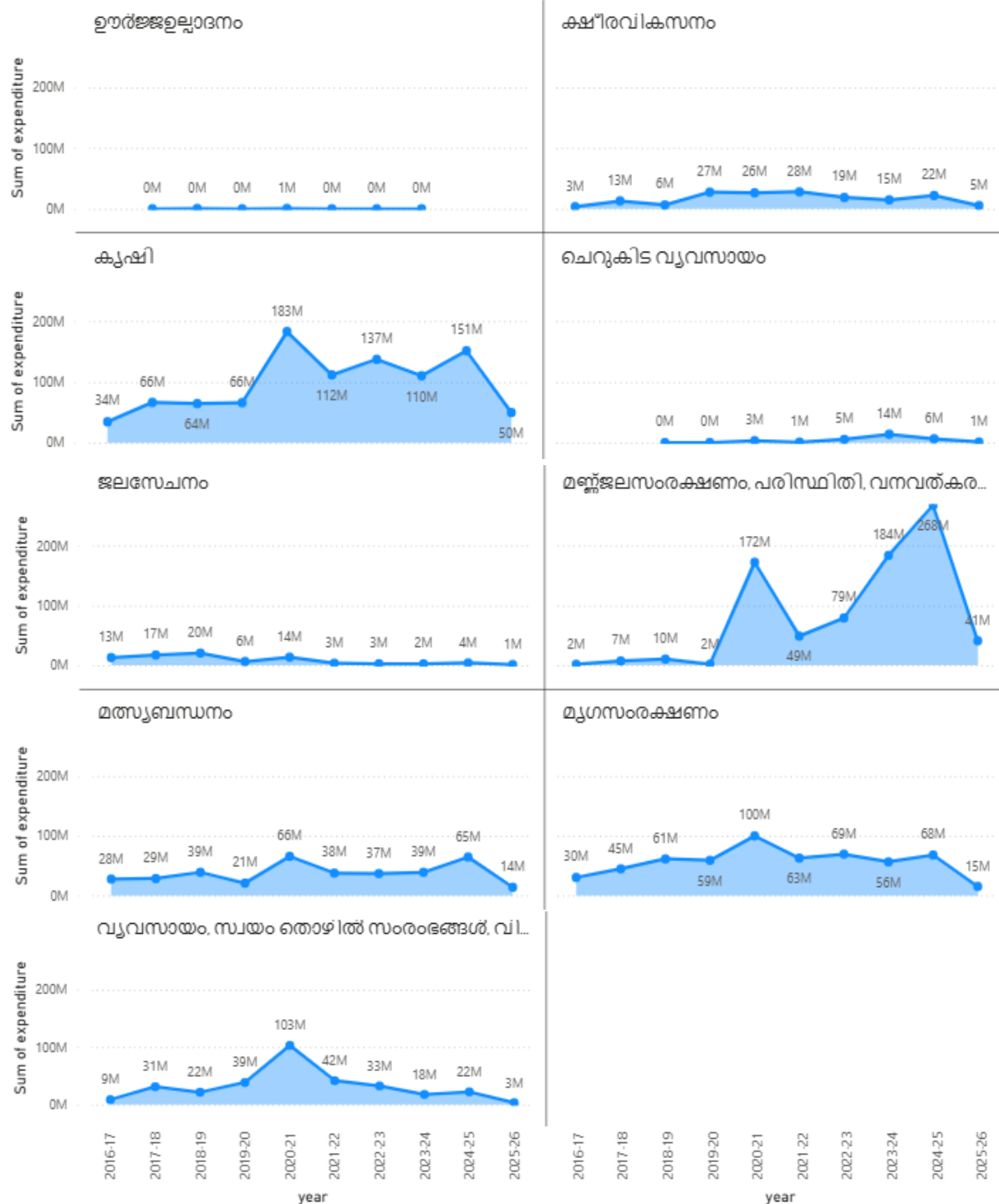
The other industries have moderate but varying trends. Fisheries begin at 89 million, rises to 123 million then changes randomly throughout the years before finally decreasing to 110 million in the last year. Animal Protection starts at 115 million, peaks at 236 million, and then the maximum at 162 million in 2019, and ultimately stabilizes at 141 million in 2025-26, which shows variation but constant allocation. Industry, Self-Employment and, Marketing Promotion begins at 365 million, peaks sharply at 555 million the following year (2017-18), and declines drastically to 88 million in 2019-20 and then rises again, with a significant initial emphasis and a sharp drop and a partial recovery. Overall, it can be noted that there is a high level of prioritization of Soil and Water Conservation and Agriculture and moderate level of allocations which fluctuate between high and low in support of Industry and Animal Protection and low but steadily increasing support to Micro Enterprises and Energy Production.

FIGURE 4.10

SUM OF EXPENDITURE BY YEAR, SECTOR TYPE AND SECTOR (Production)

Sum of expenditure by year, sector_type and sector

sector_type ● ഉല്പാദനം



Source: Primary Data

Figure 4.10 shows the annual expenditure pattern in the Production sector type and its sectors 2016-17 up to 2025-26, which indicates a fluctuation in the trend of expenditure in the decade. Energy Production shows minimal expenditure during the period with a figure of nearly 0 million all the years with no sign of peak. Micro Enterprises indicative of extremely low spending with a range between 0 million and 1 million with a small peak of 1 million in some of the middle years. Industry, Self-Employment and Marketing Promotion the highest point is about 9 million, but it decreases, as it is about 3 million in the years of 2025-26, meaning that the focus has decreased.

Dairy Development is one of the relatively high spending categories, which will begin at 3 million in 2016-17 and will increase gradually reaching its peak of 28 million in 2021-22, then decrease to 5 million in 2025-26. Agriculture records growth of 34 million in 2016-17 but the highest at 183 million 2020-21 and then fluctuates to 59 million in 2025-26, meaning that there is inconsistency in implementation. There fluctuations recorded by Animal Protection, starting with approximately 30 million in 2016-17, its peak of 100 million in 2020-21, and the sharp drop to about 15 million toward the end of the period.

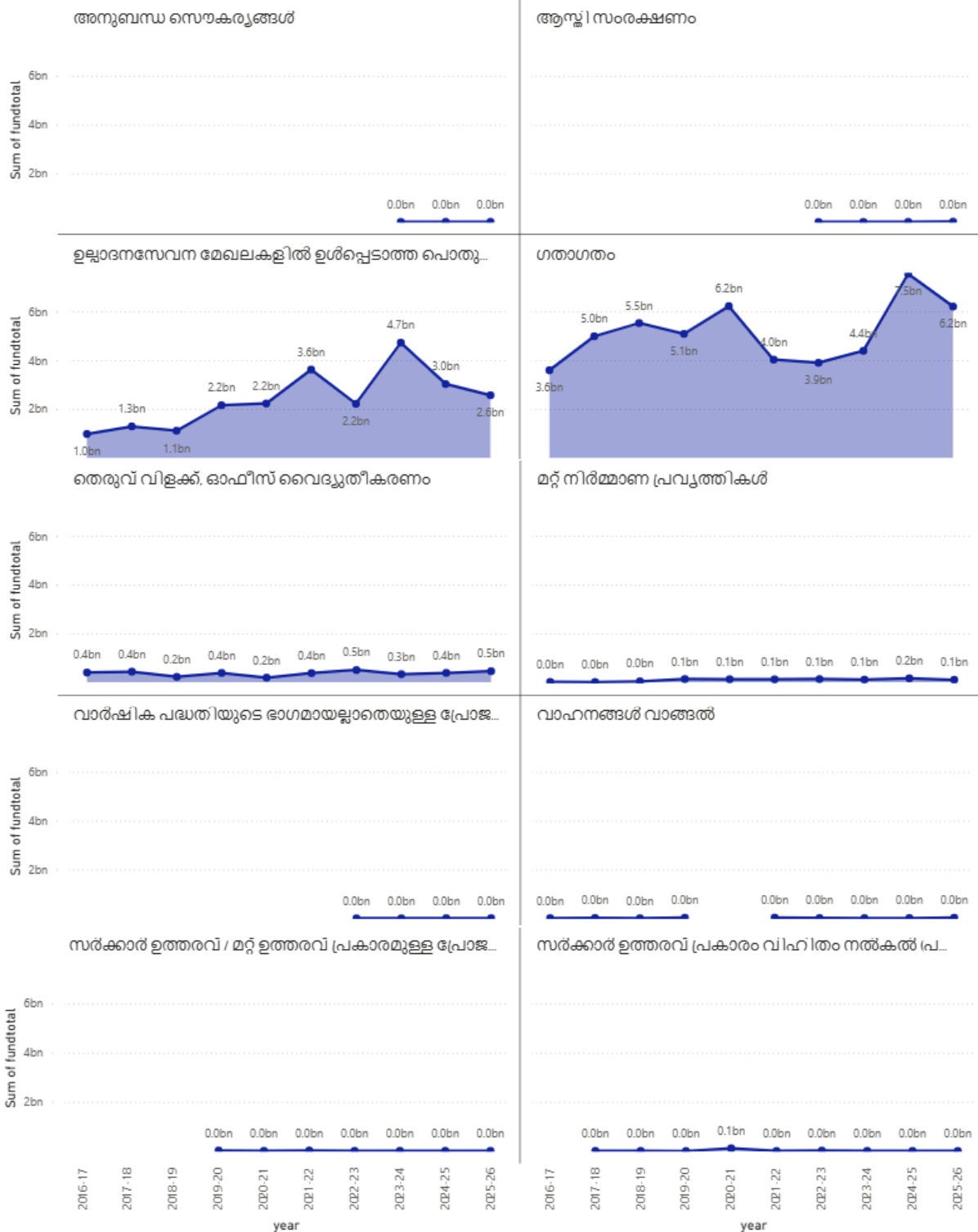
Minor Irrigation begins at a level of about 13 million in 2016-17, it rises to about 20 million in 2018-19 then gradually decreases in the following years. The trend of Soil and Water Conservation is impressive as it started with 2 million and then up to 172 million in 2016-17 and 2020-21 and sharply fell to 268 million in 2024-25 only to drop drastically to 41 million in 2025-26. Fisheries starts approximately at 28 million in 2016-17, then varies drops to an almost equal amount of 14 million in 2025-26. Overall, the Production sector expenditure shows that the sectors that use the largest amount of money include Agriculture and Animal Protection and in the case of Soil and Water Conservation, it shows a steep increase and decrease in spending respectively. There are other sectors that show a constant low or decreasing amount of spending.

FIGURE 4. 11

SUM OF FUND TOTAL BY YEAR, SECTOR TYPE AND SECTOR (Infrastructure)

Sum of fundtotal by year, sector_type and sector

sector_type ● പശ്ചാത്തലം



Source: Primary Data

Figure 4.11 illustrates the year-wise allocation of funds under the Infrastructure sector type from 2016-17 to 2025-26, covering ten components. The sector that comes out as the leading one during the period is Transport. It starts with 3.6 billion in 2016-17, then steadily grows to 5.0 billion in 2017-18 and 5.5 billion in 2018-19, but then slightly falls to 5.1 billion, then grows to 6.2 billion in 2020-21, and then to 4.0 billion in 2021-22 and 3.9 billion in 2022-23, then rises again to 4.4 billion and reaches its peak of 6.5 billion in 2024-25, and moderates to 6.2 billion in 2025-26.

Another significantly funded sector is Public Buildings not included in Manufacturing and service sectors. It starts at 1.0 billion in 2016-17, increases to 1.3 billion in 2017-18, fluctuates around 2.2 billion in 2019-20 and 2020-21, rises to 3.6 billion in 2021-22, peaks at 4.7 billion in 2023-24 declines to 2.6 billion in 2025-26. It reflects strong mid-period emphasis on public infrastructure development. Street Lighting and Office Electrification receives relatively modest but stable funding, fluctuating between, 0.2 billion and 0.5 billion without major structural shifts.

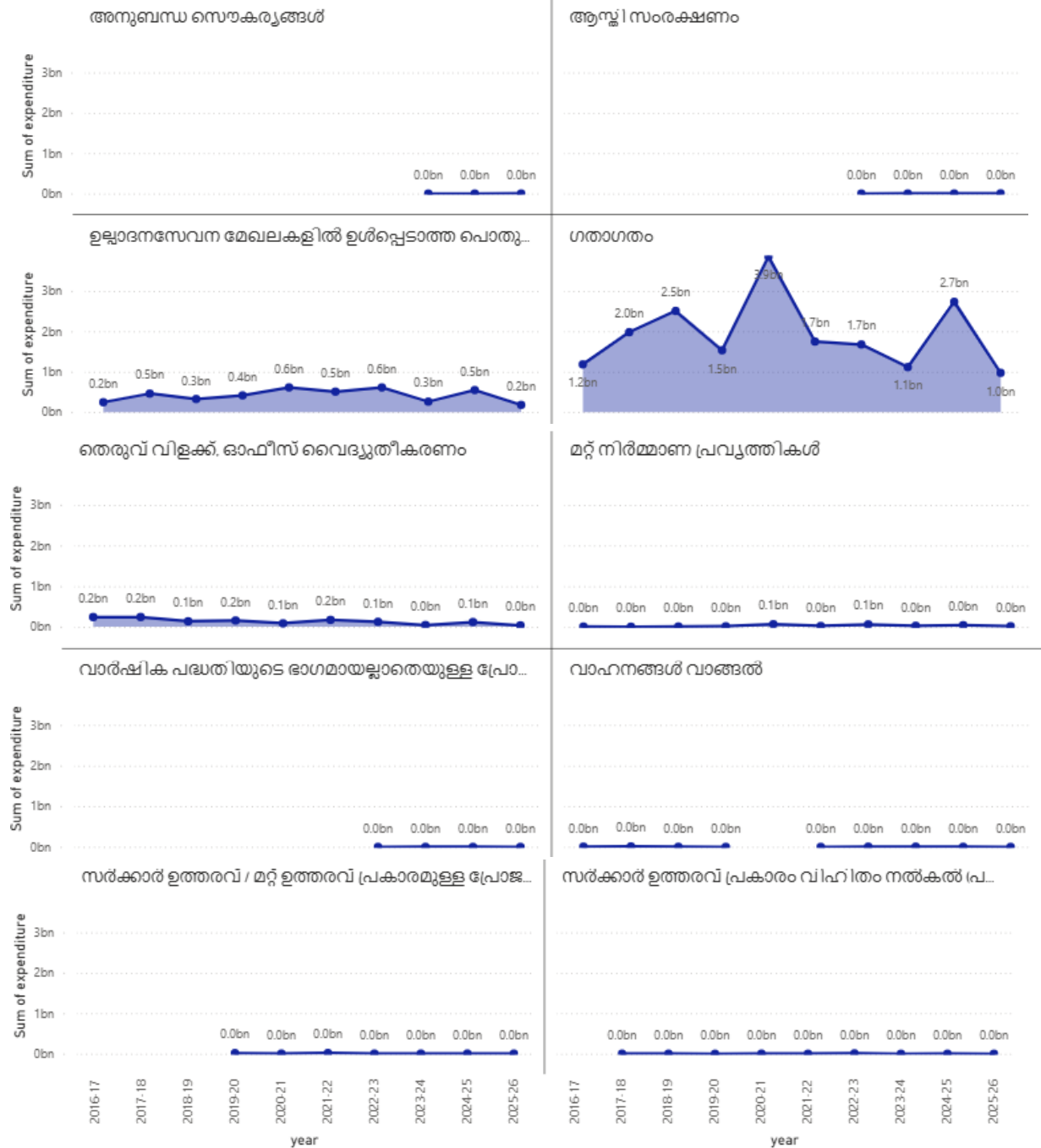
Several sectors record negligible or zero allocation throughout the period. Related facilities, Asset Protection, and other construction Works remain at 0.0 billion across all the years. From 2022-23 onwards, projects which are not part of the Annual Plan also remain at 0.0 billion, and the same pattern is observed for Vehicle Purchase, Government Order and Related Projects and Provision of Allocation in Lieu of Government order. In comparison to the huge amounts that have been allocated to Transport and Public Buildings, this indicates quite evident concentration of the infrastructure resources in the chosen areas of priority in neglect of the fact that there are various categories that do not get funded even during the period.

FIGURE 4.12

SUM OF EXPENDITURE BY YEAR, SECTOR TYPE AND SECTOR(Infrastructure)

Sum of expenditure by year, sector_type and sector

sector_type ● പദ്ധതിപരമായ



Source: Primary Data

Figure 4.12 show the annual expenditure trend of the Infrastructure sector type between 2016-17 and 2025-26 indicating that some sectors did not experience any expenditure or a minimal level of expenditure within the timeframe. Related facilities come at 0.0 billion and this means there has been no expenditure registered. Assets Protection also displays 0.0 billion in the entire decade. Other Construction works is also at 0.0 billion without any variation. Projects which are not part of Annual Plan record 0.0 billion and the same goes with Vehicle purchasing, Government Order, which is also recorded as 0.0 billion.

Public Buildings excluding Manufacturing and Service sectors, the expenditure begins at about 0.2 billion in 2016-17. It presents slow variations- small rises and falls- over the years, overall is of the order of 0.2 billion, and returns to 0.2 billion in 2025-26, steady but not heavy expenditure. Street Lighting and Office Electrification, starts at 0.2 billion and is almost constant at 0.2 billion throughout the period with no material change, indicating stable, but no change of allocation.

Transport recorded the largest spending. It starts with the level of 1.2 billion in 2016-17, grows steadily over the next years, and peaks at about 3.9 billion in the year 2020-21. It starts to decline to approximately 1.7 billion in 2021-22 after which it increases a bit in later years and eventually falls to 0.1 billion in 2025-26. This shows that there is a lot of variability and concentration of the infrastructure expenditure in the Transport sector compared to the relatively stagnated trends in other sectors. Overall, the infrastructure expenditure pattern indicates that most of the expenditure have been through Transport although, most other categories have been either stable or at low level.

FIGURE 4.13

SUM OF FUND TOTAL BY YEAR, SECTOR TYPE AND SECTOR (Services)

Sum of fundtotal by year, sector_type and sector

sector_type ● സേവനം



Source: Primary Data

Figure 4.13 illustrates the year-wise allocation of funds under the Service sector type from 2016-17 to 2025-26, covering ten sectors, and reveals a clear pattern of expansion over the decade. Sanitation and Waste Management tops the list with the highest peak planned at 3.5 billion in 2020-21 and levels off to 2.9 billion in 2021-22. Equally, Solid Waste Management is one of the key areas of focus since 2022-23 allocation of 2.5 billion, which will increase to 3.1 billion in 2023-24, and 2024-25, as well as the subsequent years of 2025-26. One more sector that was constantly highly funding is Housing, Home Electrification and Slum Development, that grew up to 2.4 billion in 2025-26, but already on 2016-17 it exceeded 1.8 billion, with allocations of 2.0 billion staying at the same or even at higher levels.

Another fast-growing industry is health, which grows upward since 0.2 billion in 2016-17, expected to grow to 1.6 billion in 2025-26, and significantly to 1.5 billion in 2023-24. The growth of Drinking Water is sustained with an increase of 0.6 billion in 2016-17 to 1.6 billion 2025-26 and 1.8 billion in 2023-24 and 2024-25. Also, there is a consistent increase in Social Welfare and Social Security, rising to 0.3 billion in 2016-17, 0.9 billion in 2024-25, and 2025-26.

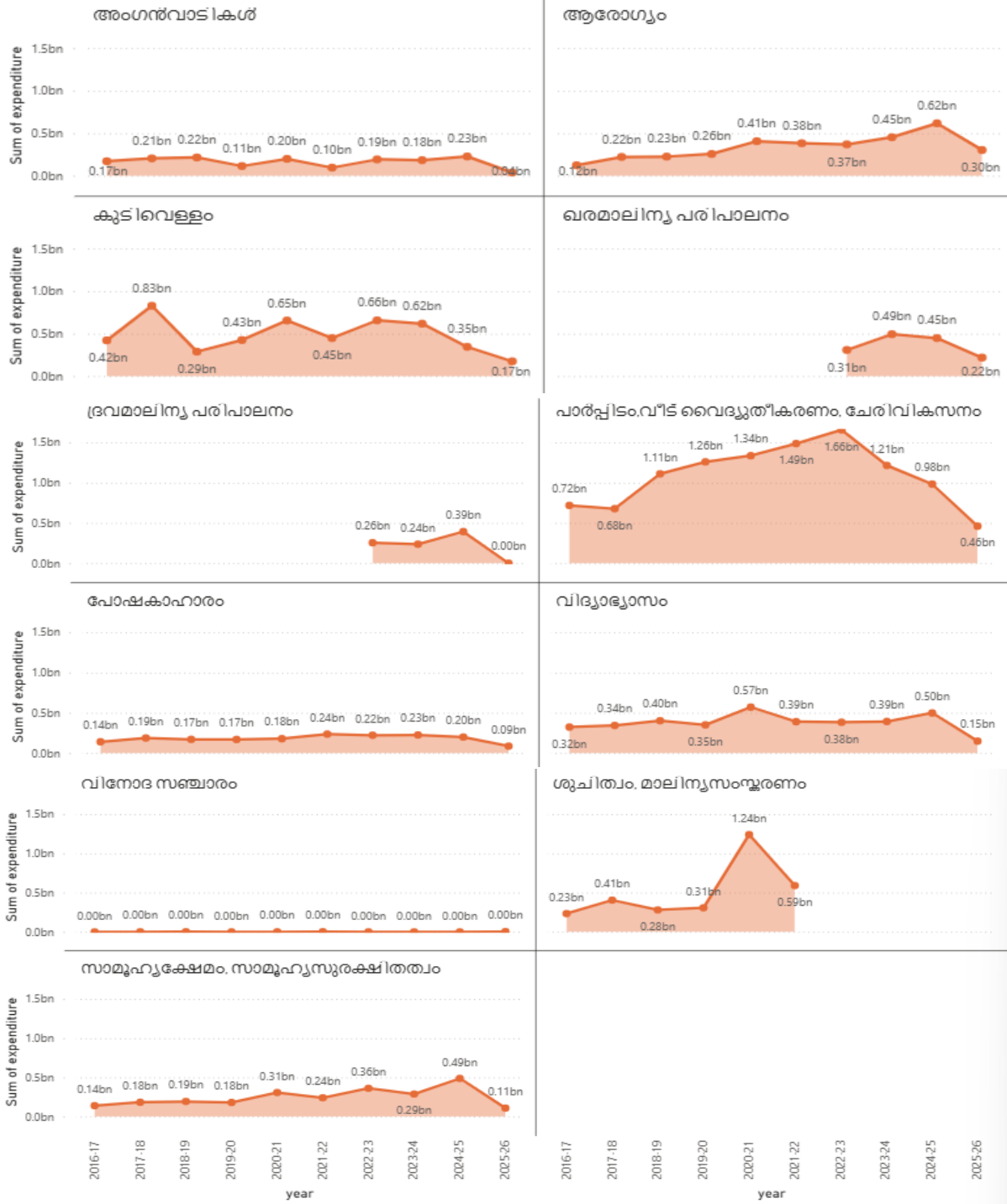
Conversely, other sectors like Anganwadi's, Nutrition, Education, and Tourism were allocated relatively low allocations. All in all, the leading highlights in term of increased funds distribution are Sanitation and Waste Management, Solid Waste Management, and Housing, Home Electrification and Slum Development and the high growth in Health and Drinking Water.

FIGURE 4.14

SUM OF EXPENDITURE BY YEAR, SECTOR TYPE AND SECTOR (Services)

Sum of expenditure by year, sector_type and sector

sector_type ● സേവനം



Source: Primary Data

Figure 4.14 presents the expenditure pattern between 2016-17 and 2025-26 indicates that there are some few sectors, which had been relatively higher spending pattern. In Housing, Home Electrification and Slum Development, where there is an upward trend in expenditure of 0.72 billion to 1.11 billion to 1.26 billion in 2016-17, 2018-19, and 2021-22. It reduced to 0.98 billion in 2024-25 and 0.46 billion in 2025-26. There is also significant spending by Solid Waste Management, which increased to 0.31 billion in 2022-23 then 0.49 billion in 2023-24 then 0.22 billion in 2024-25 and 2025-26.

Health shows to grow slowly with 0.20 billion in 2016-17 gradually increasing to 0.62 billion in 2024-25, decreasing to 0.30 billion in 2025-26. In Drinking Water, 0.42 billion in 2016-17, 0.83 billion in 2017-18 and 0.17 billion in 2025-26. There is a moderate change in education which rises to 0.57 billion in 2019-20 beginning with 0.29 billion in 2016-17 concluding with 0.15 billion in 2025-26.

Anganwadis, Nutrition, and Social Welfare and Social Security have a relatively lower expenditure. Over the period, Tourism registers nearly 0.0 billion, on the whole, the primary focus of expenditure is related to housing, sectors related to sanitation, health and drinking water.

4.3 HYPOTHESIS TESTING FOR INTER CORPORATION ANALYSIS (Using ANOVA and POST HOC TEST)

This section examines whether statistically significant differences exist in fund allocation and expenditure among the six municipal corporations using One-Way ANOVA. Where significant differences are identified, Post Hoc tests are applied using SPSS to determine specific group differences.

The objective was to examine whether there is a statistically significant difference in mean fund allocation and expenditure among the six municipal corporations.

TABLE 4.1
ANOVA RESULTS - FUND ALLOCATION

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Kannur	10	13993473435	1399347344	5.0376E+17
Kochi	10	28539542165	2853954217	5.80627E+17
Kollam	10	31469910546	3146991055	2.06654E+18
Kozhikode	10	33314445065	3331444507	7.99878E+17
Thrissur	10	34483581338	3448358134	3.09688E+18
Thiruvananthapuram	10	56198091118	5619809112	5.27657E+17

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	9.24E+19	5	1.84787E+19	14.63596326	4.63E-09	2.38607
Within Groups	6.82E+19	54	1.26256E+18			
Total	1.61E+20	59				

Note. Computed from primary data using Microsoft Excel

Since the calculated F-value (14.64) is greater than the critical value (2.386) and the p-value is less than 0.05, the null hypothesis is rejected.

This indicates that there is a statistically significant difference in fund allocation among the six corporations.

TABLE 4.2**TEST OF HOMOGENEITY OF VARIANCE (LEVENE'S TEST)**

Sum of fund total	Levene Statistic	df1	df2	Significance value
Based on Mean	4.691	5	54	.001
Based on Median	3.104	5	54	.016
Based on Median and with adjusted degrees of freedom	3.104	5	37	.019
Based on trimmed mean	4.578	5	54	.001

Note. Output generated using IBM SPSS Statistics

Levene's test of homogeneity was significant [$F(5,54) = 4.691, p = 0.001$], indicating that the assumption of equal variances was violated. Therefore, the Games-Howell post hoc test was employed for pairwise comparisons.

TABLE 4.3**POST HOC TEST (GAMES-HOWELL)**

Comparison	Mean Difference	p-value	Significant ($\alpha = 0.05$)
Kannur vs Kochi	-1,454,606,873	0.004	Yes
Kannur vs Kollam	-1,747,643,711	0.039	Yes
Kannur vs Kozhikode	-1,932,097,163	0.001	Yes
Kannur vs Thrissur	-2,049,010,790	0.046	Yes
Kannur vs Thiruvananthapuram	-4,220,461,768	<0.001	Yes
Kochi vs Thiruvananthapuram	-2,765,854,895	<0.001	Yes
Kollam vs Thiruvananthapuram	-2,472,818,057	0.003	Yes
Kozhikode vs Thiruvananthapuram	-2,288,364,605	<0.001	Yes
Thrissur vs Thiruvananthapuram	-2,171,450,978	0.033	Yes

Note. Output generated using IBM SPSS Statistics

Games-Howell post hoc analysis revealed that Thiruvananthapuram had significantly higher fund allocation compared to all other districts ($p < 0.05$). Additionally, Kannur exhibited significantly lower fund allocation than Kochi ($p = 0.004$), Kollam ($p = 0.039$), Kozhikode ($p = 0.001$), and Thrissur ($p = 0.046$). No statistically significant differences were observed among Kochi, Kollam, Kozhikode, and Thrissur.

TABLE 4.4
ANOVA RESULTS – EXPENDITURE

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Kannur	10	4780606798	478060679.8	6.01E+16
Kochi	10	10333388987	1033338899	2.32E+17
Kollam	10	8776815356	877681535.6	8.49E+16
Kozhikode	10	11437193070	1143719307	2.07E+17
Thrissur	10	9177507422	917750742.2	1.62E+17
Thiruvananthapuram	10	24067028068	2406702807	4.43E+17

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	2.17E+19	5	4.34449E+18	21.93844	6.3E-12	2.38607
Within Groups	1.07E+19	54	1.98031E+17			
Total	3.24E+19	59				

Note. Computed from primary data using Microsoft Excel

Since the calculated F-value (21.94) exceeds the critical value (2.386) and the p-value is less than 0.05, the null hypothesis is rejected. This confirms that there is significant difference in expenditure among the six corporations.

TABLE 4.5**TEST OF HOMOGENEITY OF VARIANCE (LEVENE'S TEST)**

Sum of expenditure	Levene Statistic	df1	df2	Significance value
Based on Mean	1.742	5	54	0.141
Based on Median	1.693	5	54	0.152
Based on Median and with adjusted degrees of freedom	1.693	5	35	0.162
Based on trimmed mean	1.753	5	54	0.138

Note. Output generated using IBM SPSS Statistics

Levene's test of homogeneity of variance was not significant [$F(5,54) = 1.742, p = 0.141$], indicating that the assumption of equal variances was satisfied. This justifies using Tukey HSD.

TABLE 4.6**POST HOC TEST (TUKEY HSD)**

Comparison	Mean Difference	p-value	Significant ($\alpha = 0.05$)
Kannur vs Kozhikode	-665,658,627	0.018	Yes
Kannur vs Thiruvananthapuram	-1,928,642,127	<0.001	Yes
Kochi vs Thiruvananthapuram	-1,373,363,908	<0.001	Yes
Kollam vs Thiruvananthapuram	-1,529,021,271	<0.001	Yes
Kozhikode vs Thiruvananthapuram	-1,262,983,500	<0.001	Yes
Thrissur vs Thiruvananthapuram	-1,488,952,065	<0.001	Yes

Note. Output generated using IBM SPSS Statistics

Tukey's HSD post hoc analysis revealed that Thiruvananthapuram had significantly higher expenditure compared to all other districts ($p < 0.001$). Additionally, Kozhikode differed significantly from Kannur ($p = 0.018$). No statistically significant differences were observed among Kannur, Kollam, Thrissur, and Kochi.

4.5 SECTORAL ANALYSIS (Using Paired Sample t-TEST)

This section examines whether statistically significant differences exist between sector-wise fund allocation and expenditure among the major sectors, namely Production, Infrastructure, and Services. The Paired Sample t-Test is applied to compare the mean differences between sectors and to determine whether the observations are statistically significant.

The objective was to examine whether there is a significant difference between sector-wise allocation and expenditure among the major sectors in municipal corporations.

TABLE 4.7**PAIRED SAMPLE t-TEST RESULTS – PRODUCTION VS INFRASTRUCTURE**

t-Test: Paired Two Sample for Means

	<i>Production</i>	<i>Infrastructure</i>
Mean	201087175.9	1342858644
Variance	2.57749E+16	5.97545E+17
Observations	60	60
Pearson Correlation	0.301897643	
Hypothesized Mean Difference	0	
df	59	
t Stat	-11.942943	
P(T<=t) one-tail	1.10009E-17	
t Critical one-tailed	1.671093032	
P(T<=t) two-tail	2.20017E-17	
t Critical two-tailed	2.000995378	

Note. Paired Sample t-Test computed using Microsoft Excel

The mean allocation for Production (201087175.9) which is significantly lower than Infrastructure (1342858644). The calculated t value is (-11.94) with a p value of (2.20). Since $p < 0.05$, the null hypothesis is rejected. This indicates a statistically significant difference in fund allocation between Production and Infrastructure. The Infrastructure receives substantially higher allocation.

TABLE 4.8**PAIRED SAMPLE t-TEST RESULTS – INFRASTRUCTURE VS SERVICES****(Fund Allocation)**

t-Test: Paired Two Sample for Means

	<i>Infrastructure</i>	<i>Services</i>
Mean	1342858644	1756038241
Variance	5.97545E+17	9.85524E+17
Observations	60	60
Pearson Correlation	0.551733289	
Hypothesized Mean Difference	0	
df	59	
t Stat	-3.729877764	
P(T<=t) one-tail	0.000216088	
t Critical one-tailed	1.671093032	
P(T<=t) two-tail	0.000432175	
t Critical two-tailed	2.000995378	

Note. Paired Sample t-Test computed using Microsoft excel

The mean allocation for Infrastructure (1342858644) which is lower than Services (1756038241). The calculated t value is (-3.73) with a p value of (0.000432). Since $p < 0.05$, the null hypothesis is rejected. This indicates a significant difference in fund allocation between Infrastructure and Service, with Services receiving higher allocation.

TABLE 4.9
PAIRED SAMPLE t-TEST RESULTS – SERVICES VS PRODUCTION
(Fund Allocation)

t-Test: Paired Two Sample for Means

	<i>Services</i>	<i>Production</i>
Mean	1756038241	201087175.9
Variance	9.85524E+17	2.57749E+16
Observations	60	60
Pearson Correlation	0.599140469	
Hypothesized Mean Difference	0	
Df	59	
t Stat	13.29845727	
P(T<=t) one-tail	1.05014E-19	
t Critical one-tailed	1.671093032	
P(T<=t) two-tail	2.10028E-19	
t Critical two-tailed	2.000995378	

Note. Paired Sample t-Test computed using Microsoft excel

The mean allocation for Services (1756038241) which is significantly higher than Production (201087175.9). The calculated t value is (13.29) with a p value of (2.10). Since $p < 0.05$, the null hypothesis is rejected. This indicates that the Services sector receives significantly higher allocation compared to Production.

TABLE 4.10
PAIRED SAMPLE t-TEST RESULTS – PRODUCTION VS INFRASTRUCTURE
(Expenditure)

t-Test: Paired Two Sample for Means

	<i>Production</i>	<i>Infrastructure</i>
Mean	55537564.82	419641200.4
Variance	2.44782E+15	9.39125E+16
Observations	60	60
Pearson Correlation	0.754639196	
Hypothesized Mean Difference	0	
df	59	
t Stat	-10.40459758	
P(T<=t) one-tail	2.84911E-15	
t Critical one-tail	1.671093032	
P(T<=t) two-tail	5.69823E-15	
t Critical two-tail	2.000995378	

Note. Paired Sample t-Test computed using Microsoft excel

The mean expenditure for Production (55537564.82) which is lower than Infrastructure (419641200.4). The calculated t value is (-10.40) with a p value of (5.69). Since $p < 0.05$, the null hypothesis is rejected. This indicates that there is a significant difference in expenditure between Production and Infrastructure.

TABLE 4.11
PAIRED SAMPLE t-TEST RESULTS – INFRASTRUCTURE VS SERVICES
(Expenditure)

t-Test: Paired Two Sample for Means

	<i>Infrastructure</i>	<i>Services</i>
Mean	419641200.4	667696896.5
Variance	9.39125E+16	1.87234E+17
Observations	60	60
Pearson Correlation	0.792121686	
Hypothesized Mean Difference	0	
df	59	
t Stat	-7.207409354	
P(T<=t) one-tail	6.02454E-10	
t Critical one-tail	1.671093032	
P(T<=t) two-tail	1.20491E-09	
t Critical two-tail	2.000995378	

Note. Paired Sample t-Test computed using Microsoft excel

The mean expenditure for Infrastructure (419641200.4) which is lower than Services (667696896). The calculated t value is (-7.21) with a p value of (1.20). Since $p < 0.05$, the null hypothesis is rejected. This indicates a significant difference between Infrastructure and Services expenditure.

TABLE 4.12
PAIRED SAMPLE t-TEST RESULTS – SERVICES VS PRODUCTION
(Expenditure)

t-Test: Paired Two Sample for Means

	<i>Services</i>	<i>Production</i>
Mean	667696896.5	55537564.82
Variance	1.87234E+17	2.44782E+15
Observations	60	60
Pearson Correlation	0.767750557	
Hypothesized Mean Difference	0	
df	59	
t Stat	11.97440286	
P(T<=t) one-tail	9.84889E-18	
t Critical one-tail	1.671093032	
P(T<=t) two-tail	1.96978E-17	
t Critical two-tail	2.000995378	

Note. Paired Sample t-Test computed using Microsoft excel

The mean expenditure for Services (667696896.5) which is significantly higher than Production (55537564.82). The calculated t value is (11.97) with a p value of (1.96). Since $p < 0.05$, the null hypothesis is rejected. This confirms that Services expenditure is significantly higher compared to Production.

Overall, the paired sample t-test results confirm significant sectoral differences in both fund allocation and expenditure. Among the three sectors, Services receives the highest financial priority, followed by Infrastructure, while Production records comparatively lower allocation and expenditure levels.

CHAPTER 5
FINDINGS, CONCLUSIONS AND
RECOMMENDATIONS

5.1 FINDINGS

The study reveals that there are notable differences between the patterns of allocation and expenditure among the six municipal corporations in Kerala between the years 2016-17 to 2025-26. Thiruvananthapuram corporation always received and used the greatest amount of funds which indicates the administrative importance and larger developmental needs, while Kannur recorded the lowest allocation and expenditure throughout the period.

There was a steady increase in overall fund allocation, where peaks were observed in 2020-21 and 2024-25, which means that the activities in terms of development intensified during those years. Sector- wise analysis indicates that Service sector was the most heavily allocated (over 50%), then Infrastructure, and Production had the lowest share. The expenditure patterns were more or less allocation patterns. The allocation funds were not fully utilized meaning there was an implication of some gaps in terms of efficiency in implementing the allocated funds. More upward growth in the Industry and Self-Employment and Agriculture compared to Energy and Minor Irrigation. The infrastructure was primarily focused on Transportation and Public Buildings with physical development being given priority.

One-Way ANOVA test proved that there were statistically significant differences between mean allocation and expenditure of corporations. The Post Hoc TEST showed that larger corporations like Thiruvananthapuram differ significantly from smaller corporations Kannur in allocation and expenditure patterns. The Paired Sample t-Test revealed differences between sector-wise allocation and expenditure, showed that the Services sector differed significantly from the Production sector in both allocation and expenditure levels. This confirms imbalance in sectoral financial distribution and utilization.

5.2 CONCLUSION

The paper focused on the allocation and expenditure patterns of six municipal corporations in Kerala during the financial year 2016-17 to 2025-26. To gain an insight into inter-corporation differences, sectoral priorities and trends in the fund utilization patterns. The results demonstrate huge diversifications in both allocation and spending in corporations, which implies that they have different financial abilities, administrative sizes, and developmental orientations. The bigger corporations were always allocated and spend more money, smaller corporations showed relatively low scales of allocation and expenditure.

Analysis by sectors reveals that the Service sector has been given the top priority over the Infrastructure and Production sector has been given relatively lower priority. In spite of the fact that the general fund allocation was growing with time, the full use of the funds allocated was not always reached and demonstrated the gaps in the efficiency of its use. These differences were also established to be significant and systematic by the statistics results. In general, the paper finds that the financial difference between municipal corporations is evident and that equal distribution and better use of resources and management of the financial sector are necessary to achieve the equitable and sustainable urban development in Kerala.

5.3 RECOMMENDATIONS

Based on the findings of the study, it is recommended that fund allocation among municipal corporations should be more balanced and based on actual needs such as population size, developmental level, and service requirements. This reduces disparities and promotes equitable urban development in Kerala. More efforts should be enhancing the efficient and appropriate use of funds by offering an improved planning of the projects, constant monitoring, and effective execution. Municipal corporations make their own source of revenue stronger by enhancing property tax collection and other non-tax revenue source. The Production sector should be given more attention to help in stimulating local economic growth and creation of employment. Capacity-building programs and training should be done to enhance financial administrative capacities of officials. Better financial management, equal distribution of resources, and efficient utilization of funds are essential for sustainable and inclusive urban development.

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APPENDIX

APPENDIX A: TEST DATA

year	sector_type	lb_name	Sum of fund total	Sum of expenditure
2016-17	ഉല്ലാഭനം	കണ്ണൂർ	25400950	10476732
2017-18	ഉല്ലാഭനം	കണ്ണൂർ	34503300	20092264
2018-19	ഉല്ലാഭനം	കണ്ണൂർ	27396739	11437811
2019-20	ഉല്ലാഭനം	കണ്ണൂർ	24234427	9459387
2020-21	ഉല്ലാഭനം	കണ്ണൂർ	167521177	103583503
2021-22	ഉല്ലാഭനം	കണ്ണൂർ	140579303	23327618
2022-23	ഉല്ലാഭനം	കണ്ണൂർ	217036858	31067804
2023-24	ഉല്ലാഭനം	കണ്ണൂർ	282438907	58226534
2024-25	ഉല്ലാഭനം	കണ്ണൂർ	254416169	54426335
2025-26	ഉല്ലാഭനം	കണ്ണൂർ	185203551	8696725
2016-17	ഉല്ലാഭനം	കൊച്ചി	54340076	9237996
2017-18	ഉല്ലാഭനം	കൊച്ചി	119608111	28369401
2018-19	ഉല്ലാഭനം	കൊച്ചി	92917169	25293362
2019-20	ഉല്ലാഭനം	കൊച്ചി	95644625	6707096
2020-21	ഉല്ലാഭനം	കൊച്ചി	78396085	46396540
2021-22	ഉല്ലാഭനം	കൊച്ചി	95644625	6707096
2022-23	ഉല്ലാഭനം	കൊച്ചി	216483191	37295643
2023-24	ഉല്ലാഭനം	കൊച്ചി	147623693	22447609
2024-25	ഉല്ലാഭനം	കൊച്ചി	170121885	55234148
2025-26	ഉല്ലാഭനം	കൊച്ചി	158995164	7321788
2016-17	ഉല്ലാഭനം	കൊല്ലം	85238386	29769321
2017-18	ഉല്ലാഭനം	കൊല്ലം	72708364	38648116
2018-19	ഉല്ലാഭനം	കൊല്ലം	82348451	30975374
2019-20	ഉല്ലാഭനം	കൊല്ലം	83282127	26338578
2020-21	ഉല്ലാഭനം	കൊല്ലം	157830191	87902013
2021-22	ഉല്ലാഭനം	കൊല്ലം	119578757	38929460
2022-23	ഉല്ലാഭനം	കൊല്ലം	224951577	41240386
2023-24	ഉല്ലാഭനം	കൊല്ലം	209160449	103245009
2024-25	ഉല്ലാഭനം	കൊല്ലം	160103355	48177051
2025-26	ഉല്ലാഭനം	കൊല്ലം	206854814	3177770
2016-17	ഉല്ലാഭനം	കോഴിക്കോട്	65863871	11004465
2017-18	ഉല്ലാഭനം	കോഴിക്കോട്	95186169	31723777
2018-19	ഉല്ലാഭനം	കോഴിക്കോട്	131772411	34382217
2019-20	ഉല്ലാഭനം	കോഴിക്കോട്	104141052	26912755
2020-21	ഉല്ലാഭനം	കോഴിക്കോട്	232032172	113886750
2021-22	ഉല്ലാഭനം	കോഴിക്കോട്	158641859	60177340
2022-23	ഉല്ലാഭനം	കോഴിക്കോട്	237448728	67047542
2023-24	ഉല്ലാഭനം	കോഴിക്കോട്	630819453	54663696
2024-25	ഉല്ലാഭനം	കോഴിക്കോട്	542224618	209454947
2025-26	ഉല്ലാഭനം	കോഴിക്കോട്	548919736	34431589
2016-17	ഉല്ലാഭനം	തിരുവനന്തപുരം	504085431	42401212
2017-18	ഉല്ലാഭനം	തിരുവനന്തപുരം	741663165	59241197

2018-19	ഉല്ലാദനം	തിരുവനന്തപുരം	680953866	87537354
2019-20	ഉല്ലാദനം	തിരുവനന്തപുരം	244754083	138319942
2020-21	ഉല്ലാദനം	തിരുവനന്തപുരം	394213415	239672271
2021-22	ഉല്ലാദനം	തിരുവനന്തപുരം	244754083	138319942
2022-23	ഉല്ലാദനം	തിരുവനന്തപുരം	278045845	131996106
2023-24	ഉല്ലാദനം	തിരുവനന്തപുരം	337192711	136991388
2024-25	ഉല്ലാദനം	തിരുവനന്തപുരം	277810774	150143908
2025-26	ഉല്ലാദനം	തിരുവനന്തപുരം	267489371	57098802
2016-17	ഉല്ലാദനം	തൃശ്ശൂർ	76677083	16380068
2017-18	ഉല്ലാദനം	തൃശ്ശൂർ	74088222	30192742
2018-19	ഉല്ലാദനം	തൃശ്ശൂർ	76710785	34711156
2019-20	ഉല്ലാദനം	തൃശ്ശൂർ	63981495	12561767
2020-21	ഉല്ലാദനം	തൃശ്ശൂർ	162151704	76472588
2021-22	ഉല്ലാദനം	തൃശ്ശൂർ	150356947	67357321
2022-23	ഉല്ലാദനം	തൃശ്ശൂർ	165533347	73273470
2023-24	ഉല്ലാദനം	തൃശ്ശൂർ	155371894	62779902
2024-25	ഉല്ലാദനം	തൃശ്ശൂർ	230773360	88672054
2025-26	ഉല്ലാദനം	തൃശ്ശൂർ	201010427	20237151
2016-17	പശ്ചാത്തലം	കണ്ണൂർ	308612164	66332813
2017-18	പശ്ചാത്തലം	കണ്ണൂർ	437162752	203218734
2018-19	പശ്ചാത്തലം	കണ്ണൂർ	420235844	163876215
2019-20	പശ്ചാത്തലം	കണ്ണൂർ	448146140	131952545
2020-21	പശ്ചാത്തലം	കണ്ണൂർ	401006487	274356105
2021-22	പശ്ചാത്തലം	കണ്ണൂർ	259964754	185694811
2022-23	പശ്ചാത്തലം	കണ്ണൂർ	440022458	180924228
2023-24	പശ്ചാത്തലം	കണ്ണൂർ	641160306	178812322
2024-25	പശ്ചാത്തലം	കണ്ണൂർ	748378491	275508966
2025-26	പശ്ചാത്തലം	കണ്ണൂർ	777377809	85866055
2016-17	പശ്ചാത്തലം	കൊച്ചി	781094501	318066655
2017-18	പശ്ചാത്തലം	കൊച്ചി	1027411308	591659455
2018-19	പശ്ചാത്തലം	കൊച്ചി	1056150347	545688150
2019-20	പശ്ചാത്തലം	കൊച്ചി	1316216195	241594192
2020-21	പശ്ചാത്തലം	കൊച്ചി	1460182816	824284346
2021-22	പശ്ചാത്തലം	കൊച്ചി	1316216195	241594192
2022-23	പശ്ചാത്തലം	കൊച്ചി	653152550	333825026
2023-24	പശ്ചാത്തലം	കൊച്ചി	658927592	178538556
2024-25	പശ്ചാത്തലം	കൊച്ചി	796041083	443131363
2025-26	പശ്ചാത്തലം	കൊച്ചി	680144039	94649465
2016-17	പശ്ചാത്തലം	കൊല്ലം	746016735	160293267
2017-18	പശ്ചാത്തലം	കൊല്ലം	799603095	379141180
2018-19	പശ്ചാത്തലം	കൊല്ലം	963135871	372694717
2019-20	പശ്ചാത്തലം	കൊല്ലം	1027297701	257264994
2020-21	പശ്ചാത്തലം	കൊല്ലം	1172352414	567174969
2021-22	പശ്ചാത്തലം	കൊല്ലം	2228265111	221362338
2022-23	പശ്ചാത്തലം	കൊല്ലം	776091413	233851956
2023-24	പശ്ചാത്തലം	കൊല്ലം	3344502323	149157421

2024-25	പശ്ചാത്തലം	കൊല്ലം	2996626397	383603212
2025-26	പശ്ചാത്തലം	കൊല്ലം	1984208078	100188102
2016-17	പശ്ചാത്തലം	കോഴിക്കോട്	1144216112	354865375
2017-18	പശ്ചാത്തലം	കോഴിക്കോട്	1478597398	467377635
2018-19	പശ്ചാത്തലം	കോഴിക്കോട്	1442919397	552925273
2019-20	പശ്ചാത്തലം	കോഴിക്കോട്	1397650914	388711661
2020-21	പശ്ചാത്തലം	കോഴിക്കോട്	1267217468	789459806
2021-22	പശ്ചാത്തലം	കോഴിക്കോട്	805478771	424070915
2022-23	പശ്ചാത്തലം	കോഴിക്കോട്	796872575	384835531
2023-24	പശ്ചാത്തലം	കോഴിക്കോട്	661405818	179494701
2024-25	പശ്ചാത്തലം	കോഴിക്കോട്	1236487998	653716264
2025-26	പശ്ചാത്തലം	കോഴിക്കോട്	1477233195	128827529
2016-17	പശ്ചാത്തലം	തിരുവനന്തപുരം	1524270576	602148833
2017-18	പശ്ചാത്തലം	തിരുവനന്തപുരം	1894590979	715986306
2018-19	പശ്ചാത്തലം	തിരുവനന്തപുരം	2450136453	1082060274
2019-20	പശ്ചാത്തലം	തിരുവനന്തപുരം	2067079476	1032323346
2020-21	പശ്ചാത്തലം	തിരുവനന്തപുരം	2746823251	1706065221
2021-22	പശ്ചാത്തലം	തിരുവനന്തപുരം	2067079476	1032323346
2022-23	പശ്ചാത്തലം	തിരുവനന്തപുരം	1747532378	772556789
2023-24	പശ്ചാത്തലം	തിരുവനന്തപുരം	1675362744	418189064
2024-25	പശ്ചാത്തലം	തിരുവനന്തപുരം	2153355689	940565466
2025-26	പശ്ചാത്തലം	തിരുവനന്തപുരം	2165699460	424995902
2016-17	പശ്ചാത്തലം	തൃശ്ശൂർ	501179523	176660208
2017-18	പശ്ചാത്തലം	തൃശ്ശൂർ	1115487547	339406184
2018-19	പശ്ചാത്തലം	തൃശ്ശൂർ	588625906	263416604
2019-20	പശ്ചാത്തലം	തൃശ്ശൂർ	1557898536	80384653
2020-21	പശ്ചാത്തലം	തൃശ്ശൂർ	1846813434	461686871
2021-22	പശ്ചാത്തലം	തൃശ്ശൂർ	1529219822	360270153
2022-23	പശ്ചാത്തലം	തൃശ്ശൂർ	2385782008	582887378
2023-24	പശ്ചാത്തലം	തൃശ്ശൂർ	2618956017	352818313
2024-25	പശ്ചാത്തലം	തൃശ്ശൂർ	3245450779	749410864
2025-26	പശ്ചാത്തലം	തൃശ്ശൂർ	2316391972	375725206
2016-17	സേവനം	കണ്ണൂർ	357965842	99722642
2017-18	സേവനം	കണ്ണൂർ	298690284	165874477
2018-19	സേവനം	കണ്ണൂർ	268274580	134589336
2019-20	സേവനം	കണ്ണൂർ	263391205	135296400
2020-21	സേവനം	കണ്ണൂർ	635631566	462797398
2021-22	സേവനം	കണ്ണൂർ	729936256	312831797
2022-23	സേവനം	കണ്ണൂർ	1203655689	396498156
2023-24	സേവനം	കണ്ണൂർ	1400330616	428470605
2024-25	സേവനം	കണ്ണൂർ	1255932953	471856385
2025-26	സേവനം	കണ്ണൂർ	1338865858	95332095
2016-17	സേവനം	കൊച്ചി	684701991	322337234
2017-18	സേവനം	കൊച്ചി	1042736064	476769745
2018-19	സേവനം	കൊച്ചി	1058962111	541363920
2019-20	സേവനം	കൊച്ചി	1125454593	443955963

2020-21	സേവനം	കൊച്ചി	1910602879	998831152
2021-22	സേവനം	കൊച്ചി	1125454593	443955963
2022-23	സേവനം	കൊച്ചി	2285046778	930744512
2023-24	സേവനം	കൊച്ചി	2660740177	710734036
2024-25	സേവനം	കൊച്ചി	2727147550	1178223189
2025-26	സേവനം	കൊച്ചി	2943384179	228431194
2016-17	സേവനം	കൊല്ലം	760559473	362755960
2017-18	സേവനം	കൊല്ലം	1149873210	830079892
2018-19	സേവനം	കൊല്ലം	762680785	461918182
2019-20	സേവനം	കൊല്ലം	837168123	369332212
2020-21	സേവനം	കൊല്ലം	1366439621	624662285
2021-22	സേവനം	കൊല്ലം	1604468229	711606414
2022-23	സേവനം	കൊല്ലം	1651203133	631218270
2023-24	സേവനം	കൊല്ലം	1855117042	646241705
2024-25	സേവനം	കൊല്ലം	2121309580	612432476
2025-26	സേവനം	കൊല്ലം	1920935741	253432726
2016-17	സേവനം	കോഴിക്കോട്	905113414	335599076
2017-18	സേവനം	കോഴിക്കോട്	1242958480	563799604
2018-19	സേവനം	കോഴിക്കോട്	1421503968	681776710
2019-20	സേവനം	കോഴിക്കോട്	1182238767	412783214
2020-21	സേവനം	കോഴിക്കോട്	1611434914	874050271
2021-22	സേവനം	കോഴിക്കോട്	1786289083	657140567
2022-23	സേവനം	കോഴിക്കോട്	2534044411	1106984563
2023-24	സേവനം	കോഴിക്കോട്	2577850912	792249475
2024-25	സേവനം	കോഴിക്കോട്	2455125715	855313583
2025-26	സേവനം	കോഴിക്കോട്	3142755686	189526239
2016-17	സേവനം	തിരുവനന്തപുരം	2796881783	1174794115
2017-18	സേവനം	തിരുവനന്തപുരം	2317740163	1217307747
2018-19	സേവനം	തിരുവനന്തപുരം	2355130017	1164099768
2019-20	സേവനം	തിരുവനന്തപുരം	2939306735	1588976509
2020-21	സേവനം	തിരുവനന്തപുരം	3190315990	1737478221
2021-22	സേവനം	തിരുവനന്തപുരം	2939306735	1588976509
2022-23	സേവനം	തിരുവനന്തപുരം	3099724018	1758907162
2023-24	സേവനം	തിരുവനന്തപുരം	3527474883	1608264572
2024-25	സേവനം	തിരുവനന്തപുരം	3953673214	1575372888
2025-26	സേവനം	തിരുവനന്തപുരം	4615644354	743913908
2016-17	സേവനം	തൃശ്ശൂർ	471651476	253092994
2017-18	സേവനം	തൃശ്ശൂർ	735222044	433086219
2018-19	സേവനം	തൃശ്ശൂർ	720737018	367044421
2019-20	സേവനം	തൃശ്ശൂർ	878117682	362681449
2020-21	സേവനം	തൃശ്ശൂർ	1533919579	665284229
2021-22	സേവനം	തൃശ്ശൂർ	1482893890	535805774
2022-23	സേവനം	തൃശ്ശൂർ	2183979044	670032725
2023-24	സേവനം	തൃശ്ശൂർ	2745590137	521328690
2024-25	സേവനം	തൃശ്ശൂർ	2725282412	873199834
2025-26	സേവനം	തൃശ്ശൂർ	1943727248	270646434

