ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE

Thesis
Submitted for the degree of

DOCTOR OF PHILOSOPHY IN EDUCATION

By

NOUFAL FAROOK P.

DEPARTMENT OF EDUCATION
UNIVERSITY OF CALICUT

2025

DECLARATION

I hereby declare that the work presented in the thesis entitled "**ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE**" is based on the original work done by me under the guidance of **Dr. C. Naseema**, Senior Professor, Department of Education and has not been included in any other thesis submitted previously for the award of any Degree, Diploma, Title or Recognition before. The contents of the thesis are undergone plagiarism check using iThenticate software at C.H.M.K. Library, University of Calicut, and the similarity index found within the permissible limit. I also declare that the thesis is free from AI generated contents.

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I, **Dr. C. NASEEMA,** do hereby certify that this thesis entitled **ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE** is a record of bonafide study and research carried out by **NOUFAL FAROOK P.**, for the degree of **Doctor of Philosophy in Education, University of Calicut**, under my supervision and guidance and that no part thereof has been presented before for any other Degree, Diploma, Title or Recognition.

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ABSTRACT

ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE

Sr. Prof: (Dr.) C. Naseema
Supervising Teacher

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Educational Economics is an important field of study which is lacking much research endeavours. Teacher labour market is one of the major labour market in India with a significant percentage of labour devoted to the various educational institutions in each state. Aim of the study was a comprehensive analysis of the structure of teacher labour market of Kerala state, trend of demand and supply and influencing factors. The study was qualitative in nature and included three phases: 1. Preliminary Interview, 2. Document Analysis and 3. Phase of survey and interview. Investigator collected documents from District Educational Offices, Kerala Public Service Commission and published and unpublished government documents for document analysis. Interviews and surveys were also conducted to collect data from teachers working in schools at Lower Primary, Upper Primary and High School levels and principals of unaided schools. The number of teachers taken as sample was 220.

Analysis of Kerala's teacher labour market showed distinct patterns in school distribution, teacher demographics, and employment trends across various sectors. The aided schools dominate the school education in the state. According to teacher demographics, male teachers are comparatively more in numbers in high schools, but female teachers dominate the sector, particularly in Lower Primary and Upper Primary schools. The supply of teachers consistently exceeded demand in all districts and all years, which indicates a persistent oversupply in Kerala's teacher labour market. Internal dynamics, particularly teacher transfers, retirements, and promotions, emerge as primary factors influencing teacher demand in government and aided schools. Among the factors influencing supply, non-monetary factors such as the status of the teaching profession, occupational choices, and support from management and colleagues significantly impact supply of teachers. Continued investment in recruitment, professional development, and resource allocation is crucial for strengthening government school workforce. The surplus of teachers brings about an opportunity to upskill the teaching workforce.

Key words: Teacher demand, Teacher Supply, Teacher Labour Market, Teacher Employment, Teacher Recruitment, Educational Manpower Planning.

സംഗ്രഹം

കേരള സംസ്ഥാനത്തെ അധ്യാപക തൊഴിൽ കമ്പോളത്തിലെ ചോദന-പ്രദാനങ്ങളെ കുറിച്ച് വിശകലനപഠനം

ഡോ. സി. നസീമ
മാർഗദർശക

നൗഫൽ ഫാറൂഖ് പി.
ഗവേഷക വിദ്യാർത്ഥി

വിദ്യാഭ്യാസ സാമ്പത്തികശാസ്ത്രം എന്നത് ഗവേഷണങ്ങൾ കുറവുള്ള, എന്നാൽ ഏറെ പ്രധാനപ്പെട്ട പഠനമേഖലയാണ്. നമ്മുടെ ഓരോ സംസ്ഥാനത്തിലും വിവിധ വിദ്യാഭ്യാസ സ്ഥാപനങ്ങളിലായി ഒരു വലിയ ശതമാനം അധ്യാപകർ ജോലി ചെയ്യുന്നുണ്ട്. അതിനാൽ അധ്യാപക തൊഴിൽ കമ്പോളം ഇന്ത്യയിലെ പ്രധാന തൊഴിൽ വിപണികളി ലൊന്നാണ്. ഈ പഠനത്തിന്റെ ലക്ഷ്യം കേരളത്തിലെ അധ്യാപകവിപണിയുടെ ഘടന, ചോദനത്തിന്റെയും പ്രദാനത്തിന്റെയും പ്രവണതകൾ, അതിനെ സ്വാധീനിക്കുന്ന ഘടകങ്ങൾ എന്നിവയുടെ സമഗ്രമായ വിശകലനമാണ്. ഗുണപരമായ സ്വഭാവം പുലർത്തുന്ന ഈ പഠനം മൂന്ന് ഘട്ടങ്ങളിലായി നടന്നു: 1. പ്രാരംഭ അഭിമുഖം, 2. പ്രമാണങ്ങളുടെ വിശകലനം, 3. സർവേയും അഭിമുഖഘട്ടവും. ജില്ലാ വിദ്യാഭ്യാസ ഓഫീസുകൾ, കേരള പബ്ലിക് സർവീസ് കമ്മീഷൻ, സർക്കാർ പ്രസിദ്ധീകരിച്ചതും അല്ലാത്തതുമായ റിപ്പോർട്ടുകൾ തുടങ്ങിയ പ്രമാണങ്ങളിൽ നിന്നും ഗവേഷകൻ വിവരങ്ങൾ ശേഖരിച്ചു. എൽപി, യുപി, ഹൈസ്കൂൾ തലങ്ങളിൽ പ്രവർത്തിക്കുന്ന അധ്യാപകരിൽ നിന്നും അൺഎയ്ഡഡ് സ്കൂളുകളുടെ പ്രിൻസിപ്പലുകളിൽ നിന്നും ഡാറ്റ ശേഖരിക്കുന്നതിനായി അഭിമുഖങ്ങളും സർവേകളും നടത്തി. സാമ്പിളായി തെരഞ്ഞെടുത്ത അധ്യാപകരുടെ എണ്ണം 220 ആണ്.

കേരളത്തിലെ അധ്യാപക തൊഴിൽ വിപണിയുടെ വിശകലനം സംസ്ഥാനത്തെ എയ്ഡഡ് സ്കൂളുകൾ, സ്കൂൾവിദ്യാഭ്യാസ മേഖലയിൽ ആധിപത്യം പുലർത്തുന്നതായി കാണിക്കുന്നു. അധ്യാപക ജനസംഖ്യാ കണക്കുകൾ പ്രകാരം, ഹൈസ്കൂളുകളിൽ പുരുഷ അധ്യാപകരാണ് കൂടുതലെങ്കിലും സ്ത്രീ അധ്യാപകരാണ് എൽപി, യുപി സ്കൂളുകളിൽ ആധിപത്യം പുലർത്തുന്നത്. എല്ലാ ജില്ലകളിലും എല്ലാ വർഷങ്ങളിലും അധ്യാപകരുടെ പ്രദാനം ചോദനത്തെ മറികടക്കുന്നതാണ്, അതായത് കേരളത്തിൽ അധ്യാപക തൊഴിലാളി വിപണിയിൽ സ്ഥിരമായ ഒരു അധികപ്രദാനം നിലനിൽക്കുന്നുവെന്ന് സൂചിപ്പിക്കുന്നു. സർക്കാർ, എയ്ഡഡ് സ്കൂളുകളിലെ അധ്യാപക ചോദനത്തെ സ്വാധീനിക്കുന്ന പ്രധാന ഘടകങ്ങൾ അധ്യാപക സ്ഥലംമാറ്റം, വിരമിക്കൽ, സ്ഥാനക്കയറ്റം എന്നിവയാണ്. പ്രദാനത്തെ സ്വാധീനിക്കുന്ന ഘടകങ്ങളിൽ, അധ്യാപക തൊഴിലിന്റെ മാന്യമായ സാമൂഹിക പദവി, തൊഴിൽ തിരഞ്ഞെടുപ്പ്, മാനേജ്മെന്റിന്റെയും സഹപ്രവർത്തകരുടെയും പിന്തുണ പോലുള്ള സാമ്പത്തികേതര ഘടകങ്ങൾ പ്രധാന സ്വാധീനം ചെലുത്തുന്നു. സർക്കാർ സ്കൂൾഅധ്യാപകരെ ശക്തിപ്പെടുത്തുന്നതിന് റിക്രൂട്ട്മെന്റ്, പ്രൊഫഷണൽ വികസനം, റിസോഴ്സ് അനുവദനം എന്നിവയിൽ തുടർച്ചയായ നിക്ഷേപം അനിവാര്യമാണ്. അധ്യാപക രുടെ അധികപ്രദാനം, അധ്യാപകരെ മെച്ചപ്പെടുത്തുന്നതിനുള്ള അവസരം ഒരുക്കുന്നു.

പ്രധാനപദങ്ങൾ: അധ്യാപകചോദനം, അധ്യാപക പ്രദാനം, അധ്യാപക തൊഴിലാളി വിപണി, അധ്യാപക നിയമനം, വിദ്യാഭ്യാസ മാനവവിഭവശേഷി ആസൂത്രണം

Chapter 1

INTRODUCTION

INTRODUCTION

"A teacher is a beacon light that acts as a lighthouse to guide the stranded students in the sea of life and they should work as the role model for their students in order to achieve the all-round development of the children." ***- APJ Abdul Kalam***

Contents

Introduction

Education Economics is a new and distinct branch of study which establishes cause and effect relationship between the Education and Economics. The term *Educational Economics* was first introduced by Theodore W. Schultz in 1960 during his address to the American Economic Association (Schultz, 1960). However, Adam Smith, the father of Economics and author of 'Enquiry into the nature and causes of the Wealth of Nations' (1776) was the first to recognize the relationship between the disciplines, Education and Economics. Alfred Marshall opened up the view of education as an investment, "Education is the most valuable of all capital that is invested in human beings". Education Economics is a specialized branch of study that applies the principles and theories of Economics to the field of Education. It uses the concepts of Economics to explain the issues in education sector. In the past, academics and decision-makers have tended to see Economics and Education as two

distinct fields, with Economics being used to examine private goods and education as a public good (Brewer et al., 2010). The gap between the two domains was minimized as part of transformations resulted from rigorous researches and developments taken place in both Economics and Education.

Teachers have the key role in attaining any nation's aspirations of a high-quality educational system. Empirical findings identify the teacher quality as a single most important school variable influencing student achievement (Goldhaber, 2002). Teachers are essential for the provision of an effective education system and can make a difference to children's academic and lifelong outcomes (Chetty, 2014). It is a critical role that teachers play in shaping the quality and effectiveness of an educational system, along with their profound impact on student achievement and long-term outcomes. Teachers are central to any nation's efforts to develop a high-quality education system. Their expertise, dedication, and effectiveness directly influence the ability to fulfil educational goals, which in turn contribute to broader societal development. It underscores the idea that the skills, methods, and dedication of teachers are more critical than other variables like infrastructure or curricula in determining students' success. Teachers are indispensable for creating and maintaining an education system that works effectively. Their role extends beyond delivering content to shaping the learning environment and fostering personal growth in students.

Professionalism is very important in education process. Professionalism of a teacher has significant role in the selection of suitable learning activity and learning situation. The ability of a teacher to design a new activity and implement the same in a very simple manner is highly depended up on the professionalism of a teacher. Like any other field, the basis of teacher professionalism is their content knowledge and its depth. It is not mere the subject expertise but also their knowledge in

pedagogical techniques (Khadar Committee, 2019). Research by Chetty et al. (2014) suggests that the impact of teachers extends far beyond immediate academic success. High-quality teaching can influence children's long-term achievements, such as career prospects, income levels, and overall life opportunities, illustrating the transformative power of good teaching. In summary, the quality and effectiveness of teachers are significant not only to immediate educational success but also long-term societal development. Studies prove that the use of technology in the absence of a teacher affects the students' behaviour and future social life. A professional humane teacher helps to modest use of technology and blending judiciously the confidence derived from the acquisition of technological skills with social awareness attained from education (Khader Committee, 2019).

The reports of various education commissions have been instrumental in improving the status of school teachers in India. By addressing critical issues like professional development, fair compensation, and societal recognition, commissions have ensured that teachers can perform their roles effectively. As custodians of knowledge and values, empowered teachers are essential for developing a progressive and enlightened society (University Education Commission, 1949; Secondary Education Commission, 1953; Education Commission, 1966).

Teacher Labour Market

It is essential to maintain a robust system of continuous monitoring of demand and supply and manpower planning for teachers. The teacher labour market studies help to generate a perfect understanding of how the various factors shape the demand for and supply of teachers. Effective functioning of teacher labour market can generate a qualitative educational and learning cycle. "Labour market" is defined as, "the place where workers and employers interact with each other. The

employers compete to hire the best, and the workers compete for the best satisfying job" (The Economic Times, 2017). The labour market refers to the supply and demand for labour, in which employees provide the supply and the employers, the demand. It is a major component of any economy, and is closely tied in with markets for capital, goods and services. A labour market or job market is a place where employers and workers compete for the best labour and satisfying job respectively. Thus, a teacher labour market can be defined as a place where the teachers and employers interact with each other. It functions with demand and supply of teachers. Demand denotes the demand for teachers by various types of schools and supply refers to the availability of qualified teachers willing to take up the roles. The recruitment, retention and training of the best teachers in the labour market ensure the access of children to the key teaching inputs and better learning. The market of qualified teachers ready to work is called teacher labour market. Teacher labour market acts like any other market. It functions with demand and supply of teachers. The schools and government are the employers in the market. Teacher labour market is made up of many smaller markets. There is a multitude of submarkets based on the subject and grade with unique characteristics.

In an economic view of educational process, teachers with all other inputs contribute to the student competencies. Economists look at schools through the lenses of production theory. According to this theory, teachers, and other inputs, are combined in schools in order to develop students' competencies. Such a frame is quite powerful in focusing the attention upon schools' effectiveness by relating output (what students have learnt) to inputs (firstly the number and costs of teachers) (Barbieri et al., 2008). Of course, teaching is a labour-intensive vocation with social, emotional, and economic dimensions. By presenting it in this way, we can better

defend the rights and welfare of teachers and make sure they get the rights and recognition they are due. Teachers are essential workers whose efforts build up the fundamentals of society.

The labour market in Kerala is very complex, vibrant and has been changing continuously (Anitha, 2024) and so is the teacher labour market. The Kerala's labour market is transforming as an open and competitive market. Traditionally, the Kerala Labour market was known as a high wage market with favourable working conditions among the Indian states. The State of Kerala is known all over the world as an educationally advanced part of the country, which has many outstanding achievements in the fields of education, health, habitat, land reforms etc. (*SPB Economic Review, 2023*). Through projects such as 'Vidya Kiranam', a component of the Nava Kerala Mission as an extension of 'Pothu Vidyabhyasa Samrakshana Yajnam', and 'Kerala Knowledge Economy Mission', Government of Kerala is continuing its serious interventions for meeting the changing requirements of time and to upgrade classrooms and curriculum. Qualification for a primary teacher is higher secondary education and Diploma in Elementary Education (D.El.Ed). The qualification is graduation or post-graduation for secondary and higher secondary teachers along with bachelor degree in education (B.Ed).

Three layers are therein the state-level administration of education: The department of general education comes first. Secondly, there are numerous directorates, the most significant of which being the Directorate of Public Instruction. SCERT, which offers academic support for all children up to the age of 15, makes up the third level. The Kerala secretariat has different departments that handle different aspects of education management, including issues with teachers, school facilities, textbook publishing, curriculum, syllabus, and vocational

education. Without a doubt, the most intricate aspect of educational management is school administration. In addition to the state's 14 revenue districts, Kerala's whole school system is organised into 34 educational districts and 160 sub-districts to ensure efficiency.

According to Mitra (1999), the district-level management of school education in Kerala has a three-tier structure – the revenue district, the educational district and the educational sub-district. Primary schools are monitored at the sub-district level and high schools at the educational district level. The Deputy Director of Education (DDE) for the revenue district provides the link between these layers and the state-level management. The District Educational Officers (DEO) functioning at the educational district levels are in charge of high schools besides being the superior officers for the sub-districts under each educational district. The Assistant Educational Officers (AEO) at the sub-district level are in charge of primary schools (Report of the Kerala Education Commission, 1999). There are three sectors in school education of Kerala- Government, Aided and Unaided. Recruitment of teachers in government schools is done through Kerala Public Service Commission. In the case of Aided schools, the recruitment is vested in the hands of school manager. The manager has to conduct the appointment according to Kerala Education Rules. In aided schools, the salary of the teachers is paid by the Government. The working conditions, service benefits etc. of the teachers are the same as that of the teachers of Government schools (Joseph, 2017). In the case of unaided schools, appointments are done by the respective management who bear all the educational expenditure including salary of teachers.

The present study is an investigation into the factors influencing demand and supply in teacher labour market of Kerala state. In order to study the structure of

teacher labour market, dynamics of demand and supply and determinants influencing, the investigator collected data from various sources. Preliminary interviews with experienced educational administrators gave the basis and directions for the study. There was a great need for large amount of secondary data. The investigator collected such data using Right to Information Act from various government offices. Some governmental reports, publications and circulars also provided secondary data for the study. Principals and teachers were approached for collecting primary data through interviews and questionnaires. This chapter includes brief descriptions of Need and Significance of the study, Title of the study, Definition of Key Terms, Objectives, Variables, Design of the study and Scope and Limitations of the study.

Need and Significance of the Study

Educational Economics is an important field of study which is unfortunately lacking much research endeavours. Understanding the close relationship between educational systems and economic outcomes requires deeper researches in the field of educational Economics. It is necessary for guiding policies that enhance educational access, quality, and equity because education is crucial in determining human capital, productivity, and social mobility. Various stakeholders can benefit greatly from investigating issues like teacher labour markets, resource allocation, and the financial effects of educational investments. Research in this area can also help identify ways to improve funding methods, address educational outcomes inequities, and assess the cost-effectiveness of different educational initiatives. Continuous research in Educational Economics is vital to ensure that education systems effectively contribute to individual growth and national economic development. Teacher labour market in Kerala is a complex

system of different submarkets. Education system is composed of different types of layers such as categories of management, subject areas and levels. Systematic investigations into these layers can enhance the transparency and effectiveness of the systems revolving around. Unethical practices like bribed hirings, delayed recruitments, creation of artificial demands, multigrade teaching etc, should be controlled to ensure equitable access for pupils from different sections of society to education.

Teacher quality has acquired global significance both for its perceived value of economic competitiveness among countries and the fact that teachers' salary constitutes the largest public expenditure within the education sector (Smith, 2021). In fact, teacher quality is a result of efficient manpower planning, recruitment, preparation, training etc. One of the crucial steps towards recruitment is to establish a mechanism to assess the demand and plan the supply periodically (UNESCO, 1979).

In recent years teacher is gaining more and more significance and it has been realised that he/she is the ultimate key to educational change and school improvement (Kerala State Council for Educational Research and Training, 2000). Hence, it is very essential to study various aspects of teachers in the labour market to ensure there is adequate supply of teachers. Firstly, the ways in which the requirement for teachers formed is to be carefully analysed to forecast the future demand and ensure no classrooms are stranded vacant without teachers. Secondly, the determinants of supply. Supply of teachers is very personal because a person should personally become interested to the profession of teaching, pursue training courses and get through examinations and certifications. Then this person should express his or her willingness to join the profession. The

motivating and discouraging factors which influence such entry to the profession and retention are to be carefully understood to confirm the availability of efficient teachers.

Demand is less of a policy matter since the government has actually little leverage on the determinants of teacher's demand (Chevalier & Dolton, 2004). At its core, teacher demand is driven by the need for educational services, which in turn is influenced by demographic trends, societal values towards education, and economic conditions. The demand for teachers is a reflection of the need to staff educational institutions to provide quality education to the growing population of students. This demand is not static and it fluctuates with changes in student enrolment, educational standards, and pedagogical approaches. Of course, the government policies play a crucial role in shaping the education of state, including aspects related to funding, curriculum standards, teacher training programs, and employment conditions. Through these levers, the government can influence the attractiveness of the teaching profession, the quality of education, and indirectly, the demand for teachers. Policies that enhance teacher salaries, professional development opportunities, and working conditions can make the profession more attractive, potentially increasing the supply of teachers and indirectly affecting demand.

'Economic behaviour of market participants is at the root of both the problems of faculty shortage and of declining quality of education' (Sen, 2011). The main participants in teacher labour market are two: The employers such as schools and educational institutions who want to hire qualified teachers. The second participant represent qualified teachers who are willing to work. The demand for teachers denotes the number of qualified teachers required by the employers whereas the supply of teachers means the number of qualified teachers available for getting hired. Teacher shortage is a market determined quantity reflecting the

mismatch between demand for and supply of teachers in teacher labour market. Thus, it becomes very important to understand and observe the behaviour of participants in teacher labour market as it has direct influence on the faculty shortage and decline of quality of education.

Teachers constitute the core of national development. Hence it is very important to governments and related agencies to understand the functioning of teacher labour market for development and implementation of teacher policies. Recognizing this vital contribution, governments and related agencies must study the functioning of the teacher labour market to effectively implement teacher policies that ensure quality education. Investigating the teacher labour market is essential for addressing teacher supply, demand, and retention, thereby ensuring the availability of skilled teachers across educational institutions. It essential for ensuring a stable and motivated teaching workforce for sustaining national progress. A close analysis is necessary to maintain an optimal balance between teacher availability and student needs.

In December 2016, then Union Minister for Human Resources Development, Prakash Javadekar announced that the vacancies are 17.5 percentages and 14.78 percentages at elementary and secondary levels respectively. It shows that the nation is badly in need of nearly one million qualified teachers. It shows that there is job for one million teachers in the country. But in Kerala, with teacher training institutes producing thousands of fresh teachers every year and heap of applications towards teacher vacancies, circumstances are entirely different. Hence it is very important to analyse the magnitude and impact of teacher demands in the state and its effects on and response from the supply in the state.

The recruitment and service conditions of government teachers are primarily in the domain of respective state governments. There is a need for comprehensive inquiry into recruitment strategies of the state. The nature and frequency of occurrence of teacher demand must be carefully understood for an insightful manpower planning of teachers in the state. Further, it is essential to understand the behaviour of qualified teachers in the market. The factors which attract them to get trained and equipped for the profession and those factors which retain them in the profession to provide quality education to the children.

Further, The right of children to free and compulsory education also require a study on teacher labour force composition in the state, teacher education system, acceptable pupil-teacher ratio, levels of teacher vacancy in schools, current wages and trends, relative wages etc. Thus, the study will help policy makers and government to understand the effects of existing policies on the teacher labour market.

Under section 23 (1) of Right to Education Act, 2009, the Central Government has notified National Council for Teacher Education (NCTE) as academic authority to lay down minimum qualification for a person's eligibility to become a teacher. NCTE has mandated to conduct the Teacher Education Test (TET) to ensure that qualified people are entering into the profession. The supply of the teacher labour market is not about how many teachers have been produced by the various teacher training institutions so far, but it is about how many capable and skilled teachers are available in the market.

The study of determinants of demand and supply of teachers is very important as it not only helps the policy makers but also the teachers and schools. The teachers can understand the job market and take appropriate career decisions.

Schools and potential investors in the field of education can also realize the play of demand and supply forces in the teacher labour market which can be utilized in overall planning and policy making.

Musgrave (1956) promoted the idea of merit goods wherein the state takes up a paternalistic role in the provision of some goods. Merit goods are "considered so meritorious that their satisfaction is provided for through the public budget, over and above what is provided for through the market and paid for by private buyers" (Musgrave, 1956: 13). Merit goods are like education, healthcare, transportation facilities etc. provided by the government. The implementation of state decisions regarding the distribution of merit goods significantly contributes to the establishment of a more egalitarian society. Among various merit goods, primary education is distinguished as a particularly vital component, as evidenced by studies conducted by Misra and Ghadai (2015). The concept of neighbourhood effects underscores the necessity of state involvement in the provision of primary education. This necessity transcends mere dissemination of information, encompassing efforts to enhance the availability of educational opportunities, employing strategies ranging from gentle persuasion to active coercion to ensure equitable allocation and redistribution of educational resources (Plank, 2005). Such comprehensive and paternalistic interventions have been instrumental in facilitating the global expansion of educational access and opportunities. Thus, it is very much relevant to understand, manage, direct and control various factors determining the demand for and supply of teachers in the labour market.

Title of the Study

The present study is entitled as, "**ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE".**

Operational Definition of Key Terms

The key terms used in the title of the study are:

Analytical Study

According to Britannica Dictionary, the term 'analytical' refers to careful study of something. Anaytical study in the present study means critically analysing the data and information currently related to teacher labour market available with the goal of gaining insights, identifying patterns, and drawing significant conclusions.

Demand in Labour Market

Demand in labour market is a concept that describes the amount of demand for labour that an economy or firm is willing to employ at a given point of time (Kenton, 2022). In the present study demand in labour market refers to number of evaluated teachers required by schools at a given point of time.

Supply in Labour Market

Labour supply in labour market refers to "the amount of time and effort individuals are willing to allocate to work activities in exchange for wages or other forms of compensation" (Blundell & MaCurdy, 1999). For the present study Supply in Labour Market refers to number of qualified teachers willing to work at a given point of time.

Teacher Labour Market of Kerala State

According to Oxford Dictionary of Economics, "a labour market is the place where workers and employers are brought into contact."

Teacher Labour Market of Kerala State is defined as the labour market of school teachers in elementary and secondary levels of education in Kerala State.

Objectives of the Study

The study is directed towards the following broad objectives:

- To analyse teacher labour market of Kerala
- To analyse the trend of demand and supply in teacher labour market of Kerala.
- To analyse various factors influencing demand in teacher labour market of Kerala
- To analyse various factors influencing supply in teacher labour market of Kerala.

Variables of the Study

The variables of the present study are:

1. Demand in Teacher Labour Market
2. Supply in Teacher Labour Market

Design of the Study

Methodology

The present study is qualitative in nature. Investigator used document analysis and survey method for collecting data for the study.

The study focuses analysing demand and supply in teacher labour market. The investigator collected government documents and other authentic records for a systematic analysis of existing data and historical trends. Primary data was collected through surveys and interviews.

Sample

Teachers working in schools at Lower Primary, Upper Primary and High School levels and principals of unaided schools are selected as the sample in the present study. The numbers of female teachers taken as sample were 144 and male teachers 76. Out of 10 principals of unaided schools selected as sample, 8 principals were male and 2 principals were females.

Techniques Used in the Study

The investigator used document analysis for the study. The documents used for the study are secondary data as listed below.

Sources of Secondary Data used in the Study

The investigator collected secondary data from the following various sources for conducting the study.

a) District Educational Offices in Kerala
b) Kerala Public Service Commission
c) Published and Unpublished Government Documents

Tools Used for the Study

The tools used for the study were the following:

- Questionnaire on Factors Influencing Supply of Teachers (Noufal & Naseema, 2021)
- Interview Schedule to Principals of Private Schools (Noufal & Naseema, 2021)

Statistical Techniques Used

- Preliminary Analysis
- Percentage Analysis
- Trend Analysis
- Supply-to-Demand Ratio Analysis

Scope and Limitations of the Study

This study aimed to analyse demand and supply in Teacher Labour Market of Kerala state. Hence, a detailed analysis of structure and components of teacher labour market of Kerala and the patterns of relationship between demand for teachers and supply of teachers have been made. Analysis of demand was made based on the official records in government educational offices. The factors influencing demand for teachers included student enrolment, internal reorganisation, teacher attrition, transfer of teachers, personal factors etc. These determinants were further analysed as internal and external categories of demand. In the unaided sector, other than these factors, parental expectations, economic conditions, and school reputation play an important role in shaping teacher demand. Schools with higher discipline standards, English proficiency requirements, and technological advancements result in frequent staff turnover. The analysis of determinants of supply revealed different patterns of priorities among various teacher groups. The categories of teachers included teachers from different gender, levels, age groups, school management types and levels of teaching experience. Non-monetary factors such as the status of the teaching profession, occupational choices, and support from management and colleagues significantly impact supply of teachers.

The present study is limited to school teachers working in Lower Primary, Upper Primary and High School levels only. Due to insufficiency of consolidated and reliable data from aided and unaided sectors regarding their demand for teachers and corresponding supply of teachers over different years, only government sector data was taken to the study. Only limited number of principals of Unaided schools were interviewed due to their lack of willingness and unavailability. The study is based on the data on the education and demography of Kerala state collected from various departments of Education, official records, governmental publications and websites. The results were statistically analysed to infer and interpret the results. It was hard to collect data from government offices even though the investigator utilised the Right to Information Act 2005. Investigator had to resort to the available data in some instances. Further, there were minor disagreements in the figures of data published by same department and same data published by different agencies. Such minor differences in the data were ignored. Thus, the findings will be generalisable to a great extent for the progress and future planning of education in Kerala State.

Organisation of the Report

The report of the study is organized under the following chapters:

Chapter 1

Chapter 1 deals with the introduction, need and significance of the study, methodology and scope and limitation of the study.

Chapter 2

Chapter 2 consists of review of related literature encompassing various studies on teacher labour market, demand for teachers, supply of teachers etc.

Chapter 3

Chapter 3 deals with the methodology of the study which includes the design of the study, variables, samples, description of tools and techniques used in the study etc.

Chapter 4

Chapter 4 deals with the analysis and discussion of the results of study. It is divided into four Sections: Section 1- Analysis of structure and components of labour market, Section 2- Estimation of demand and supply in each district from the year 2015 to 2022, and calculation of Supply to Demand Ratio. Section 3- A detailed analysis of various factors influencing of demand for teachers. Section 4- A detailed analysis of different factors influencing of supply of teachers.

Chapter 5

Chapter 5 deals with summary of the major findings and interpretation.

Chapter 6

Chapter 6 deals with educational implications of the study and suggestions for future researches.

Chapter 2

REVIEW OF RELATED LITERATURE

REVIEW OF RELATED LITERATURE

"The labour market for teachers is worthy of attention not only by its size but also because of its effect on children's human capital acquisition"

- Chevalier and Dolton (2004)

Contents

Related literature is reviewed to elaborate

- *Theoretical overview of teacher labour market and dynamics*
- *Methodological overview of demand and supply analysis in teacher labour market*
- *Investigations globally made to teacher demand and teacher supply*

A teacher is a 'personnel employed in an official capacity for the purpose of guiding and directing the learning experiences of pupil or students in an educational institution whether public or private.' (Good, 1973). But the teacher is often romanticized as a noble being, a vocation motivated by enthusiasm and a commitment to nurturing young minds. Although these principles are admirable, they may obscure the fact that teaching is labour. One can better comprehend teaching's economic, emotional, and social aspects as well as its difficulties and contributions to society by looking at it through the lens of labour. Teachers are workers who exchange their time, expertise, and talents for a particular pay. Teaching involves a structured workday, performance reviews, and deliverables, just like any other job. The labour of teaching is not limited to physical or intellectual efforts. It also demands emotional labour. They serve as mentors, counsellors, and role models masking their own emotional outbursts. In spite of this, teachers are usually paid too little for their jobs. Teaching is essentially an undervalued form of skilled work because the responsibilities of a teacher go far beyond the hours spent in the classroom.

Unlike commercial firms, schools do not mainly seek to maximize profits. It is also true, however, that in the era of market reforms, commercial considerations have grown in importance (Sen, 2011). The economists who view the school education through the eyes of production theory see the teachers as input along with other inputs combined to produce competencies of children. Such a frame is quite powerful in focusing the attention upon schools' effectiveness by relating output (what students have learnt) to inputs (firstly the number and costs of teachers) (Barbieri et al., 2008). It means, the education is process through which the learners are made finer products. The major input invested in this process is the labour of the teacher. It is the main overhead expenditure of any educational institution. Every educational system spends a big share of fund to maintain its teaching workforce. From this perspective, it is essential to measure the returns on such investment for ensuring efficient utilisation of the resource rather romanticising the profession. Such interventions reduce under-performance and wastage of human resources.

The societal perception of teaching as a noble profession rather can have unpleasant effects. While it speaks of the passion, it can also be used to justify low wages and poor working conditions. There are situations with the pretention that teachers should "teach for the love of it" denies their right to demand fair treatment and compensation. According to Fagbasmiye (2002), the majority of teachers have a negative attitude towards their employment and are extremely unhappy with their position in life. Workload, lack of resources, poor professional relationships with colleagues, inadequate salary, pupil misbehaviour, difficult interactions with parents and expectations of other staff have been identified as sources of stress of teachers in many studies (Borg et al., 1991; Boyle, et al., 1995; Pierce & Molloy, 1990; Pithers & Soden, 1998; Travers & Cooper, 1993).

Hence, acknowledging teaching as labour does not diminish its nobility but it elevates the profession of teaching by emphasizing its value. A teacher has the right

to get a reasonable pay sufficient to painstaking, manageable workloads and access to resources and development. This view urges the society to respect teachers not only as educators but as workers whose contributions are fundamental to the progress and development of the nation.

The review of literature develops from three perspectives in the present study:

- Theoretical overview of teacher labour market
- Methodologies of studying demand and supply in teacher labour market
- Investigations globally made to teacher demand and teacher supply

Theoretical Overview of Teacher Labour Market

The labour market for teachers is worthy of attention not only by its size but also because of its effect on children's human capital acquisition (Chevalier & Dolton, 2004). Teacher labour market is the largest component of labour market of every country prioritising education. It includes a large number of people teaching at various levels of education, schools and other educational institutions catering the educational and skills training needs of the state on one hand and creating greater employment opportunities on the other.

Teacher labour market is highly important because of its effect on children's human capital acquisition because the quality of education is the key determinant of human capital acquisition. Teachers occupy a vital part of this process. The teacher labour market, which encompasses the recruitment, retention, remuneration, and professional development of teachers, plays a critical role in shaping the educational outcomes of students. Quality supply of teachers in the labour market is significantly important because it affects children's access to education. Disparities in teacher availability exacerbate inequalities in educational attainment and human capital development. Human capital formation is a cornerstone of national prosperity. A

well-structured and equitable labour market for teachers serves as a catalyst for quality educational outcomes providing equal and equitable opportunity to all children to reach their maximum potential.

The teacher market, like some other public sector occupations, such as health professional, is peculiar since the state has both monopoly power in the provision of credentials and nearly monopsony power in the recruitment of teachers (Chevalier & Dolton, 2004). The state holds a unique and often dominant position in the teacher labour market, operating as a monopsonist in many contexts. A monopsony market exists where a single buyer has the significant power over the market for a particular good or service. In many countries, the state is the largest, employer of teachers, particularly in public education systems. The centrality in teacher labour market gives the state disproportionate influence over key market aspects such as wages, hiring practices and labour standards.

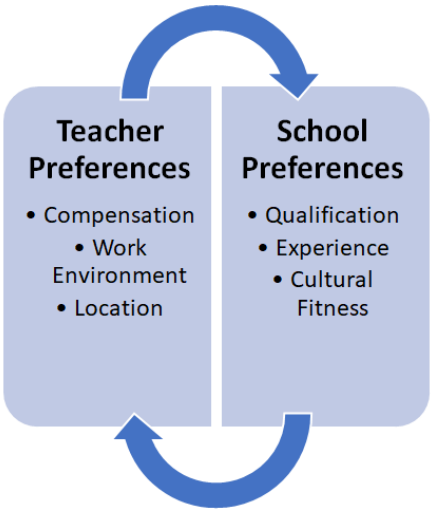
The market for teachers functions like any other labour markets, with schools acting as employers of teachers (Chevalier & Dolton, 2004). Schools and educational institutions play a dual role as employers in the market. They are the primary sites of employment for teachers and intermediaries of implementation of governmental policies. Government and government aided public schools operate under state regulations that shape remuneration, recruitment and working conditions. In private schools, in spite of their capacity and flexibility to offer more variability to acquire talented teaches, they often exacerbate inequalities in teacher pay and resources between affluent and underserved communities.

The teacher labour market is a complex system influenced by various theories and factors, particularly in terms of recruitment, allocation, and compensation. Understanding these dynamics is crucial for improving educational outcomes, especially for disadvantaged students. The following sections outline key theories regarding the teacher labour market:

A) Two-Sided Matching Model Theory

The Two-sided Matching Model provides a robust framework for understanding to the complex dynamics of teacher labour market. It is widely applied as a theoretical outline to understand the dynamics of labour markets. The model highlights dual nature of decision-making in the context of teacher labour market: schools want to hire the best teacher who satisfies their requirement while teachers seek employment that aligns with their goals in both personal and professional domains.

The Two-Sided Matching Model, as originally developed in the field of Game Theory by Gale and Shapley (1962), explains how two parties form mutually aggregable matches. In the case of labour market, the two groups refer to employers and employees. When it comes to teacher labour market, schools and teachers represent two sides. The main concept of this model is stability. Stability refers to a situation in which no teacher would prefer an alternative match once pairing is established. This theory has an assumption that each side has a ranking system. The schools rank potential teachers based on qualifications, experience and requirements. Similarly, teachers rank schools based on salary, location, job conditions and opportunities for professional development.



This theory captures the complexities of recruitment and employment processes which can be elaborated on the basis of several factors having significant impact on the preferences of both schools and teachers. School preferences include qualifications, experience and cultural fitness. Qualifications represent specific certifications, degrees and subject expertise. Experience of teachers preferred for leadership roles and challenging classroom environments. Schools seek teachers whose personalised attributes and values align with institutional objectives including equity, innovation, cultural responsiveness etc.

Teacher preferences represent compensation and benefits, work environment and location. Teachers consider remuneration, retirement plans, perks and healthcare benefits. Positive work environment is always preferred by a teacher with supportive administration, manageable workloads, and opportunities for personal growth and development. Location indicates the geographical priorities including proximity to family and rural and urban settings. Cannata (2007) argues that teachers tend to sort themselves into schools that are socially proximal to them, in terms of race and class, and resemble the schools they attended as children. She finds that "teacher candidates tend to have a clear notion of where they want to teach and where they do not, despite knowing little about these schools. Thus, even though teacher candidates' preferences for specific school characteristics, such as beginning teacher support, the eventual decision on where to teach is based more on feelings of familiarity and comfort" (Cannata, 2007).

The complex process of matching occurs as schools and teachers weigh their priorities and attempt to find optimal matches. Highly qualified teachers may compete for teaching positions in prestigious school. Likewise, schools in underserved areas may struggle to attract talented teacher with comparatively higher financial incentives. Bates et al. (2023) argues that the preferences of two sides do not align even though teacher labour market operates as a two-sided matching market. Both teachers and

principals do not prioritise. Teachers often prefer schools with fewer disadvantaged students, while principals' evaluations of teacher effectiveness are weakly correlated with actual performance, leading to an equitable but suboptimal allocation of teacher quality (Bates et al., 2023).

The Two-Sided Matching Model provides a magnified view of teacher labour market by explaining the market imbalances. It sheds light on mismatches such as teacher shortages in rural areas or excess supply in urban areas. This model suggests that these imbalances are the results of mismatched preferences or inadequate incentives. It also highlights the retention challenges due to poor mismatches which can lead to high turn over rates. Such turn over trends, triggered when teacher’s preferences and school’s offerings diverge, interrupt student learning and increase recruitment costs. Two-Sided Matching Model theory also evaluate the effectiveness of policies such as relocation bonuses and professional development programs to attract teachers to high-need areas.

In spite of all these advantages, the theory of Two-Sided Matching Model has some limitation in its application to the teacher labour market. The assumption that preferences are static and easily ranked is often questioned. The motivations and preferences of individual teachers always vary. The theory has excluded many external factors including broader systemic issues such as budget constraints, teacher union negotiations, policy mandates etc. The model does not full account for the changing preferences of teachers or the impact of unexpected events such as pandemics and economic depressions.

B) Non-Market Institutions and Frictions Theory

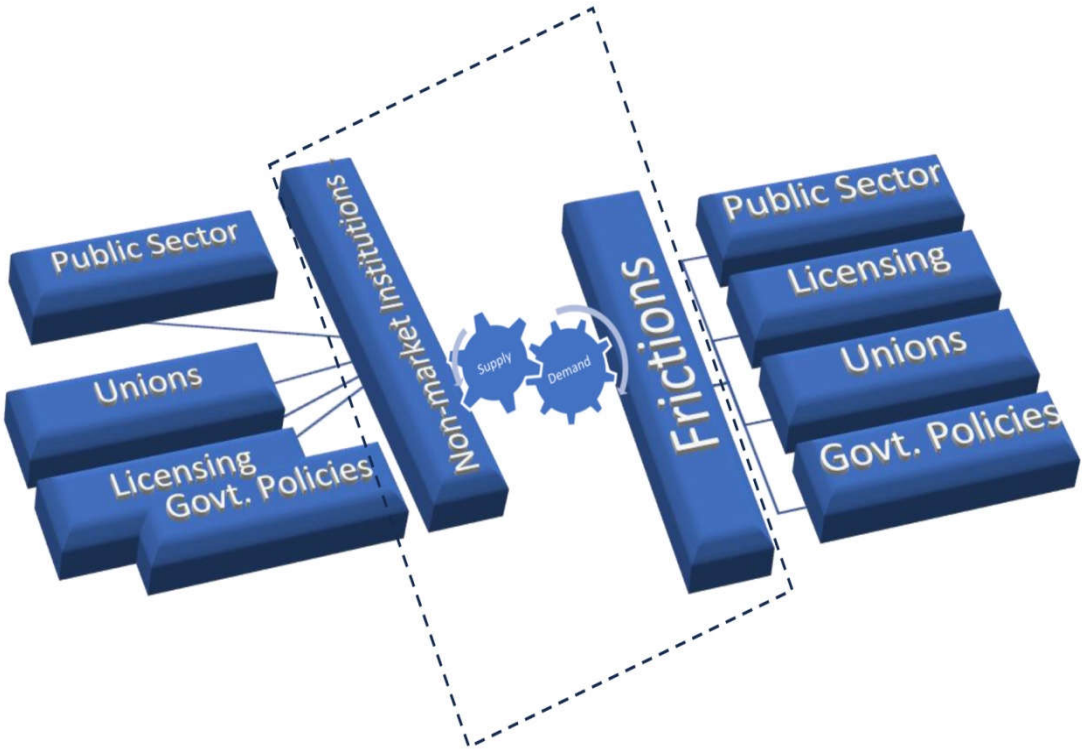
The Non-Market Institutions and Frictions Theory explains the unique challenges and dynamics of the teacher labour market. Examining the interplay

between institutional structures and market constraints, policymakers and educators is important in understanding the root causes of inefficiencies and inequities in teacher employment. Addressing these challenges requires a revised approach that considers the role of non-market institutions and minimizes frictions that impede the effective functioning of the labour market. In developing countries, non-market institutions such as government policies and unions significantly shape teacher labour markets, affecting wages, skills, and distribution (Crawfurd et al., 2020) (Crawfurd & Pugatch, 2020). The complex system of teacher labour market is influenced by not only the traditional demand and supply dynamics but also by non-market institutions and frictions that shape the recruitment, retention and mobility of teachers. Thus, the theory of Non-Market Institutions and Frictions Theory provides a framework for understanding these dynamics, emphasizing the role of institutional structures, policy regulations, and barriers that constrain or mediate market mechanisms.

Non-market institutions stand for the organizational and regulatory structures which significantly influence teacher employment without directly interfering market competition. These institutions include public school systems, unions, licensing bodies, and government policies. Unlike markets where wages and employment levels are determined primarily by supply and demand, teacher labour markets are governed by the following factors like public sector dominance, Certification and Licensing, Unions and Collective Bargaining. Teacher labour market is predominantly occupied by the public sector where the governmental budgets, educational policies and political considerations influence decisions regarding hiring, salaries, and working conditions. Also, meeting specific qualification and certification standards set by state or national licensing bodies are also important to become a teacher. These requirements which act as barriers to

entry, ensure a minimum quality threshold and potentially outsize the pool of eligible candidates. Teacher unions play a significant role in structuring employment conditions and grievance procedures. They also enhance job security and equity. Sometimes they limit schools' ability to quickly adjust staffing levels or offer differentiated pay. There are notable disparities in teacher quality and compensation across different sectors and regions, indicating that market frictions play a critical role in teacher allocation (Crawfurd et al., 2020). Frictions refer to hindrances preventing the teacher labour market from operating smoothly or efficiently. They can manifest in various ways like geographic and mobility constraints, imperfect information, rigid salary structures, tenure and retention policies.

Non-market Institutions and Frictions Theory



Geographic and mobility constraints refer to the barriers to relocating, such as family and certification issues and preferences for specific locales. Thus, the remote rural areas struggle to attract qualified teachers despite offering financial incentives.

Similarly, schools and teachers may face information gaps. It means teachers may be unaware of vacancies in schools that match their skills, while schools may fail to attract suitable candidates. Another important friction is the uniform pay scales that limit the school's ability to pay competitive salaries for high demand subjects or for hard-to-staff locations. These rigid remuneration structures are often determined by collective bargaining agreements or government mandates. Frictions also include tenure systems designed to protect teachers' rights. They reduce turnover but can also make it difficult to replace underperforming staff. These policies introduce inefficiencies in aligning teacher quality with student needs. Non-market institutions and frictions interact to shape the teacher labour market in ways that both support and hinder its functioning.

While these theories provide insights into the teacher labor market, it is essential to consider that not all reforms yield positive outcomes universally. For instance, deregulation may lead to increased competition but could also exacerbate inequalities if not managed carefully.

Demand for Teachers

There are two approaches to demand for teachers:

1. Derived demand approach
2. Ideal Vs. Actual Demand Approach

1. Derived Demand Approach

Teachers constitute a critical component among multiple inputs necessary in education services. Consequently, the demand for teachers is not primary but rather derived from the foundational demand for education itself. The phenomenon known as a Teacher Shortage, emerges from a discrepancy between the availability (supply) and the requisite (demand) of teaching resources. Therefore, the demand for

teachers, encompassing both their quantity and the diversity of their skill sets, is indirectly influenced by the demand for education services. The demand for education is classified into two:

1. Aggregate Demand for Education.
2. Composition of aggregate demand to its components such as types of disciplines.

The aggregate demand for education is shaped by long term factors and is a function of key macro trends in the economy like demographic trends and economic growth trends. The size and age-structure of the population determines the number of student-age individuals that forms the population pool from which the demand for education will occur (Sen, 2011). Economic growth trend is the crucial factor governing the (expected and actual) economic returns to education, as the prospects for employment and incomes change. These factors affect the ability to pay for education. Courses and disciplines where job prospects are bright and expected incomes are high would be in greater demand. This would be reflected in higher enrolments, as well as in the trends of student applications. In addition, social status factors govern job aspirations, which are to some degree independent of the pure economic calculation of the net benefits of education by students (Sen, 2011).

The aggregate demand for education is a function of number of student- age population and the 'desired gross enrolment ratio'. Low GER that is observed is not necessarily due to shortage of educational opportunities (supply constraint). This phenomenon is clearly evident in the advanced economies such as the USA. The 'desired gross-enrolment ratio' in turn is a function of trends in per capita income, the cost of education, sociological trends linking social status with higher education attainment (Sen, 2011).

2. Ideal Vs Actual Demand Approach

The demand for teachers can be broadly classified as ideal demand and actual demand. Ideal demand requires defining the desired pupil-teacher ratio, geographic teacher distributions, and course requirements to determine the perfect number of teachers necessary each year. The actual demand represents reality – the need for teachers based on the number of teachers actually hired and employed. Sutcher et al. (2019) estimated the actual demand for teachers using the recruitment systems adopted by the Government sector. Thus, the number of teachers that are theoretically required to attain the best possible educational results is known as ideal demand. This includes figuring out the ideal student-teacher ratio, making sure that teachers are evenly distributed throughout urban and rural locations, and coordinating teacher availability with the needs of subject-specific courses. Policymakers and educational planners can determine the ideal number of teachers to hire annually to meet the demands of the educational system by taking these considerations into account. The number of teachers who are actually employed by the educational system is the main focus of the actual demand for teachers, which represents the actual situation. Actual demand considers pragmatic considerations including financial limitations, the availability of competent applicants and current staffing levels in schools, in contrast to ideal demand, which is predicated on theoretical aims and planning. It displays the system's present ability to hire and retain teachers, frequently pointing out discrepancies between what is required for the best possible education and what is feasible with the resources at hand.

Chevalier and Dolton (2004) used the concept of ideal demand when they calculated the exact extent of the shortage of teachers. They viewed ‘government’s own estimates of current shortages were sometimes based on the numbers of existing vacancies and often inconsistent with figures relating to the shortfall of

demand over supply based on using desired pupil teacher ratios and their own published pupil numbers'. They also argue that 'figures based on vacancies also hide the use of non-qualified teachers'. So, they favoured the approach of calculating the demand for teachers using official desired pupil teacher ratios as provided by Bee and Dolton (1995).

Supply of Teachers

An important perennial problem for any state education system is how to ensure a steady supply of quality teachers (Chevalier & Dolton, 2004). Ensuring a steady and dependable supply of qualified instructors is a significant and continuous problem for any state education system. This is a crucial issue since the proficiency and accessibility of an educational system's teaching staff play a major role in its efficacy. A lack of incentives, retirement, poor training programs, and teacher attrition are some of the factors that might affect the quality of education and cause shortages. States must make investments in teacher education, offer competitive pay and opportunity for professional growth, and establish welcoming workplaces that promote retention in order to solve issue. Maintaining educational standards and satisfying students' long-term needs require a consistent supply of qualified and driven educators.

According to Sen (2011), most policy makers and experts emphasize inadequate supply as the most important cause of faculty shortage. Qualified persons are not entering the academic profession in adequate numbers due to economic reasons (Sen, 2011). A number of variables, such as low enrolment in teacher education programs, high attrition rates, and a dearth of incentives to entice people to pursue the field, frequently contribute to this shortage. Teaching is frequently viewed as a less desirable job choice because of its poor compensation, demanding effort, and few prospects for career progression. As a result, particularly in

underserved areas and essential subject areas, the supply of newly hired instructors cannot keep up with the rising demand. Targeted initiatives that improve the teaching profession's appeal and fortify the teacher preparation pipeline are necessary to address this issue.

The social status of teachers has experienced a notable decline from its previously esteemed position in earlier decades. This diminishing prestige is closely intertwined with the progressive deterioration of the work environment and service conditions faced by teachers. Such adverse conditions have not only made the teaching profession less attractive but have also actively discouraged potential educators from pursuing careers in this field. Among the deterrents are the complex and outdated administrative procedures that teachers are required to navigate, the frequent and often disruptive transfers they must endure, and a concerning trend towards the escalation of teaching loads for existing faculty members. These factors collectively contribute to an environment that challenges the recruitment and retention of quality educators, thereby impacting the overall effectiveness and sustainability of the educational system (Sen, 2011).

The issue is how to provide enough reward to induce high quality individuals to become teachers and stay in the profession (Chevalier & Dolton, 2004). One of the main challenges in tackling the teacher shortage is figuring out how to offer enough incentives to draw and keep talented people in the field. Teaching is a challenging profession that calls for commitment, in-depth subject knowledge, and the capacity to handle a variety of classroom demands. However, many gifted people are deterred from entering or staying in the sector in the absence of sufficient pay, recognition, and prospects for professional advancement. Offering competitive pay, clear professional growth tracks, continual training, and positive working conditions

are all necessary to make teaching a more alluring and long-lasting career choice. By doing this, educational institutions can develop a workforce that is both skilled and driven to provide all students with a top-notch education. Thus, the difficulty in teacher supply is not only to recruit teachers but also to keep them in the classroom. Nearly one in two persons registering on the initial teacher training course is not observed teaching within three years of finishing the course. This wastage adds to the costs of providing teacher training but also negatively affects child's performance (Dolton & Newson, 2003).

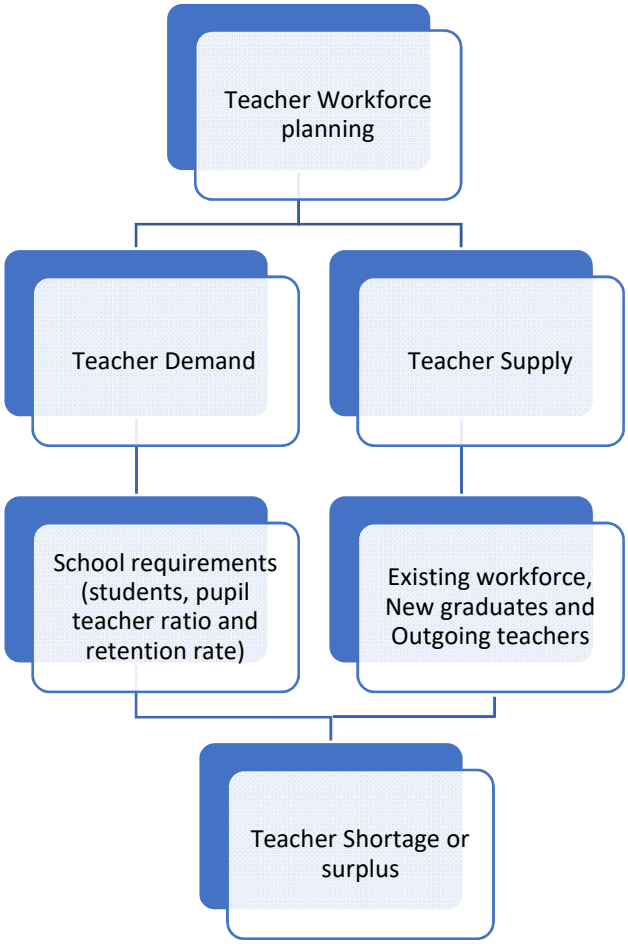
Analysis of Demand and Supply: A Methodological Overview

The methodologies used to examine teacher supply and demand depend on the research questions being asked (Lindsay et al., 2016, p. X). Depending on the particular research issues being addressed, different approaches are used to examine teacher supply and demand. For example, researchers may employ longitudinal data analysis to monitor changes over time if the objective is to comprehend trends in teacher shortages. Regional labour market analysis may be employed as an alternative if the goal is to pinpoint regional differences in teacher availability. When investigating the elements influencing teachers' career choices, qualitative techniques like case studies or interviews could be used. The nature of the investigation, the kind of data at hand, and the intended level of depth and breadth of comprehension ultimately influence the approach selection.

Estimation of demand for teachers and supply of teachers require detailed analysis of intricate relationships among variables. Such an estimation helps to determine the number of teachers employed and actually required. The model developed by Victorian Auditor General's Office (2001) in Australia to estimate and forecast the teacher supply and demand is shown in Figure 1:

Figure 1

Estimation of Teacher Demand & Supply by Victorian Auditor-General's Office



Galbraith (1999) argues that while all the studies refer to supply of and demand for teachers, technical modelling projections have concentrated on demand issues. Supply of teachers in those studies are treated like the training institutions can produce number of teachers required on call. It means the studies should also focus on the relationship among various factors determining supply of teachers.

A comprehensive model of estimation of demand and supply was introduced by Preston (2000) by taking into account all the factors on both demand side and supply side. This model incorporated the non-government as

well as government sectors in student enrolment projections, teacher numbers and other factors. It also estimated the actual number of teachers by accounting realistically for graduates from previous years who were unable to get employed in teaching positions.

The UK Department for Education and Skills (1998) developed a different methodology for estimation of teacher demand and supply based on three models as given below:

a) Teacher Supply Model (TSM): It takes into account the movements of teachers into and out of schools and calculates the totals of teachers in service and required in future years.

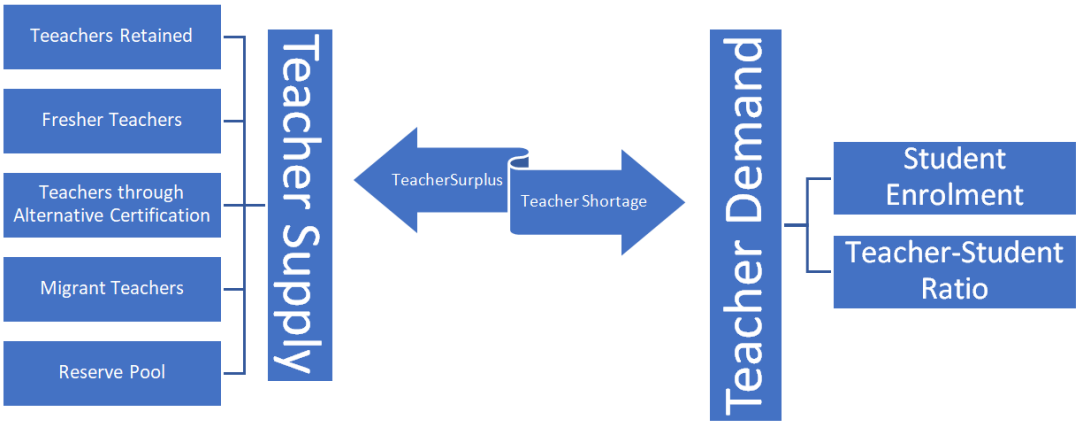
b) Initial Teacher Training (ITM) intake model: It estimates the number of initial teacher training intake required as per the indication of TSM.

c) Secondary Teacher Supply Model: It breaks down the TSM for secondary teachers and their movements in secondary schools.

The concept of supply can be estimated by taking the number of people who present themselves for work in teaching at the agreed wage. However, what such an approach ignores are all those individuals who are available for (and are seeking) work in teaching, but do not get a job. These 'would-be' teachers therefore constitute potential available supply. However, it is very difficult to gauge and measure their number (Chevalier & Dolton, 2004). Such an intervention was made by Lindsay et al. (2009) in their study of components of teacher demand and supply as shown in Figure 2 given below:

Figure 2

Methodology Adopted by Lindsay et al. (2009)



From the above figure, it is clear that Lindsay et al. (2009) adopted a comprehensive research design to study components of teacher demand and supply. Teacher supply was defined as the number of teachers who are willing and able to teach. Teacher supply was calculated as the sum total of five components:

1. Teachers retained from previous year in various institutions.
2. Newly certified teachers from various state's teacher training colleges.
3. Teachers certified from alternative teacher training programmes.
4. Teachers migrating into the state from other states.
5. Reserve pool of qualified and willing teachers who are not employed so far.

For estimating demand for teachers, the investigators collected the total student enrolments and teacher student ratio. Thus, the ideal demand for teachers required to fill up the gaps was calculated by dividing enrolments according to teacher student ratio.

Sen (2011) studied teacher demand as an estimation of the number of unfilled positions as a proportion of the "sanctioned posts". This approach to determine the severity of the teacher shortage has limitations. This is due to the fact that it fails to

effectively depict the difference between the supply and demand of teachers in the labour market, which is the actual level of the faculty shortage in any particular era. Any higher education institution's approved number of positions, which is interpreted as a measure of demand, is decided administratively and typically stays that way for a long time. Therefore, the quantity of approved positions does not always correspond to the real need for faculty that exists in the academic market.

Sutcher et al. (2019) analysed data relying on a number of databases. For calculating the demand, 'they first examined teacher turnover in the workforce using the Schools and Staffing Surveys (SASS) Teacher File 2003–04, 2007–08, and 2011–12, and the SASS Teacher Follow–Up Surveys 2004–05, 2008–09, and 2012–13. Both of these are nationally representative data sources that monitor teachers and schools over time. The Common Core of Data (CCD), years 1999–00 through 2012–13, a universal database on teachers and students in the United States, provides accurate teacher and student numbers'. Finally, public school teacher projections 2000 to 2025 published in the Digest of Education Statistics was used to estimate workforce trends a decade into the future. To examine teacher production and the supply side of the labour market, they used universal data on teacher preparation programs collected by the U.S. Department of Education. To further investigate an individual's journey from teacher preparation to the classroom, they used the '2008:2012 Baccalaureate and Beyond (B&B)', a longitudinal dataset that follows recent baccalaureates from 2008 until 2012, four years after their graduation, with a special focus on careers in education. The research questions in their study focused on the following major areas:

a) Status of teacher demand and supply across the country
b) Intensity of mismatch between demand and supply

c) Tendency of persistence of differences between teacher demand and supply
d) Apparent extent of shortages
e) Areas of teacher shortages
f) Reasons of shortages
g) Effects of state interventions in mitigation of teacher shortages

Investigations Globally Made to Teacher Demand and Teacher Supply

Economic labour market theory is largely used for managing demand and supply of teachers. Previous studies of demand for and supply of teachers mainly focused on intake statistics, alternative sources of recruitment, variables influencing retention and adaptability of the system for abrupt changes (William, 1979). But recently, it has changed to the conceptual framework of interrelated components such as demand for teachers, potential supply of teachers, structure of market for teachers, teaching workforce and teaching quality (Santiago, 2002).

Donitsa-Schmidt et al. (2014) through their micro level studies of teacher shortages and potential solutions suggests that increased enrolment and retirement affect the teacher demands. The demand for labour theory, demand is defined as "the number of available job positions offered for certain compensation. Supply is defined as the number of qualified individuals both able and willing to offer their services in a particular line of work, depending on compensation." The compensation encompasses all the benefits including wages, bonuses, rewards, positive working conditions, incentives and status in society.

They also identified a 'hidden shortage' in supply of teachers. Hidden shortage implies the quantity of teachers without adequate experience employed to

cover the vacancies in educational institutions. These comprise not only the teachers who are without qualifications but also who have received training to teach different subjects or grade levels. Natural student population growth, immigration, labour agreements, and changes in educational policy are some of the macro factors that impact the need for teachers. The stature and prestige of the teaching profession, merit-based incentives, shortened certification, and the amount of recent graduates joining the field or changing careers are some of the macro factors that affect the supply of teachers. Micro factors also include a decrease in students due to the greying of the population in a specific neighborhood, a decrease in the prestige of a certain school, teacher burnout due to acute discipline problems in a given school, lack of support from the principal, and problems in class management, lack of teacher autonomy, absence of professional development activities, and scarce benefits given in a certain school (Donitsa-Schmidt & Zuzovsky, 2014).

Teachers exhibit different behaviour in the labour market that sets them apart from other professions. Their behaviour is shaped by the unique demands and conditions of the teaching profession. Barbieri et al. (2008) found that teachers' working conditions and labour market behaviour differ remarkably from other workers, reflecting the specific requirements and constraints of the role. These differences often express in decisions related to career mobility, job retention, and responses to salary and working conditions. Unlike many other professions, the teacher labour market is subject to public sector dynamics, including unionized environments and structured pay scales, which limits flexibility.

Teachers' labour market behaviour has been a subject of considerable academic interest over the years. This part of literature review synthesizes findings

from various studies which examined various aspects of teacher labour market. The demand and supply dynamics in teacher labour market and the effects of recruitment practices, teacher retention, wages and impact of external factors such as unionization and feminization on the profession. The reviewed literature illustrates the multifaceted dynamics of the teacher labour market, where factors such as recruitment practices, demand-supply imbalances, and retention strategies interact to influence outcomes.

Demand in Teacher Labour Market

Demand in the teacher labour market is driven by various factors such as the growing need for education services and systemic challenges in maintaining adequate faculty resources. Sen (2011) highlighted a close but non-linear relationship between faculty scarcity and excess demand for higher education services. However, the relationship found between teacher shortage and the excess demand for higher education services is not a rigid relationship. Even in scenarios where structural faculty shortages do not exist, factors such as controlled pricing of education services can create artificial excess demand. This suggests that policy interventions, economic conditions, and demographic trends all play significant roles in shaping demand. The demand for teachers often fluctuates with enrolment rates, government education policies, and regional disparities in school infrastructure and teacher availability.

Market demand for teachers depends up on underlying demographic trends, and economic determinants such as trends in income and employment aspirations (Sen, 2011). In their attempt to establish a link between market functioning of teachers and effectiveness of teachers, Barbieri et al. (2008) looked at the correlation between students' achievements and features of the teacher labour market.

An important component of demand for new teachers is attrition. The number of new teachers demanded depends substantially on how many teachers leave the profession (Haggstrom et al., 1988). One form of departure is retirement. According to data from the Schools and Staffing Survey TFS 2004, 2008, and 2012, retirements on average account for about one-third of leavers. Preretirement attrition, due to school staffing decisions, life changes, or dissatisfactions with teaching, accounts for about two-thirds of all attrition.

There are many problems in recruitment process. Jacob and Lefgren (2006) argue that while principals are able to identify the best and the worst teachers in their schools at the time of recruitment process, they are not able to identify where the rest fall in the ability distribution. Principals, according to this study, 'also discriminated systematically against male and untenured faculty'. These problems of variation in conceptions lead to wrong conclusions in hiring process. Recruitment boards should create a list of attributes and profiles of potential teachers matching their requirements.

Liu and Johnson (2006) stress the importance of "information-rich" and timely hiring processes in improving the match between teachers, schools and teaching assignments. According to a poll of new teachers in California, Florida, Massachusetts, and Michigan, interviews and evaluations of paper credentials were major components of the hiring process. Crucially, districts and schools hardly ever watched a candidate teach and similarly, candidates hardly ever had any prior exposure to the school to which they applied. Few new teachers interviewed with existing instructors or visited with students to gain an understanding of the school's standards and culture, even though the majority of them met with the principal during the hiring process. This increased the likelihood of job-related disappointments

and turnover because new instructors in these states only had a somewhat correct perception of what their jobs probably involved.

For making the hiring process 'information-rich', the timing is also significantly considered. Hiring in summer leads to lesser availability of teachers for interviews and their classes cannot be observed. Further, Liu and Johnson (2006) found that approximately a third of new teachers in California and Florida were hired only after the school year had started, when principals were in a rush to fill a position, teachers were busy with their classes and there was little time for an informative hiring process. Sutcher et al. (2019), based on their analysis, found that teacher demand is projected to increase over the next decade, based on expectations that the school-aged population will increase by roughly 3 million students, student-teacher ratios will return to pre-recession levels and teacher attrition rates will remain steady at 8 percentage annually.

Murrane (1975) finds out that a given teacher is more effective in her early years in the field. It means high attrition rates in early years can significantly affect the teacher retention. Further the salary structure based on experience is too rigid to retain academically gifted teachers who would expect much better returns from non-teaching opportunities. There are studies evidencing effect of demand for teachers on the salary of teachers. There is significant positive association between the rate of adjustment of relative earnings of teachers and the level of excess demand in market. The study by Bee and Dolton (1995), using data over a long time span under different market conditions, found clear econometric evidence that teachers' salary changes are responsive to market forces like demand and supply even in the context of a mainly government administered market like that in the UK. An increase in excess demand by 10 percentage leads to wage rising by 3.7 percentage at the following period.

Supply in Teacher Labour Market

Ingersoll and Kralik (2004) find empirical support for the claim that induction programs for new teachers have a positive impact on teachers' decision to stay in the same school and continue in the teaching profession. Using 1999-2000 SASS data, Smith and Ingersoll (2004) found that having a mentor from the same field and having common planning time with other teachers on instruction, were more effective in reducing turnover than providing of seminars or classes for beginning teachers. A study of 141 teachers in New Mexico who participated in a teacher mentoring program found that the attrition rate was only 4 percent annually compared with the statewide average rate of 9 percent. In an analysis of the Beginning Teacher Support and Assessment Program (BTSA), a mentorship program in California, Vilar and Strong (2005) found that the program resulted in aggregate reading scores for students of new teachers being comparable to those of mid-career teachers.

There are observations that found the success of private schools in teacher retention. Ballou (1996) found private schools are more successful in retaining the best of their new teachers because of greater flexibility in structuring pay, more supervision and mentoring of new teachers, and freedom to dismiss teachers for poor performance. Ingersoll and Smith (2003) found that of the 29 percent of leaving teachers who cited dissatisfaction as their reason for leaving, more than three-fourths linked their quitting to low salaries. However, the next two most important factors were student discipline problems and lack of support from the school administration. Teacher's colleagues also affect teachers' decisions to stay in school. Shields et al. (2001) found that credentialed teachers complained of the lack of professionalism of those who were not credentialed and the resulting instructional

burden they had to carry to compensate for the teaching inadequacies of their colleagues.

Higher attrition rates of successful teachers, transfer and quit behaviour were proved to be wrong in many studies. For instance, Hanushek and Rivkin (2006) found no conclusive evidence suggesting that more effective teachers, in terms of student test score gains, have higher exit rates. They found that those who exit are less effective indeed. Further, those who move between schools within the same school district are, on average, less effective than those who do not. The study of new teachers also found no reason to believe that those who exited were better than those who stayed.

There are many studies suggesting that teachers are more likely to choose teaching when starting wages are high relative to wages in other jobs. Bacolod (2005) found highly qualified teachers are especially sensitive to changes in relative wages. Dolton (1990) also found that there is considerable inertia to remain in teaching, and suggested that this effect may be partially due to the different individuals' subjective evaluation of the relative 'pecuniary and non-pecuniary' rewards to teaching. Chevalier et al. (2001) overviewed the market position for teachers in the UK from 1966 to the mid 1990s using graduate cohort data from 5 separate cohorts of university graduates, 1960, 1970, 1980, 1985 and 1990. The use of this data allowed them to simulate the effect of possible teacher pay rises over time. They found that relative wages in teaching compared to alternative professions have a significant impact on the likelihood of graduates choosing to teach, although the impact depends upon the market situation at the time. Whilst relative pay affects the decision to become a teacher, it also affects career choices. Research work by Dolton et al. (1995) shows the significance of relative earnings in turnover decisions

of teachers. The results suggest that the higher the relative earnings of teachers, the less likely they are to leave teaching.

Work by Court et al. (1995) using the Labour Force Survey concluded that total labour market conditions, especially in terms of unemployment levels, were also important in the supply of teachers. The work of Dolton et al. (2003) supports these findings with time series data over the whole post war period. They found that the supply of graduates to teaching is 'counter-cyclical' with most graduates' perception of teaching and willingness to enter teaching profession improving when graduate prospects are poor in alternative occupations and when graduate unemployment is high.

Another characteristic of teaching is its comparatively high union rate. There is strong evidence that the outcome of teacher wage negotiations is influenced by union density. Bee and Dolton (1995), using a comprehensive time series data set, find that the power of teacher unions, as measured by union density, has a significantly positive impact on wage negotiations; an increase in the union density by 10 percentage increase wages by 2 percentage. Dolton and Robson (1995) also suggest that the concentration of this power into fewer unions representing the membership has a significant positive impact on wage negotiations.

Another important factor in the supply of teachers is that it is a career, which is relatively popular with women graduates. The fact that women frequently make decisions about establishing a family and, consequently, whether to enter the workforce at the same time is a significant factor in the difference between the vocational choices of men and women. This is especially true in the teaching profession, as it is believed that family formation and teaching are complementary. This is due to the comparatively small number of hours that must be spent in school,

their convenient time of day, the amount and timing of holidays, and the ease with which one can resume teaching following a break in their employment (Chevalier & Dolton, 2004).

This large feminisation of the profession adds some difficulties to the planning of the supply of teachers as most women will at some points interrupt their career for childbearing reasons; twelve percents of primary teachers who resigned do so for maternity or family care reasons (Smithers & Robinson, 2003). Strinebrickner (2001) also estimate that relative to men, women are more likely to exit teaching. Dolton and Mavromaras (1994) find that women are more likely to choose a career in teaching than men over most of the array of pay conditions. That is, they are more likely to change their minds and become teachers in the event of a 10-percentage increase in relative wages of teachers. An analysis of the role of non-pecuniary factors in the choice of occupation has been conducted by Dolton et al. (1989). They show that such factors are very important in the choice of teaching as an occupation, and in particular these factors seem to be more important for female than male graduates.

Corcoran et al. (2004) discover that from the middle of the 1960s, the employment market for women has undergone significant transformation, with traditionally masculine occupations like law and medicine becoming more accessible to women. Using information from five longitudinal surveys of high school graduates from 1957 to 1992, they discovered that although the average new teacher's verbal and math test scores had decreased only marginally, the chance that a female student from the top of her class would become a teacher had decreased significantly. Bacolod (2005) also arrived at a similar conclusion. Using indices of teacher quality such as test scores and selectivity of undergraduate institution, she

establishes an empirical link between an increase in professional opportunities for women and a decline in the quality of teachers as measured by these indices. In a study of the relationship between teacher gender and student outcomes, Dee (2007) finds that same gender matches between teachers and students improves student learning.

An excessive increase in the administrative burden of paper work that teachers must complete is a significant contributing factor to the high rate of professional turnover. Indeed, it's possible that fresh applicants were turned off by this administrative hardship. The government commissioned an independent investigation on teacher working conditions because of the level of concern surrounding this topic (Coopers & Lybrand, 1998). The research report by Smithers and Robinson (2003) suggests that teachers are more over-burdened with paperwork than they could or should be. Interviewed of teachers leaving the profession also confirms that heavy workload and school characteristics ranked higher than salary as a reason for quitting. Other evidence from Chevalier et al. (2002) suggests that teachers are less satisfied in their jobs with respect to key attributes associated with the conditions of work than comparable graduates working in other fields. Teachers are particularly dissatisfied with pay and hours worked; compared with other graduates, teachers are 12 percentage points more likely to claim to be dissatisfied with the number of hours worked.

McKenzie (2018) examines teacher supply in Arkansas using survey data collected in 2017 and data publicly available from the Arkansas Department of Education to study how teacher supply varies by district, grade level, and subject across the state. The results presented indicate that there is no a uniform teacher shortage across the state, but that teacher supply is unequally distributed.

Multivariate analyses are consistent with descriptive findings, and demonstrate that district enrollment, urbanicity, and geographic region have the most influence on teacher supply across Arkansas. In particular, districts that have the most favourable teaching supply are larger districts with enrollments greater than 3,500. Urban and suburban districts, as well as districts in the Northwest appear to have a significant advantage in attracting teachers. Districts that face a greater challenge in attracting teaching supply are those in the Central, Southwest, and Southeast regions, and those in rural areas. Beginning teacher salary is not found to be significantly related to district teacher supply.

McLeskey et al. (2004) provides an analysis of factors influencing the supply of and demand for special education teachers. Initially, the magnitude of this shortage is addressed, considering variances that exist by personnel type, locality, and job description. This is followed by an analysis of trends in the supply of and demand for special education teachers, considering factors such as student enrollment, production of teacher education programs, and the reserve pool. Finally, illustrative examples of strategies used by specific states and districts to resolve shortage problems are provided.

The overall review of global trends in demand for and supply of teachers reveals the following common challenges: Demographic Shifts (Urban Migration, population decline), teacher attrition and ageing workforce, low salaries and undervaluation of profession, policy and administrative inefficiencies and educational reform mismatches with workforce realities.

Trends of demand for teachers and supply of teachers in Europe is shown in Table 1 given below.

Table 1

Trends of Teacher Demand and Supply in Europe

Theme	Observations
Determinants of Supply & Demand	Schools in Norway, Sweden, Denmark, Ireland, and Wales were forced to close as a result of declining rural populations and urban migration. The demand for teachers in rural areas was further decreased by economic considerations (decentralisation, recession).
Workforce Characteristics	Mixed teacher workforce. Finland stands out with a highly qualified and valued workforce, while Italy and France face ageing teachers and gender imbalances.
Notable Policies & Events	Significant school closures from the 1950s to the 2000s. Workforce imbalances were brought on by COVID in Germany and post-Soviet consequences in Finland. Although the UK implemented significant reforms (such as the Burnham Committee), it still has challenges with employee retention and professional image.

Source: Chevalier & Dolton (2004), Burnham Committee (1965), Barbieri et al. (2008), Sigsworth & Solstad (2005), Egelund & Laustsen (2007), Autti & Hyrey-Beihammer (2014), Valijavi et al. (2002)

From Table 1 given above, it is clear that, countries like Norway, Sweden, Denmark, Ireland, and Wales experienced school closures due to rural depopulation, urban migration, economic restructuring etc. Finland is a success story with high teacher qualification levels, strong societal respect for the teaching profession and high retention. France and Italy show challenges of ageing workforce, gender imbalance, especially in Italy with over 75 percentages of teachers being female. In France, low wages and lack of recognition deter new entrants. Waves of school closures occurred from the 1950s onward, reshaping the landscape of rural education. Finland saw a second wave of closures after the post-Soviet economic collapse, affecting educational infrastructure. Germany anticipates a shortfall of teachers, with

COVID worsening supply and morale issues. The UK, despite reforms like the Burnham Committee (1965) which aimed to standardize pay and conditions, still faces retention issues due to poor working conditions and public perception and decline in enrolment in teacher education.

Trends in teacher demand and supply in United States of America is given the following Table 2.

Table 2

Trends in Teacher Demand and Supply in United States

Theme	Observation
Determinants Supply & Demand	Accountability reforms and state-level licensing diversification (e.g., Texas) have impacted supply and professional reputation.
Workforce Characteristics	Teacher prestige has declined. Increased alternative licensing has not brought about positive changes
Notable Policies/Events	Licensing flexibility helped for a while but not effective in sustaining teacher workforce

Source: Guthery & Bailes (2023)

The table 2 shows that, accountability reforms and state-level diversity of license pathways, like those in Texas, have influenced patterns in teacher supply and demand in the United States. While these measures originally increased supply, they eventually had an impact on the stability and reputation of the profession. Although alternate certification pathways were implemented to alleviate shortages, they have not been successful in promoting long-term retention or raising the calibre of teachers, and the workforce is seeing a decline in professional recognition. All things considered, governmental initiatives have succeeded in offering temporary solutions but have not succeeded in creating a respected and long-lasting teaching profession.

The following table shows trends in teacher demand and supply in Australia.

Table 3

Trends in Teacher Demand and Supply in Australia

Theme	Observation
Determinants Supply & Demand	Geographic disparities significantly affect teacher supply, especially in remote regions
Workforce Characteristics	Varies by state. Victoria is highlighted with proactive manpower planning
Notable Policies/Events	State led policies and decentralised control improves adaptability

Source: Victorian Department of Education and Training Report (2020)

Geographical differences have a significant impact on teacher supply and demand in Australia, with ongoing shortages in rural and isolated locations. States differ in their teaching workforces, but Victoria stands out for its proactive and successful manpower planning techniques. Because of the nation's decentralised educational system, each state is able to enact customised policies, which improves their capacity to respond to regional demands and difficulties in hiring and assigning teachers.

Trends in teacher demand and supply in Africa is given in the following Table 4.

Table 4

Trends in Teacher Demand and Supply in Africa

Theme	Observation
Determinants Supply & Demand	Budget constraints, high attrition, HIV/AIDS impact, poor working conditions, and contractual employment dominate Sub-Saharan regions.
Workforce Characteristics	Many are underqualified (e.g., 40% in Lesotho), and female teacher supply is inconsistent
Notable Policies/Events	Efforts in South Africa to double workforce by 2030 (NDP); education seen as poverty eradication tool.

Source: UNESCO (2022), Van der Berg et al. (2022)

The table shows that a complicated combination of financial limitations, high attrition rates, the effects of HIV/AIDS, unfavourable working conditions, and a pervasive reliance on contract work influence the supply and demand for teachers in Sub-Saharan Africa. Due to these difficulties, a sizable percentage of instructors are underqualified; in Lesotho, for instance, 40 percentage teachers are underqualified. The region's representation of female teachers varies. Notwithstanding these problems, nations like South Africa are making bold attempts to provide universal access to education and double the number of teachers by 2030, including through the National Development Plan. Education is seen as a crucial tool for reducing poverty in Africa.

Trends in demand for teachers and supply of teachers in Asia are given in the Table below 5.

Table 5

Trends in Teacher Demand and Supply in Asia

Theme	Observation
Determinants of Supply & Demand	Enrolment pressure (India), bureaucratic delays (Kuwait, India), and political interference (Pakistan). China and Bhutan have made proactive supply strategies.
Workforce Characteristics	Increasing feminisation (China, Bangladesh), lack of qualification clarity (Sri Lanka, Pakistan). Opaque and politicised recruitment in many nations.
Notable Policies/Events	Innovative reforms in India (Karnataka's tech-led hiring); Bangladesh’s nationalisation of schools (1973); Bhutan's evolution from dependency to self-sufficiency.

Source: Dai et al. (2022), Ramachandran et al. (2018), Jha et al. (2016), Asian Development Bank (2017), BEPS (2002), Mahmood (2014) Lhaden (2016)

The above table shows that, the thematic analysis of teacher demand and supply trends in Asia reveals several key factors influencing workforce dynamics. Determinants like

enrolment pressure in India, bureaucratic delays in India and Kuwait, and political interference in Pakistan are major contributors to challenges in supply and demand. In contrast, China and Bhutan have adopted proactive strategies to address supply issues. The workforce is characterized by increasing feminisation in countries like China and Bangladesh, alongside a lack of qualification clarity in Sri Lanka and Pakistan, with opaque and politicised recruitment processes common across many nations. Notable policies include India's innovative tech-led hiring reforms in Karnataka, Bangladesh's nationalisation of schools in 1973, and Bhutan's shift from dependency to self-sufficiency in education.

In spite of alarming shortage of teachers in India, there are no much research endeavours taken place with academic interest that excavates deeper into determinants of demand and supply of teachers in India. The state of Kerala is having entirely different educational ecosystem from other states in India. So, the demand and supply of teachers in Kerala is distinct from other states.

Summary and Research Gap

A thorough review of literature highlights the need for systematic and comprehensive investigations into teacher labour market. Unlike any other labour market, it reflects distinct characteristics and attributes in respect to different geographical, social and cultural terrains. The review reveals a wide gap to be explored further. Evolution of teacher job in Kerala from Ashan to modern teacher is influenced by different social and political factors. In depth analysis of modern practices of manpower planning and recruitment is required to understand various dimensions of the modern teacher and the profession of teaching. The Two-Sided Matching Model and Non-Market Institutions, and Frictions Theory imply the need for break down analysis of the structure of labour market. The structure of labour

market is different across the states. Hence, a deeper excavation of the structure of teacher labour market and behaviour of participants, organisation of institutions, nature of the forces of demand and supply are to be uncovered to get deeper insights and policies. The forces of demand and supply originate and get influenced by various social, political, cultural and economic factors. When the determinants of demand for teachers are more institutional and mechanical, the determining factors of supply of teachers are more humane in nature. A dual approach of investigation, which is absent in most of the inquiries into demand and supply of teachers across the globe is essential to learn the teacher labour market. It means the investigation should be undertaken both in terms quality and quantity.

Chapter 3

METHODOLOGY

METHODOLOGY

"One of the crucial steps towards recruitment is to establish a mechanism to assess the demand and plan the supply periodically"

- (UNESCO, 1979)

Contents

The methodology for analysing the demand and supply of teachers involves a systematic investigation to various social, cultural and economic factors that determine the nature of labour market. The study begins with a comprehensive review of existing literature to identify key factors influencing teacher demand. The development of the tools and techniques for collecting data and interpretation of collected data followed. The present study analyses the determinants of demand and supply in Kerala teacher labour market. Data collection methods include surveys and interviews with stakeholders such as teachers and educational administrators along with analysis of secondary data from government reports, educational statistics, and institutional records.

In this chapter, the overall design of the study is explained. The objectives, variables, conceptual frame work are described. The methods for collecting data about the determinants of both demand for and supply of teachers and data analysis techniques are accounted in detail.

The methodology of the study is described under the following major sections:

- Design of The Study
- Variables
- Tools and techniques used
- Data Collection Methods
- Sample used
- Statistical Procedures Used

Design of the Study

The present study is qualitative in nature. It analyses the demand for and supply of teachers in the state labour market. Further, it examines the determining factors of demand and supply. There are three phases in the present study as shown in Figure 3.

Phase 1

First phase includes the preliminary interview with educational administrative officers. The preliminary interview helped the investigator to create a thorough understanding about the teacher labour market of state. On the basis of the preliminary interview, the investigator with the help of supervising teacher created a design of further steps in the study.

Phase 2

Phase 2 included collection and analysis of secondary data from District Educational Offices, Kerala Public Service Commission, Department of Economic and Statistics and government reports published. The investigator used Right to Information Act 2005 for getting information from various government departments.

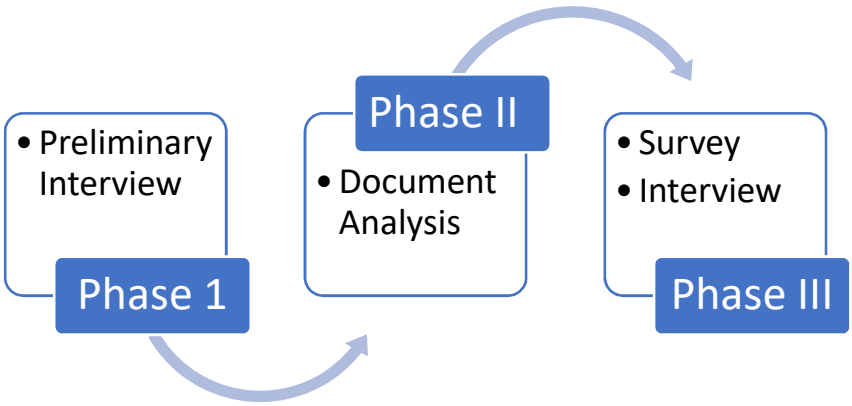
Phase 3

Phase 3 consisting of collection of primary data from teachers and principals of unaided schools. The investigator used a questionnaire to collect data from teachers and interview schedule to collect data from principals of unaided schools.

The following figure shows the design of study used:-

Figure 3

Design of the Study



Variables of Study

1. Factors Influencing Demand for Teachers
2. Factors Influencing Supply of Teachers

Techniques Used in the Study

For the study of demand and factors influencing demand for teachers, the investigator used document analysis.

Document Analysis

Documents are an important source of data in many areas of investigation. The analysis is concerned with explanation of the status of some phenomenon at a

particular time or its development over a period of time. It serves as useful purpose in adding knowledge to the fields of inquiry and explaining social events (Best & Kahn, 2017).

Sources of Secondary Data used in the Study

The investigator collected secondary data from various sources as detailed below for conducting the study.

a) District Educational Offices
b) Kerala Public Service Commission
c) Published and Unpublished Government Documents

a) District Educational Offices

The investigator sought information from the 14 Offices of Deputy Directors of Education, using RTI, to find our exact number of teachers in Kerala at Lower Primary, Upper Primary and High School levels, precise number of teacher vacancies created every year during the period from 2017 to 2022 and reported to Kerala PSC, number of teachers kept in the teacher banks etc. Copies of registers and reports were collected from District Educational Offices in state, regional offices of Kerala Public Service Commission and Department of Economics and Statistics. Most of the records were collected using RTI. The researcher also explored the official websites for collecting latest information. The Offices of Deputy Directors of Education in 14 districts replied as follows:

Table 6

Responses from Offices of Deputy Directors of Education

No	District	Responses from Office of Deputy Directors from District Educational Offices
1	Kasaragod	• Gave direction to provide information to AEOs and HMs of unaided schools. • Details of government teachers can be collected visiting directly
2	Kannur	• Visit personally and collect data from files without disturbing the office working • Aided school data is not kept because Director of Education only does the approval of the appointments by the Managers. • For more details visit official website of General Educational Department: http://education.kerala.
3	Wayanad	• Information about the teacher vacancies are kept in different files in this office. Collecting data from such files shall affect the working of this office. So, investigator can collect them personally from office after paying the fees
4	Kozhikode	• Information about the teacher vacancies and reporting to Kerala Public Service Commission were given • Contact Head Masters in respective schools for data regarding Aided and Unaided Schools
5	Malappuram	• Details of lower primary school teachers' vacancies and upper primary school teachers' vacancies were provided • Enrolments on 6th working day of the academic years 2018-19, 2019-20, 2020-21 and 2021-22 were provided
6	Palakkad	• Information about teacher vacancies was provided • Contacted 15 AEOs in the district for information about Aided and Unaided school teachers
7	Thrissur	• Only the information about the number of students and number of teacher vacancies in government schools was given. • Aided school appointments are made by the managers hence, the vacancies are not reported to the office.

No	District	Responses from Office of Deputy Directors from District Educational Offices
8	Ernakulam	• Information regarding the vacancies of both government teachers and aided teachers were provided
9	Idukki	• Information about 3 academic years is only in records. The information about teacher vacancies in 2017-18 is not available and that of 2021-22 is in the process of collecting by the office • For getting data for 5 academic years, investigator can personally visit the office and check the registers • Gave direction to subdistrict education offices and Head Masters in schools
10	Kottayam	• Get copies of the registers after paying chalan • List of district education offices and Assistant Educational offices are provided
11	Alappuzha	• Information about teacher vacancies under government sector and number student enrolment in various academic years was given. • No Information about Aided and Unaided schools
12	Pathanamthitta	• Information about number of teachers working schools in the years 2018-19, 2019-20 and 2020-21 was provided. • Information about the number of teachers in teacher banks in the years 2017-18, 2018-19 and 20219-20 was provided. Staff fixation was done in the years 2020-21 and 2021-22, hence no change in number of teachers in teacher banks during this period. • Information about number of students in lower primary, upper primary and high school levels in Government, Aided and Unaided schools was provided. • Copies of some registers shall be sent after the remittance of chalan
14	Thiruvananthapuram	• Details of teacher vacancies in government schools were provided • Details of Aided and Unaided, teacher banks etc. are not kept with office

b) Kerala Public Service Commission

Kerala Public Service Commission (KPSC) is a constitutional institution which controls and conducts the selection and appointment of qualified and deserving employees into various state government services. Kerala PSC calls for applications through notification of teacher vacancies and qualified teachers, who are willing to work, make their applications. The applications are scrutinised and eligible candidates are selected through examinations and interviews.

To analyze the demand for teachers, the researcher attempted to collect data from 14 regional offices of Kerala Public Service Commission through Right to Information Act 2005. Inquiry was based on two questions:

1. How many teacher vacancies in Lower Primary, Upper Primary and High School were notified by Kerala Public Service Commission for each teacher recruitment exams held during the period from 2015 to 2022?
2. How many applications were received for each notification?

A proforma for providing data was also attached as follows:

Exam Date	Name of Examination	No. of Vacancies	No. of Applicants

The responses from regional offices of Kerala PSC for the above inquiry using RTI was as follows:

Table 7

Responses from Regional Offices of Kerala Public Service Commission

No.	District	Responses from Regional Offices of Kerala Public Service Commission
1	Kasaragod	Unable to answer because the information demanded is not kept with the office in the prescribed format
2	Kannur	Unable to answer because the information demanded is not kept with us in the prescribed format
3	Wayanad	Unable to answer because the information demanded is not kept with office in the prescribed format
4	Kozhikode	Unable to answer because the information demanded is not kept with office in the prescribed format. Visit official website of Kerala Public Service Commission
5	Malappuram	Records are not kept with us
6	Palakkad	Visit website for notifications More information can be given if the name of exam and date of exam can exactly be provided.
7	Thrissur	Visit official website
8	Ernakulam	Information about Lower Primary School Assistants and Upper Primary School Assistants exams from 2017 to 2022 was provided.
9	Idukki	Visit official website to view number of vacancies notifications and number of applications.
10	Kottayam	Unable to answer because the information demanded is not kept with office in the prescribed format
11	Alappuzha	Visit official website or check our office registers
12	Pathanamthitta	Unable to answer because the information demanded is not kept with office in the prescribed format. Number of vacancies are published in respective notifications. Investigator can visit office and check the registers freely for the first hour and with payment for the rest of hours.
13	Kollam	Provided data from the year 2017 to 2022 as requested
14	Thiruvananthapuram	Number of vacancies are published in respective notifications Number of applications can be found from official website of Kerala PSC.

As the information from many regional offices of Kerala PSC was incomplete, for more detailed data the investigator examined 178 teacher recruitment notifications along with their examination schedules issued by Kerala Public Service Commission from the year 2015 to 2022 as shown in Table 8 given below from the official website of Kerala Public Service Commission as directed by some regional KPSC offices. There were more examinations in 2016 and 2022 as shown in Table 8. In 2022, there were 57 examinations. Lesser number of examinations were conducted from 2018 to 2020.The state was hit by Corona from January 2020 to 2021. But the lowest number of examinations were held in the year 2019.

The number of examinations conducted by Kerala Public Service Commission to select qualified textures from 2015 to 2022 is given in the following Table 8.

Table 8

Total Number of Teacher Examinations Conducted by Kerala PSC from the Year 2015 to 2022

Year	No. of Examinations
2015	10
2016	52
2017	18
2018	8
2019	2
2020	9
2021	22
2022	57
Total	178

Information regarding the number of applications for each notification was collected from examination schedules and ‘status of post’ link in the official website of KPSC.

c) Published and Unpublished Government Documents

In order to get information regarding the determinants of demand, the investigator collected the following documents from District Educational Offices for document analysis:

a. Vacancy Registers
b. Vacancy Reporting Registers
c. Cadre Strength Registers

A detailed study of the above mentioned documents helped the investigator to collect information about determinants of teacher demand. For a descriptive analysis of these determinants, the investigator further added the following documents into the document analysis:

a. Government of Kerala Economic Review of different years (2015 to 2024) published by Kerala State Planning Board
b. Reports of the expert committee under the leadership of Prof. M.A. Khader. Part1-published in January 2019 and Part 2- published in September 2022.
c. Judgements of High Court of Kerala
d. Circulars and orders of public education departments
e. Official website of Kerala Public Service Commission

Tools Used in the Study

The tools used in the study were the following:

1. Questionnaire on Factors Influencing Supply of Teachers (Noufal & Naseema, 2021)
2. Interview Schedule to Principals of Private Schools (Noufal & Naseema, 2021)

Description of Tools

Tools for collecting data were developed by the investigator under the guidance of supervising teacher. A brief description of the tools used under this study are described below.

1. Questionnaire on Factors Influencing Supply of Teachers (Noufal & Naseema, 2021)

A questionnaire was prepared for the teachers to know the factors determining their decisions to choose and remain in the profession of teaching. 35items were included in the questionnaire in which the responses were categorized into 'Agree', 'Disagree' and 'No Opinion'. The items were prepared under the following dimensions:

Table 9

Dimensions in Questionnaire on Factors Influencing Supply of Teachers

No.	Dimension	Item Numbers	Total No. of Items
1.	Status of the profession	1, 8, 15, 22, 29	5
2.	Incentives & Benefits	2, 9, 16, 23, 30	5
3.	Occupational Choices	3, 10, 17, 24, 31	5
4.	Prestige of Schools	4, 11, 17, 25, 32	5
5.	Support from Management & Colleagues	5, 12, 18, 26, 33	5
6.	Teacher Autonomy	6, 13, 19, 27, 34	5
7.	Professional Development Opportunities	7, 14, 20, 28, 35	5
	Total Number of Items		35

Personal reflections and professional considerations were taken to account while framing the questions to understand the actual factors that determine the supply of quality teachers into the market.

Description of Dimensions in the Questionnaire

Theoretical explanation of each dimension and its relevance are presented below:

1. Status of the Profession (5 Items):

The dimension explores the perceived social status and prestige of the profession as factors driving individuals to choose and remain in the teaching profession. It examines whether the status of the profession in the society has prompted the individual to choose the profession. This dimension also studies whether the respect that the profession possess in the society is an attribute of the career decisions of the individuals. The dimension also inquires whether the satisfaction of the teacher from getting the respect and value in the society and belief that the profession has some sort of social recognition determine the entry and retention in the profession.

E.g. The respect and status of the teaching profession have inspired me to choose teaching.

2. Incentives and Benefits (5 Items)

Stability and financial rewards are significant factors influencing career preferences. Objective items such as salary, incentives, retirement benefits, and other financial and non-financial advantages reflect the economic and practical aspects of the profession. These items highlight the significance of such advantages in attracting and retaining teachers.

E.g. Salary and benefits are important factors in my career decision

3. Occupational Choices (5 Items)

The investigator made use of John Holland's Theory of Career Choice to frame questions under this section. The theory explains that in choosing a career,

people prefer jobs where they can be around others who are like them. They search for environments that will let them use their skills and abilities, and express their attitudes and values, while taking on enjoyable problems and roles (Holland, 1959). These are the factors that influence an individual's decision to pursue a particular career. It includes personal interests, values, skills and abilities, personality traits, lifestyle preferences, aspirations, adaptation to environment etc.

E.g. Teaching is a profession conforming to my personal tastes and preferences

4. Prestige of Schools (5 Items)

Since teachers may be more inclined to pursue opportunities at highly regarded institutions due to factors like higher salaries, better resources, increased professional recognition, etc., the prestige of a school can have a significant impact on their decision to prioritise a position there above others. Prestige of schools could be significant when the teachers perceive that reputed schools can provide better job satisfaction through its abundant opportunities of growth and development.

E.g. Working in reputed schools in terms of discipline and academic performance shall be helpful for growth and development as a teacher

5. Support from Management & Colleagues (5 Items)

The schools in which teachers work must have a caring, collaborative, and inclusive school culture, which encourages excellence, curiosity, empathy, and equity (Ministry of Human Resource Development [MHRD], 2019). Supportive environment helps to handle stress, burnout, and job-related difficulties. A sense of community and workplace happiness are fostered by understanding and encouragement of co-workers and management. When management invests in training, mentorship programs, and career growth, teachers feel valued and

motivated to stay in the profession. Supportive colleagues create an environment, where teachers can share ideas, solve problems together, and avoid professional isolation. Feeling appreciated through recognition programmes, feedback, and rewards enhances job satisfaction and commitment.

E.g. To have a combination of acknowledging management and positive co-workers are important in my work.

6. Teacher Autonomy (5 Items)

Autonomy is the individual's ability to decide about initiating, continuing, and correcting the action (Hu & Leung, 2003). Teacher autonomy is the authority of teachers to control their work environment and themselves (Pearson & Moomaw, 2005) and make choices about what and when to teach (Aoki, 2000). It includes the ability of teachers to make decisions about their students' development levels, success or failure (Crawford, 2001), the processes of measuring and evaluating student success, and behavior, student discipline, the classroom environment, and activities. Teachers must have the autonomy to innovate and teach in the style that best suits them and their students. (Ministry of Human Resource Development [MHRD], 2019).

E.g. The reason that prompts me to stay in teaching profession is the freedom I enjoy to plan and perform my job on my own

7. Opportunities for Professional Development (5 Items)

According to Daft National Education Policy (2019), Professional development provides opportunities for increasing teacher motivation through the sharing of ideas and best practices with peers. Teachers must have robust opportunities for professional development, and access to learning the latest advances and ideas in both pedagogy as well as subject content and they must feel

part of a vibrant professional community. (Ministry of Human Resource Development [MHRD], 2019).

E.g. I feel this profession is highly helpful in continuous revival and improving my skills

Mode of Responding

There were 35 items in total in the questionnaire. For each item, three answers 'Agree', 'No Response' and 'Disagree' were provided. The subjects were asked to select answer which they feel most appropriate. The questionnaire was prepared using 'Forms App' application and was sent to teachers so that they can respond using their mobile phones comfortably.

Scoring

The questionnaire was prepared to understand the determinants that drive teachers to supply their quality service. There are 7 dimensions and each dimension contained 5 statements. Responses for each statement were scored as 2, 1 and 0. The responses that 'Agree' with statement was scored by 2. The responses which 'Disagree' with statement was score by 1 and those responses with 'No opinion' were scored by 0.

Validity and Reliability of the Questionnaire

The validity of a research tool refers to the extent to which it accurately measures what it is intended to measure. It ensures that the instrument produces results that are consistent with the underlying concept or construct being studied. Ensuring validity of the research tool is an essential component in research methodology. In the present study, the finalization of questionnaire was made after thorough review of related literature, discussion with experts and supervisor. These processes ensure the face validity of questionnaire.

Reliability is essential for ensuring that the questionnaire provides trustworthy data that can be used confidently in research. The reliability of a questionnaire refers to its ability to produce consistent and stable results over repeated administrations under similar conditions. A reliable questionnaire ensures that the data collected is dependable and not significantly influenced by random errors, such as unclear wording, respondent misunderstanding, or variations in administration. Reliability of the questionnaire was ensured by cross checking responses obtained with answers in the interview schedule.

2. Interview Schedule for Principals in Unaided Schools

An interview schedule was prepared to conduct interview of principals in unaided schools including open-ended questions in the following dimensions:

1. Socio-Economic Factors
2. Reputation of School
3. Programmes in Schools
4. Academic and Non-academic Achievements of Schools
5. Feed back of Parents and Students
6. Proficiency in English
7. Discipline Schools
8. Changes in Technology

The details of the dimensions of the interview schedule are given below:

1. Socio-Economic Factors

It includes economic status of parents, economic status of management and Parental Preferences. The economic status of parents and schools, parental preferences, etc. The financial status of parents leads to the willingness to pay more

for the education of the ward which leads to a pressure in employment of a greater number of qualified teachers in school. Similarly, the managements with more investments tend to make recruitments every year. Parental preferences in academic enrichment of the children also prompt the management to acquire more teachers instead of relying on a few teachers handling different subjects. Most of the schools running in unaided sector are run by some religious communities. Thus, the communal polarization of parents also leads to their orientation towards particular community schools and curriculum which includes aspects of their community or religion. It can also result in the demand for more teachers.

Eg: How does the economic status of the parents affect the demand for teachers in your school?

2. Reputation of School

The schools with good reputation attract more students and always create opportunities for new teachers. Similarly, managements of such schools make quality check every year and conducts fresh recruitments. Teachers also prefer schools. So, they knock the doors of such school every time which lead to the recruitment by management.

Eg: How important is the reputation of the school in attracting new students and staff?

3. Programmes in Schools

Arts fests, sports events, motivation programmes, celebrity visits, excursions, exhibitions etc. attract more students and it may lead to more demand for teachers. Thus the schools with more such programmes can always have more influence on parents who in turn tend to send their wards to the particular school. Further, parents

who are aware about the importance of give such exposures to the children would prefer schools with more activities.

Eg: What kinds of extracurricular programmes are regularly conducted in your school?

4. Academic and Non-academic Achievements of Schools

Academic and non-academic accomplishments of school can lead to more intake in schools which in turn results in increase in the number of teachers. Academic and non-academic achievements are the marks of quality of the schools and attempts of schools to enrich the capacities of their children. Such accomplishments make the school distinct from other schools.

Eg: Has an increase in student numbers because of achievements led to increased teacher recruitment?

5. Feedback of Parents and Students

The parents of unaided schools are more vigilant as they spend money directly for the education of their child. So, they give immediate feedback to the performance of teachers in class rooms. Elder students also respond to the teacher evaluation surveys honestly which forces management to promote the best performing teachers, leave under performers and hire more teachers.

Eg: How does parental vigilance in unaided schools influence teacher retention?

6. Proficiency in English

Importance given to the English proficiency in the school policy has led to the firing of teachers who lack linguistic skills and hiring of proficient teachers in such schools. Most of unaided schools are teaching in English medium. Parents send

their wards to such schools expecting the proficiency of their children in English. Thus, the English communication skills of teachers can be an important factor of demand for teachers.

Eg: Has a lack of English proficiency of teachers ever led to the replacement of teachers?

7. Discipline in Schools

School which maintains high discipline in school creates demand in two ways. Firstly, more parents are attracted to send their children to such schools. The increase in enrolment lead to acquisition of more teachers. On the other hand, such schools are very rigorous in the performance of teachers. So, the underperformers will be forced to leave profession which leads to staff recurrent recruitment.

Eg: How does the school discipline affect teacher evaluation and recruitment?

8. Changes in Technology

Technology changes such as introduction of smartboards, online classes, AI applications etc. forces teachers to get trained and adapted to the modern systems of technological changes. Thus, the teachers who are capable of adaptation survive and those who are not exit the system. So, the frequent technological updating is essential for a teacher to introduce innovative teaching practices. So, the changes in technology can also have influence on demand for teachers.

Eg: How do you ensure that teachers adapt to new technologies like smartboards, online platforms, or AI tools?

Administration and Scoring

The investigator personally visited principals of unaided schools after getting prior appointments for a comfortable interview. Open-ended questions were asked in interview. Additional questions were asked sticking to the interview schedule for more details. Subjective data was analysed and unnecessary details were eliminated. Percentages were calculated based on the outcomes of the interview.

Ethical Considerations

- All participants gave their informed consent to the researcher in surveys and interviews.
- The researcher has guaranteed the privacy of sensitive data gathered via surveys and interviews.
- The researcher has taken care to analyse and report using anonymised data.

Sample Selected for the Study

The primary purpose of research is to discover principles that have universal application (Best & Kahn, 1992). But studying the whole population is difficult. Then a small proportion who represent the whole population is selected as samples for the study. According to Best (1998) “The sample is taken to represent the total population which is part and a generalization”. A detailed description of samples is given in Table 10. Random sampling method was used to select samples. Teachers working in government, aided and unaided schools at primary, upper primary and high schools levels were selected as samples for the study. There were 220 teachers out of which 144 female teachers and 76 male teachers. Further, in order to get more insights about factors influencing demand and supply of teachers in unaided schools, 10 principals of unaided schools were also taken as samples.

Table 10

Details of the Sample Selected

Sl. No.	Category	Female	Male	Total
1	Teachers	144	76	220
2	Principals of Unaided Schools	2	8	10

Data Collection Procedure

The investigator, with the help of supervising teacher, prepared questionnaire and interview schedule. The questionnaire was converted to digital format using 'Forms App'. After careful planning, the questionnaires were sent to teachers online so that they can comfortably answer the questions using their phone. Investigator contacted the subjects on phone and explained the purpose and method of responding. The data collection took a couple of months. Later, the data was downloaded for analysis. For the interviews with principals, the investigator prepared an interview schedule with the help of supervisor. Then the researcher approached principals in various schools, for conducting an open-ended interview in their comfortable time. Thus, the primary data for the present study was collected through survey and interview.

Statistical Procedures Used

The investigator made use of the following statistical techniques for the analysis of data collected:

Preliminary Analysis

It included key tasks such as cleaning of time series data collected from various documents by eliminating unnecessary parts, summarising the information to make effective categorisation of data, tabulation of data, basic calculating data of 14 districts over different years and identification of basic patterns.

Percentage Analysis

Percentage analysis was used to make comparisons of data easier and more meaningful.

Trend Analysis

Trend analysis is a statistical technique used to identify and analyse trends in data over a period of time by analysing historical data to create insights over the past trends and predict future trends. Trend line is a simple method in statistics in which a line is super imposed on chart to visually represent the overall direction and pattern of a time series data. In order to draw a trendline, first the values of the time series are plotted on a graph. Thus a free handline is drawn connecting the points.

In order to understand the trend of demand for teachers, supply of teachers, employment of teachers, number of schools etc. over a period of time, Trend Line Method was adopted.

Supply-to-Demand Ratio Analysis

Ratio between demand and supply was calculated to understand the proportionate relationship between demand for teachers and supply of teachers in the state. Supply to demand ratio is calculated to understand the relationship between demand for teachers and supply of teachers.

$$SDR = \frac{\text{Supply of Teachers}}{\text{Demand for Teachers}}$$

In the above equation, SDR represents supply to demand ratio. Supply of teachers represents the number of available teachers in a year. Demand for teachers stand for number of teachers required in a particular year. The ratio is calculated by dividing the supply of teachers by demand for teachers.

Chapter 4

ANALYSIS OF DATA & INTERPRETATIONS

ANALYSING KERALA TEACHER LABOUR MARKET

"Nothing is more important than securing a sufficient supply of high quality recruits to the teaching profession" - **(Kothari Commission, 1966)**

Contents

The Kerala teacher labour market is a complex system that encompasses a diverse range of factors such as demand for teachers, supply of teachers, state policies on various aspects such as recruitment and retention etc. As a state with high literacy rate, education is given great importance in the state of Kerala.

The present study analyses the teacher labour market in Kerala to provide insights into the market's dynamics, challenges and opportunities. Analysis and Discussions chapter is divided into 4 sub-sections. Section 1 of the analysis represents a detailed study of labour market for teachers in Kerala using official data from Directorate of General Education and Department of Statistics and Economics. It analyses the structure and components of the teacher labour market. Section 2 deals with analysis of trends in demand and supply forces in the market. It is a systematic investigation based on data related with teacher recruitments in Government sector. A study of relationship between teacher demand and supply based on the data extracted from available official notifications from Kerala Public Service Commission and office records of District educational offices. The chapter also includes the trend of demand and supply and calculation of Supply to Demand Ratio to understand the relationship between supply and demand. In Section 3, analysis of various factors which influences the demand is done. The factors are

collected from the official records in educational administrative offices and interview with suitable personnels. A detailed analysis of factors influencing supply is conducted on the basis of the reflections of existing teachers in Section 4.

Objectives of Study

The study is directed towards the following broad objectives:

- To analyse teacher labour market of Kerala
- To analyse the trend of demand and supply in teacher labour market of Kerala.
- To analyse various factors influencing demand in teacher labour market of Kerala
- To analyse various factors influencing supply in teacher labour Market in Kerala.

Section 1- Analysis of Teacher Labour Market of Kerala

A teacher is a personnel in an official capacity for the purpose of guiding and directing the learning experiences of students

– **Good (1973)**

Contents

The market for teachers functions like any other labour markets, with schools acting as employers of teachers (Dolton, 2004).This market is a crucial component of Kerala's education system, which is renowned for its high literacy rates and emphasis on quality education. The dynamics of this market are influenced by factors such as demand, supply, and institutional structures across government,

aided, and unaided schools. This part of analysis aims to analyse the overall structure of Kerala's teacher labour market, examine the different school sectors, and evaluate the components and supply dynamics.

Kerala's teacher labour market consists of diverse sectors - government, aided, and unaided schools - each with unique characteristics and demand-supply dynamics. Government schools are publicly funded and managed, with teacher recruitment handled through centralized processes such as the Kerala Public Service Commission. Teachers in this sector enjoy job security, attractive remuneration, and additional benefits such as pensions. This makes government schools the most sought-after option for teaching professionals. Aided schools receive partial funding from the government but are managed privately, typically by trusts or religious organizations. Teachers in aided schools receive salaries and benefits similar to those in government schools. However, recruitment processes are influenced by management committees, sometimes leading to issues of transparency and favouritism. These schools serve a significant portion of Kerala's student population, often bridging gaps in areas where government schools are less prevalent. Unaided schools are entirely privately funded and operate independently of government regulations regarding teacher salaries and benefits. These schools cater to diverse demands, including international standards and extracurricular activities, leading to a higher demand for specialized teachers. However, unaided schools often face high teacher turnover due to lower job security and inconsistent remuneration.

A steady supply of qualified teachers exists in government sector due to the prestige and stability associated with government jobs. Recruitment exams and periodic vacancy notifications ensure a competitive and transparent hiring process. The aided sector attracts a mix of experienced and novice teachers due to its comparable benefits to the government sector. However, managerial discretion in hiring can limit the entry of highly qualified candidates. Teacher supply in this

sector is influenced by market conditions, with schools often hiring based on immediate needs rather than long-term planning. Lower pay scales and contractual employment deter many qualified candidates, leading to higher turnover rates.

The teacher labour market in Kerala is a complex and evolving system shaped by the interplay of demand for teachers and supply of teachers across government, aided, and unaided sectors. Each sector has unique characteristics, challenges, and opportunities that influence its functioning. Ensuring an adequate and motivated teaching workforce requires addressing disparities in recruitment, retention, and remuneration. By fostering equitable policies, enhancing professional development opportunities, and addressing regional imbalances, Kerala can strengthen its teacher labour market and sustain its reputation as a leader in education.

In this chapter firstly the structure of teacher labour market of the state is analysed. Then an analysis of the historical evolution of schools in the state from 1956, the year the state was reorganized linguistically after the independence and existence of Indian Union. An analysis of two important micro markets, i.e., districts and levels, which play vital role in the total market system in conducted. Finally, the total distribution of school teachers and the total and level-wise trend of their employment over a period of time are also analysed in this chapter.

Structure of Teacher Labour Market in Kerala

The structure of teacher labour market in Kerala is described under this section. It includes total number of schools in the state, employers of teachers in the state, transformation of school education in Kerala from its formation in 1956 to 2023, micro-markets in Kerala teacher labour market, level wise analysis of total teachers and trends of their employment.

The following figure and table shows the total number of schools in fourteen disturb in Kerala under different types of management:

Figure 4

Total Number of Schools in Kerala in Government, Aided and Unaided Sectors

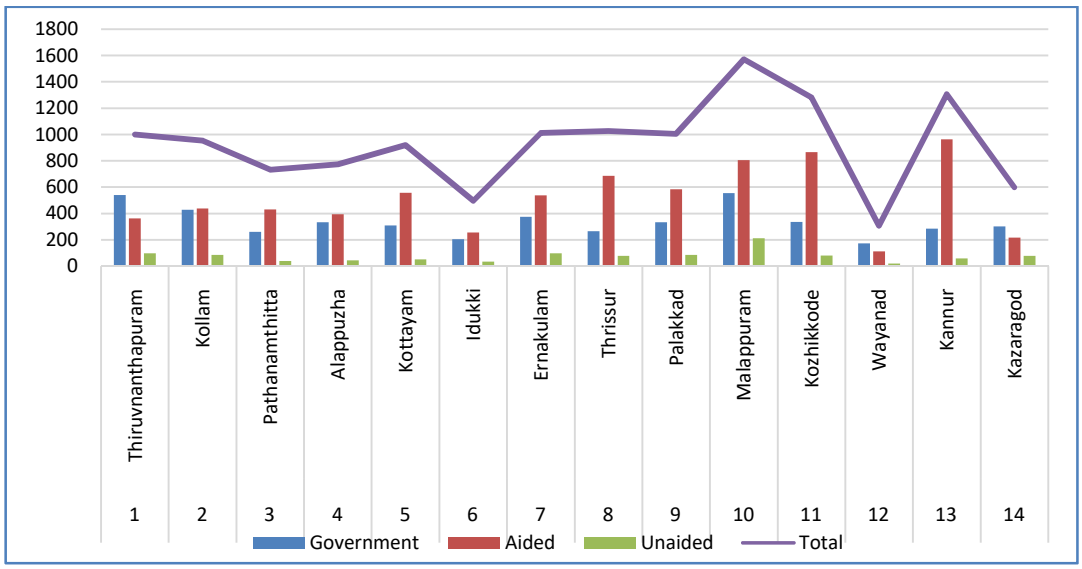


Table 11

Total Number of Schools in Kerala

Sl No	District	Government	Aided	Unaided	Total	%
1	Thiruvananthapuram	539	363	98	1000	7.71
2	Kollam	429	439	84	952	7.34
3	Pathanamthitta	261	430	40	731	5.64
4	Alappuzha	334	394	44	772	5.95
5	Kottayam	309	558	52	919	7.08
6	Idukki	204	256	35	495	3.82
7	Ernakulam	375	538	98	1011	7.79
8	Thrissur	264	685	78	1027	7.92
9	Palakkad	333	585	86	1004	7.74
10	Malappuram	555	806	211	1572	12.1
11	Kozhikode	335	865	81	1281	9.88
12	Wayanad	173	113	19	305	2.35
13	Kannur	285	963	58	1306	10.1
14	Kasaragod	301	217	79	597	4.6
	Total	4697(36%)	7212(56%)	1063(8%)	12972	100

Source: Kerala Economic Review 2023

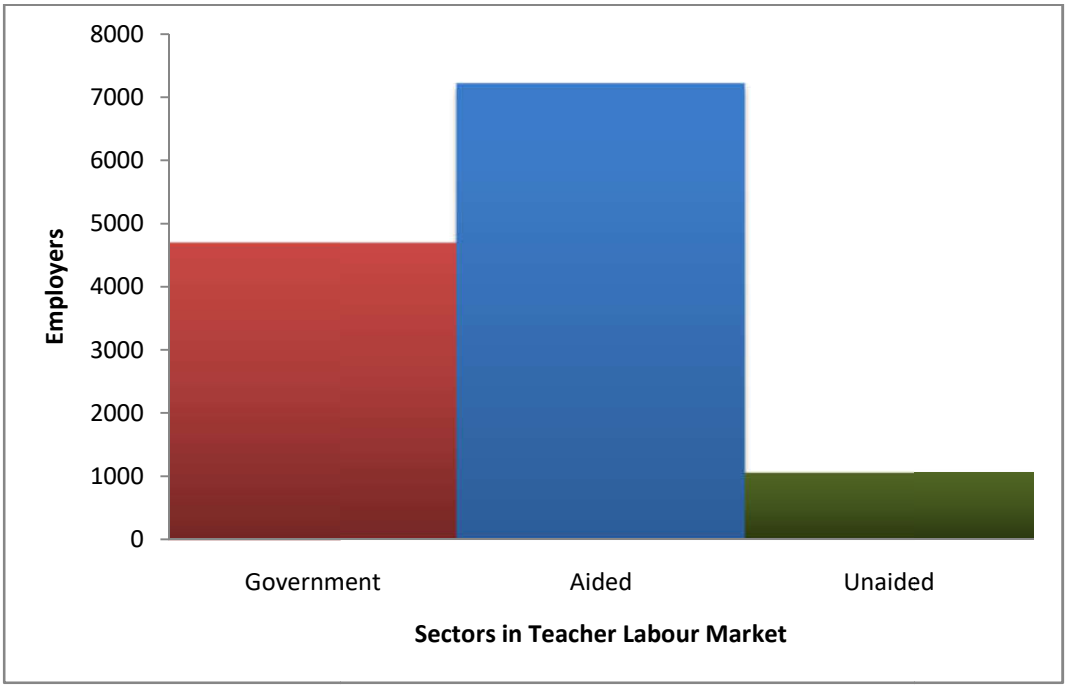
Kerala Teacher Labour Market is composed of Government, Aided and Unaided employers. It is very clear from Figure 4 that the largest employer in Kerala teacher

labour market is Aided sector holding 56 percentage of total schools followed by Government sector having 36 percentage. Unaided schools owned and managed by private individuals constitute the smallest employers' sector in the Market. There is a significant variation in the number of schools across districts. Malappuram district has the highest total number of schools (1,572), while Wayanad has the lowest (305). Kollam has the highest number of aided schools (439), while Wayanad has the lowest (113).Kozhikode has the highest number of government schools (865), while Wayanad has the lowest (173). Malappuram also has the highest number of unaided schools (211), while Wayanad has the lowest (19).

Composition of employers of teachers in government, aided and unaided schools of Kerala teacher labour market is given in figure 5.

Figure 5

Employers in Government, Aided and Unaided Sectors in Kerala



The data indicates that government schools are common in Malappuram, while aided schools are widely distributed throughout Kerala, particularly in regions like Kannur and Kozhikode.

Transformation of School Education in Kerala

When Kerala was formed merging Travancore, Kochi and Malabar provinces in 1956, there were 9137 schools here. Among these schools, 73.32 percentage of schools were lower primary schools i.e., 1627 schools. Only 8.34 percentage schools were high schools. Over these 7 decades, Kerala made historical gallops in the field of Education.

Transformation in number of schools from 1956 to 2023 is given in the tables below:

Table 12

Number of High Schools and Upper Primary Schools from 1956-57 to 2022-23

Year	High School				Upper Primary Schools			
	Gov	Aided	Unaided	Total	Gov	Aided	Unaided	Total
1956-57	140	612	10	762	255	1314	20	1589
1957-58	217	609	8	834	456	1253	31	1740
1960-61	244	640	11	895	530	1400	2	1932
1965-66	345	769	37	1151	761	1672	14	2447
1970-71	442	897	45	1384	811	1723	10	2544
1975-76	566	903	52	1521	880	1711	15	2606
1980-81	789	1122	65	1976	867	1866	20	2743
1985-86	934	1380	108	2422	915	1890	64	2869
1990-91	961	1380	111	2452	960	1883	72	2915
1995-96	976	1394	203	2573	960	1875	129	2964
2000-01	985	1412	218	2615	960	1873	124	2957
2005-06	996	1428	366	2790	954	1870	213	3037
2010-11	1066	1429	379	2874	899	1870	217	2986
2015-16	1162	1406	453	3021	865	1848	266	2979
2016-17	1225	1433	466	3119	875	1871	242	2988
2017-18	1227	1433	499	3119	871	1871	244	2986
2022-23	1229	1433	463	3125	871	1871	258	3000

(Source: Economic Review in respective years and DPI Statistics)

Table 13

Number of Lower Primary and Training Schools from 1956-57 to 2022-23

Year	Lower Primary Schools				Training Schools			Total
	Govt.	Aided	Unaided	Total	Govt.	Aided	Total	
1956-57	1627	4999	73	6699	30	55	87	9137
1957-58	2678	4279	106	7063	32	56	88	9725
1960-61	2719	3954	33	6706	30	49	79	9612
1965-66	2904	4005	45	6954	31	74	105	10657
170-71	2823	4014	49	6886	31	74	105	10918
1975-76	2910	4019	46	6975	31	74	105	11207
1980-81	2712	4100	49	6861	30	62	92	11682
1985-86	2617	4083	145	6845	30	63	93	12229
1990-91	2565	4068	134	6767	31	64	95	12229
1995-96	2521	4040	167	6728	38	64	102	12367
2000-01	2565	4035	158	6758	38	64	102	12432
2005-06	2548	3992	277	6817	*	*	*	12644
2010-11	2538	3979	267	6784	*	*	*	12644
2015-16	2592	3886	404	6882	*	*	*	12882
2016-17	2597	3914	363	6874	*	*	*	12981
2017-18	2598	3912	356	6866	*	*	*	12971
2022-23	2598	3906	330	6834	*	*	*	12959

Source: Economic Review in respective years and DPI Statistics

* After 2005-06, training schools are included among high schools and no more training schools were permitted. Training Schools mentioned here are the schools setup with a demonstration primary school (Upto Std. VII) allowing on-site observation and practice teaching for teacher trainees supervised academically by Headmasters.

Table 12 and Table 13 provide a longitudinal overview of the number of schools across different categories (High Schools, Upper Primary Schools, Lower Primary Schools, and Training Schools) in a span of nearly 70 years (1956-57 to 2022-23). The total number of schools increased steadily from 9,137 in 1956-57 to 12,959 in 2022-23. Growth was most significant during the early years, particularly between 1956-57 and 1970-71, where there was a marked rise of 3,000 schools. Government schools consistently dominated the school landscape across all categories. Their numbers grew, though the rate of growth stabilized post-1980-81, reflecting a focus

on maintaining existing infrastructure rather than expanding it rapidly. In the case of aided schools, numbers remained relatively stable across years, with high school and Lower Primary school contributions staying constant. But unaided schools saw consistent growth, particularly in the High School category, where unaided schools *increased from 10 in 1956-57 to 463 in 2022-23.*

Total number of high schools increased from 762 in 1956-57 to 3,125 in 2022-23. Growth was more significant in unaided schools (from 10 to 463) and government schools (140 to 1,229). The total rose from 1,589 in 1956-57 to 3,000 in 2022-23, a slower pace compared to High Schools. Aided schools continued to form a significant proportion of Upper Primary schools across the years, with modest growth. Despite initial growth, the total number of Lower Primary schools peaked around the 1980s and then began to decline slightly, reaching 6,834 in 2022-23 from 6,699 in 1956-57. The proportion of unaided schools remained minimal compared to government and aided schools. Training schools consistently contributed a small portion to the overall total, with their numbers growing modestly from 87 in 1956-57 to 330 in 2022-23. After 2005-06, training schools are included among high schools because no more training schools were permitted either in Government sector or Aided sectors after this academic year.

The period from 1956-57 to 1975-76 show rapid growth across all school types, particularly High Schools, which doubled in number. From 1980-81 to 1995-96, it was a period of slower but steady growth in total schools, with a focus on improving aided and unaided institutions. There was stabilization in government school numbers but a noticeable increase in unaided schools during the period from 2000-01 to 2022-23.

Lower Primary Schools showed a slow decline in total numbers post-1985 reflects changing priorities or demographics. Unaided schools demonstrated significant growth, particularly in the High School category, suggesting increasing private sector involvement in secondary education. The consistent rise in the total number of schools indicates efforts to improve access to education over time.

Government schools remain the backbone of the system, but unaided institutions have grown steadily, especially in secondary education.

Micro-Markets in Teacher Labour Market

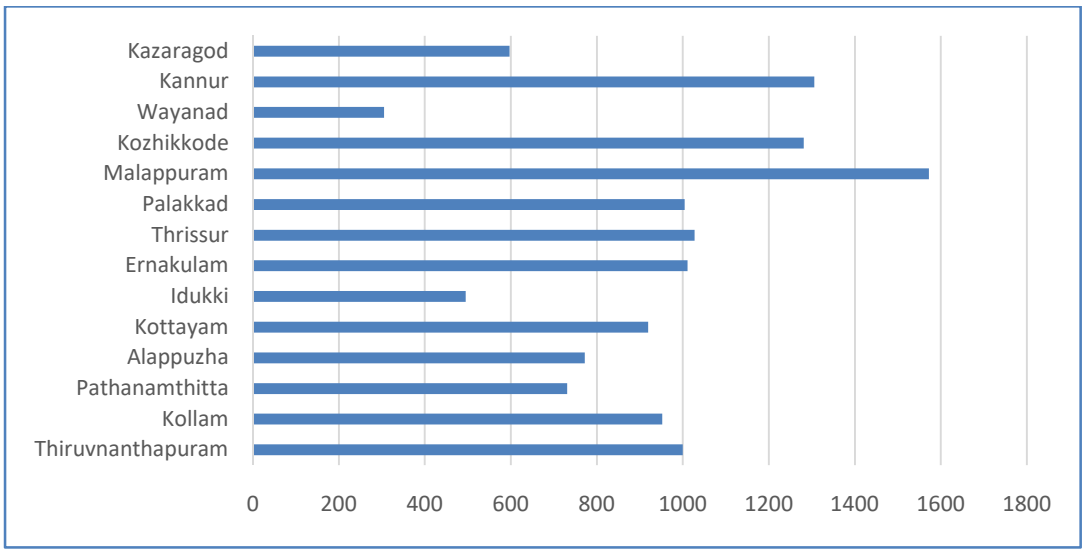
While so far, we have treated the market for teachers as a single market, it is in fact composed of a multitude of micro-markets (Dolton, 2004). The teacher labour market is highly complicated as it is divided into different submarkets such as markets based on regions, levels of education, subjects etc.

1. Distribution of Schools Across Different Districts in Kerala

District wise distribution of schools in Kerala is given in the figure below:

Figure 6

District wise Distribution of Schools in Kerala



Although there are differences in the distribution, all the 14 districts in the state have schools in Government, Aided and Unaided sectors. It is very clear from Table 13, Malappuram is the district with largest number of schools 1572 covering 12 percentage of total schools in the state. Being the district with least number of schools, Wayanad district has only 305 schools in all sectors. Malappuram is found to be the district with maximum number of schools in both Government and Unaided sector. There are 555 Government schools and 211

Unaided schools in Malappuram. There are 963 Aided schools in Kannur and thus it becomes the district with largest number Aided schools. Wayanad district has the smallest number of schools in each sector. There are only 173 Government schools and 113 Aided schools in Wayanad. The number of unaided schools in Wayanad is only 19.

2. Levels in School Education and Types of Management

The schools in Kerala can be divided into 3 levels: Lower Primary, Upper Primary and High School. There are 3125 high schools in Kerala. The number of lower primary schools and upper primary schools are 6842 and 3005 respectively.

The following table shows the total number of High schools in Government, Aided and Unaided schools in Kerala.

Table 14

Total Number of High Schools in Government, Aided and Unaided Sectors in Kerala

SI No	District	Government	Aided	Unaided	Total
1	Thiruvananthapuram	131	94	49	274
2	Kollam	88	127	20	235
3	Pathanamthitta	51	112	8	171
4	Alappuzha	66	127	7	200
5	Kottayam	73	168	21	262
6	Idukki	85	70	11	166
7	Ernakulam	101	178	51	330
8	Thrissur	87	151	34	272
9	Palakkad	92	78	43	213
10	Malappuram	112	88	128	328
11	Kozhikode	82	101	31	214
12	Wayanad	62	25	6	93
13	Kannur	101	79	22	202
14	Kasaragod	98	35	32	165
	Total	1229	1433	463	3125

There are 328 high schools in Malappuram, the district with highest number of high schools in Kerala as shown in Table 14. The district with lowest number of high schools is Wayanad. Thiruvananthapuram is the district having the highest number of government high schools i.e., 131 whereas Pathanamthitta has 51schools , the lowest number of Government high schools. Ernakulam is the one with highest number of aided high schools i.e., 178 schools. The district with smallest number of aided schools is Wayanad. Malappuram has the largest number of unaided high schools when Wayanad is having only 6 of them.

Total number of lower primary schools under different types of management in each district is given below:

Table 15

Number of Lower Primary schools in Government, Aided and Unaided Sectors in Kerala

Sl No	District	Government	Aided	Unaided	Total
1	Thiruvananthapuram	307	172	25	504
2	Kollam	275	180	38	493
3	Pathanamthitta	167	232	19	418
4	Alappuzha	199	188	26	413
5	Kottayam	173	259	23	455
6	Idukki	94	125	18	237
7	Ernakulam	186	258	28	472
8	Thrissur	120	371	35	526
9	Palakkad	197	346	23	566
10	Malappuram	348	487	41	876
11	Kozhikode	182	526	29	737
12	Wayanad	90	47	7	144
13	Kannur	116	605	10	731
14	Kasaragod	143	112	15	270
	Total	2597	3908	337	6842

There are 6842 Lower Primary schools in Kerala as shown in Table 15. The total number of government Lower Primary schools in the state is 2597, Aided schools 3908 and unaided schools 337. Malappuram and Thiruvananthapuram districts have more than 300 government Lower Primary schools as compared to Idukki and Wayanad districts with government Lower Primary schools less than 100. There are more than 600 Aided schools in Kannur when Wayanad has only 47. Number of Unaided Lower Primary schools is very less in all districts. Malappuram has 41 schools when there only 7 unaided Lower Primary schools in Wayanad.

Total number of upper primary schools under different types of management in each district is given below:

Table 16

Total number of Upper Primary Schools in Government, Aided and Unaided Sectors in Kerala

SI No	District	Government	Aided	Unaided	Total
1	Thiruvananthapuram	101	97	24	222
2	Kollam	66	132	26	224
3	Pathanamthitta	43	86	13	142
4	Alappuzha	69	79	11	159
5	Kottayam	63	131	8	202
6	Idukki	25	61	6	92
7	Ernakulam	88	102	19	209
8	Thrissur	57	163	9	229
9	Palakkad	44	161	20	225
10	Malappuram	95	231	42	368
11	Kozhikode	71	238	21	330
12	Wayanad	21	41	6	68
13	Kannur	68	279	26	373
14	Kasaragod	60	70	32	162
	Total	871	1871	263	3005

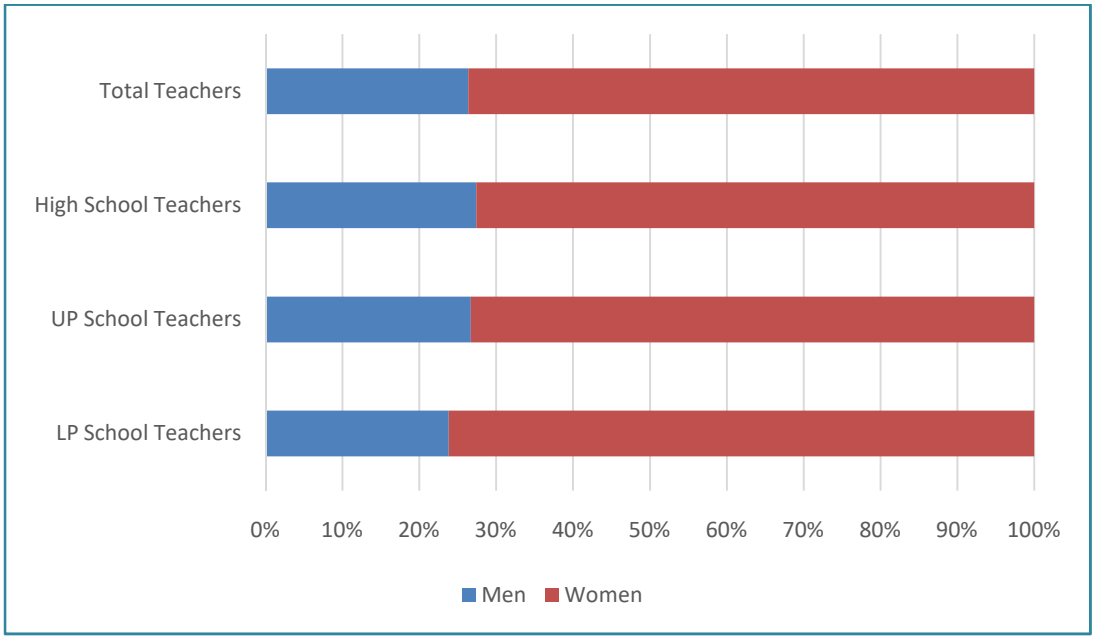
There are 3005 Upper Primary schools in Kerala as shown in Table 16. Among them, 871 schools are in Government sector, 1871 schools in Aided and 263 in Unaided sectors. Thiruvananthapuram has 101 government Upper Primary schools when Wayanad is having 21 of them. There are 279 Aided Upper Primary schools in Kannur when Wayanad has only 41 of the same. There are less than 100 unaided Upper Primary schools in each district. Among them, Wayanad, Idukki, Kottayam and Thrissur are having less than 10 unaided Upper Primary schools.

Total Number of School Teachers Working in Kerala

The details of total number of school teachers working in Kerala are given below

Figure 7

Total Male and Female School Teachers Working in Kerala



There are 1,58,637 school teachers currently employed in Kerala as shown in Table 18. Out of which 1,16,843 are female teachers and 41794 are male teachers. There are 38997 Lower Primary school teachers and 38913 Upper Primary school teachers in the state. The high school teachers working in the state are 80,727. Female

teachers outnumber male teachers in each level. There are 29705 female Lower Primary school teachers when the number of male teachers is 9292. Among Upper Primary school teachers 28532 teachers are female when 10,381 are male teachers. There 58606 male teachers in High School level as compared to 10381 male high school teachers. Gender wise distribution of teachers working at various levels in schools, in Kerala during 2002-23 is given below:

Table 17

Total Number of Male and Female School Teachers Working in Kerala during 2022-23

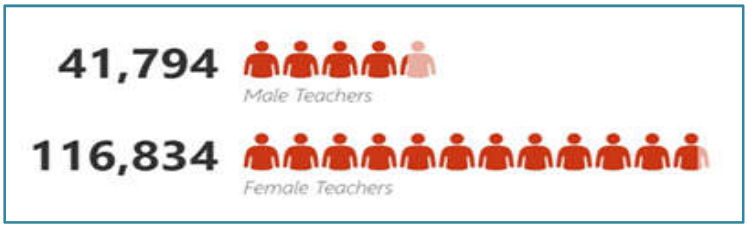
School Level	Male	Female	Total
Lower Primary School Teachers	9292	29705	38997
Upper Primary School Teachers	10381	28532	38913
High School Teachers	22121	58606	80727
Total Teachers	41794	116843	158637

Source: Economic Review

The following figure shows the composition of male and female school teacher making in Kerala during 2022-23.

Figure 8

Total Male and Female School Teachers Working in Kerala during the Year 2022-23

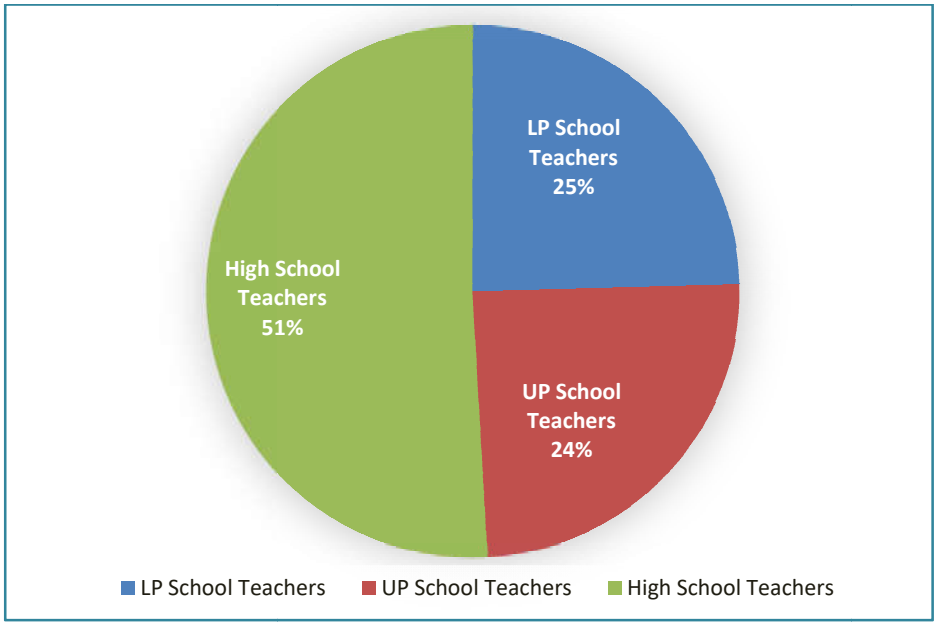


Kerala teacher labour market is a female dominant market like most of other teacher labour markets. There are 116,834 female teachers covering 74 percentage of the total teacher employment. Male teachers occupy on 26 percentage of total teachers.

The following figure shows composition of high school, upper primary and lower primary teachers working in Kerala.

Figure 9

Level wise Distribution of School Teachers in Kerala



From figure 9, it is very clear that high school teachers occupy 51 percentage of the whole teacher labour market. Lower Primary and Upper Primary school teachers almost equal quarters of total labour market. It is because the high school section is composed of different subject submarkets. Total number of teachers working in government schools was 50855 in 2017-18 as shown in Table 17. It has increased to 53279 teachers in 2020-21. The increase in number of teachers is the result of increase in the number of teachers in each level of school education. Number of teachers in Lower Primary has increased from 12957 to 13306 and that in Upper Primary from 10548 in the academic year 2017-18 to 29263 in 2020-21.

According to the data, women make up the majority of Kerala's teaching staff at all educational levels. While the gender gap is more significant in Lower Primary and Upper Primary schools, it narrows somewhat at the High School level. The data suggests that Kerala's education sector has a strong workforce with a clear

trend of higher female participation, which is in line with the state's broader socio-cultural trends and emphasis on female literacy and empowerment.

Trend of Employment of School Teachers in Government Sector

Understanding the trends in teacher recruitment and deployment is crucial for assessing the adequacy of staffing levels in Government schools. It can inform policy decisions regarding teacher training, deployment strategies, and resource allocation to ensure quality education delivery. Additionally, addressing any disparities in teacher distribution across teaching levels is essential for promoting equitable access to education. The total number of teachers making government school 2017-18 to 2020-21 is given in Table below:

Table 18

Number of Teachers Working in Government Schools from 2017-18 to 2020-21

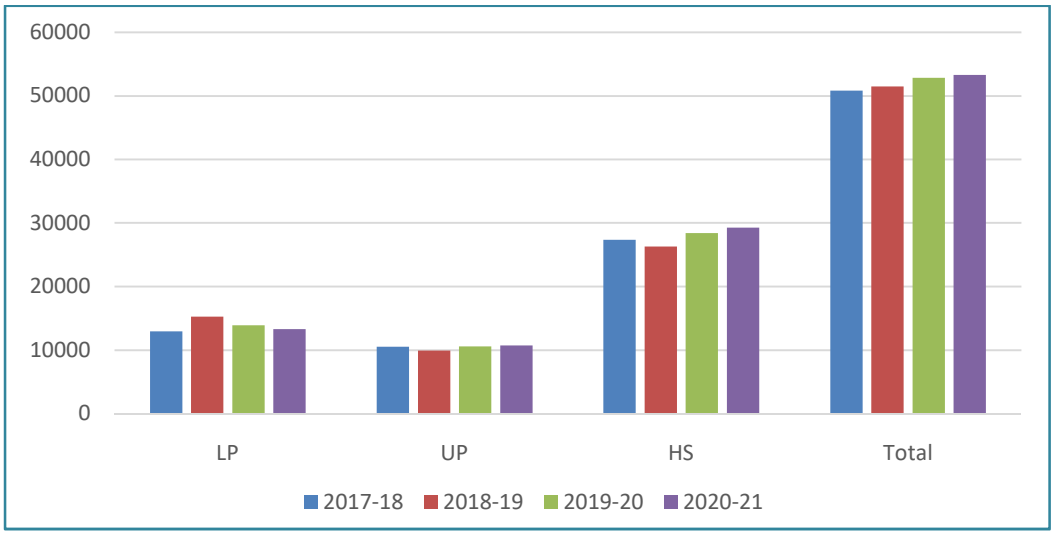
Year	Lower Primary	Upper Primary	High School	Total
2017-18	12957	10548	27350	50855
2018-19	15242	9948	26288	51478
2019-20	13901	10558	28394	52853
2020-21	13306	10710	29263	53279

Teachers employed in Government schools in Kerala shows an increase from 50855 in academic year 2017-18 to 53279 in 2020-21, shown in Table 18. Number of government Lower Primary school teachers increased from 12957 to 13306 from 2017 to 2021. There was a decrease in the number of government Upper Primary school teachers employed in the academic year 2018-19 although it shows an increase over the years from 2019 to 2021.

A diagrammatic representation of teachers working in lower primary, upper primary and high school levels of school education in Kerala from 2017-2021 is given below:

Figure 10

Teachers Working in Lower Primary, Upper Primary and High School Levels of School Education in Kerala from 2017 to 2021



Analysis of the trends in the number of teachers employed in Government schools from the academic year 2017-18 to 2020-21 provides insights into the staffing dynamics and resource allocation in Government schools over the specified period. The data presented in Table 18 includes the number of teachers categorized by their teaching levels: Lower Primary (Lower Primary), Upper Primary (Upper Primary), and High School (High School). The table reveals the following trends in the number of teachers in Government schools over the four-year period:

In 2017-18, the total number of teachers was 50,855. The number increased to 51,478 in 2018-19, marking a slight rise. There was a further increase to 52,853 in 2019-20. In 2020-21, the total number of teachers reached 53,279.The number of Lower Primary teachers fluctuated over the years, with the highest count in 2018-19 (15,242) and the lowest in 2020-21 (13,306). Number of Upper Primary teachers remained relatively stable, ranging from 9,948 in 2018-19 to 10,710 in 2020-21.

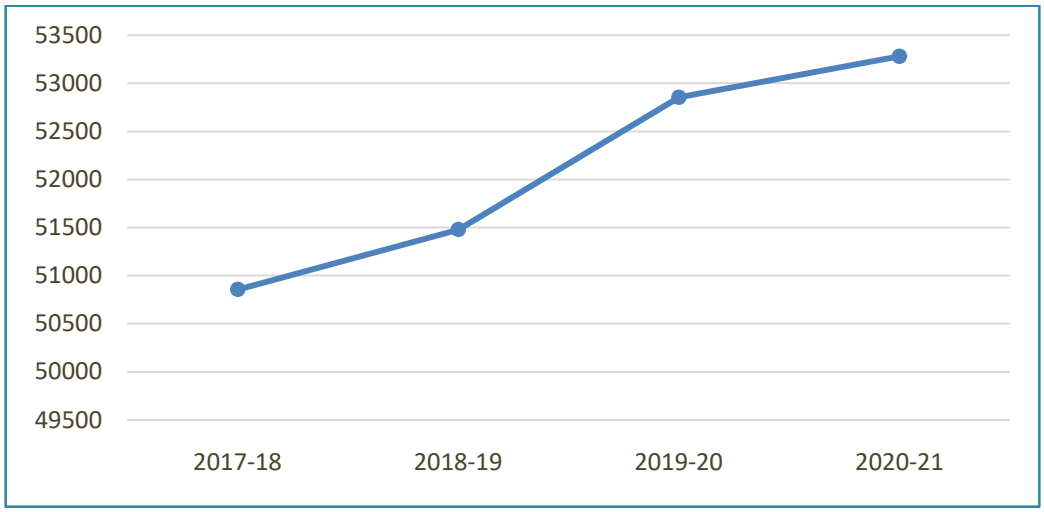
At high school (High School) level, the number of teachers showed a consistent upward trend, increasing from 27,350 in 2017-18 to 29,263 in 2020-21.The trends observed in the number of teachers in Government schools reflect varying dynamics at

different teaching levels. While the number of Lower Primary teachers experienced fluctuations, the count of Upper Primary and High School teachers exhibited more stability and a slight upward trend. The data presented in Table 19 highlights the trends in the number of teachers in Government schools over the period from 2017-18 to 2020-21. While there were fluctuations in teacher counts at the Lower Primary level, the Upper Primary and High School levels showed more stable trends.

The following diagram shows trend of employment of school teachers working in Government schools from 2017-2021.

Figure 11

Trend of School Teachers Working in Kerala Government Schools from 2017 to 2021

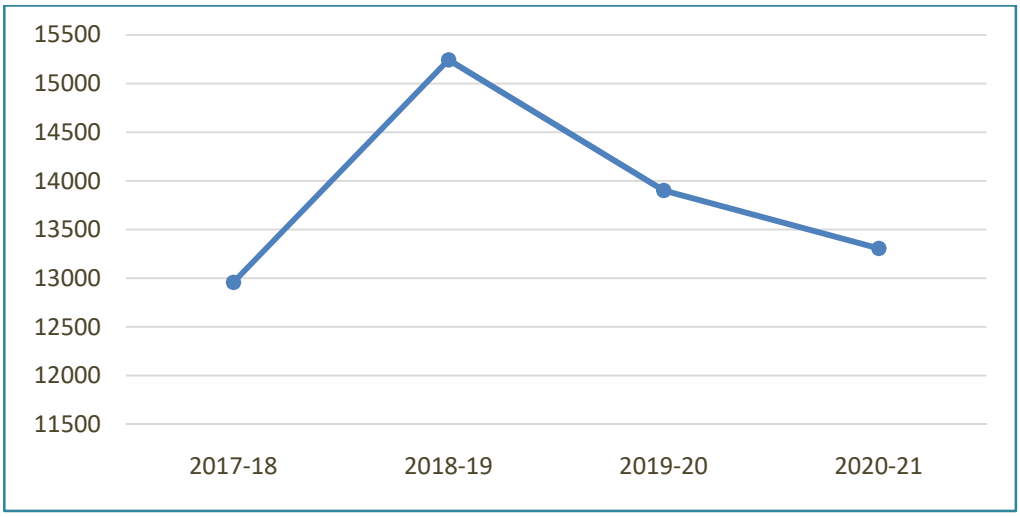


A steady increase in the number of teachers employed can be seen over the period ranging from academic years 2017-18 to 2020-21. It shows positive trend in teacher recruitment. But an analysis of trend in the employment of Lower Primary school teachers shows a declining curve. A steady increase in the academic year 2018-19 is followed by gradual decline as the curve slopes from right to left up to academic year 2020-21.

The following figure shows trend of employment of government lower primary schools in Kerala from 2017-2021:

Figure 12

Trend of Government Lower Primary School Teachers Working in Kerala from 2017 to 2021

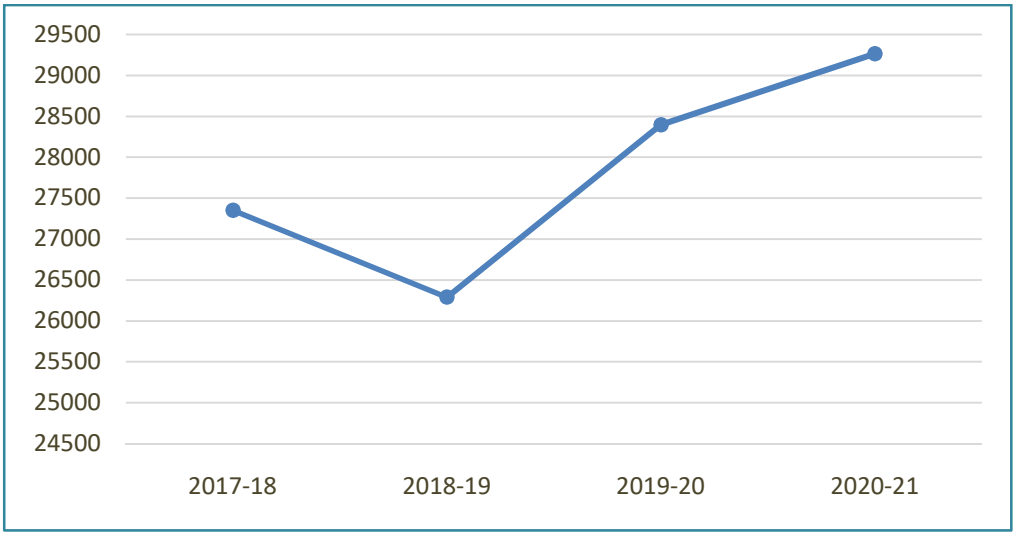


In contrast to the trend in lower primary level, teacher employment in Government upper primary teachers shows a slight positive trend over the period. After the sudden decline 2018-19 it gradually increased over the period from 2019 to 2021.

The Following figure shows trend line of employment of teachers working in government upper primary schools in Kerala.

Figure 13

Trend of Teachers Working in Government Upper Primary Schools in Kerala from 2017 to 2021

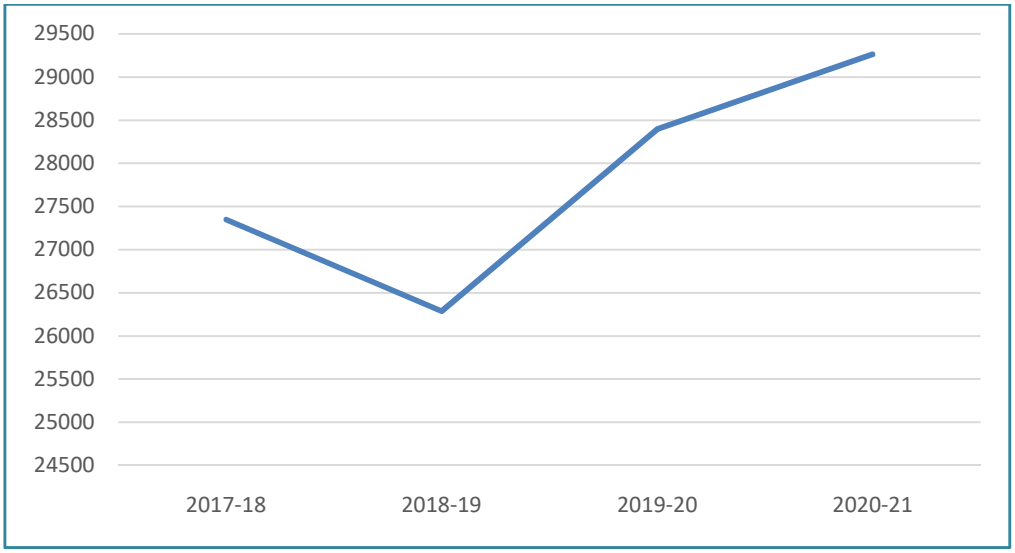


The number of teachers employed in government high schools in Kerala shows a sharp positive increase after a decline in the academic year 2018-19.

The following diagram shows a trend line of employment of teachers in government higher schools in Kerala from 2017 to 2021.

Figure 14

Trend of Teachers Working in Government High Schools in Kerala from 2017 to 2021



Over the course of four years, the data shows a steady rise in the overall number of government school teachers in Kerala. The notable increase in high school teachers suggests that secondary education is being strategically prioritised. The number of Lower Primary and Upper Primary teachers may fluctuate in response to administrative changes or shifting enrolment trends.

Trend of Employment of School Teachers in Aided Sector

The number of teachers working in aided sector has decreased from 96067 in the academic year 2017-18 to 90725 in 2020-21. Number of Lower Primary teachers was decreased from 23219 to 22401 in this period. Number of Upper Primary teachers also decreased from 26976 to 25804. The number of aided high school teachers decreased from 45872 to 42520 teachers.

The following table shows the employment of teachers in aided schools from 2017-18 to 2020-21.

Table 19

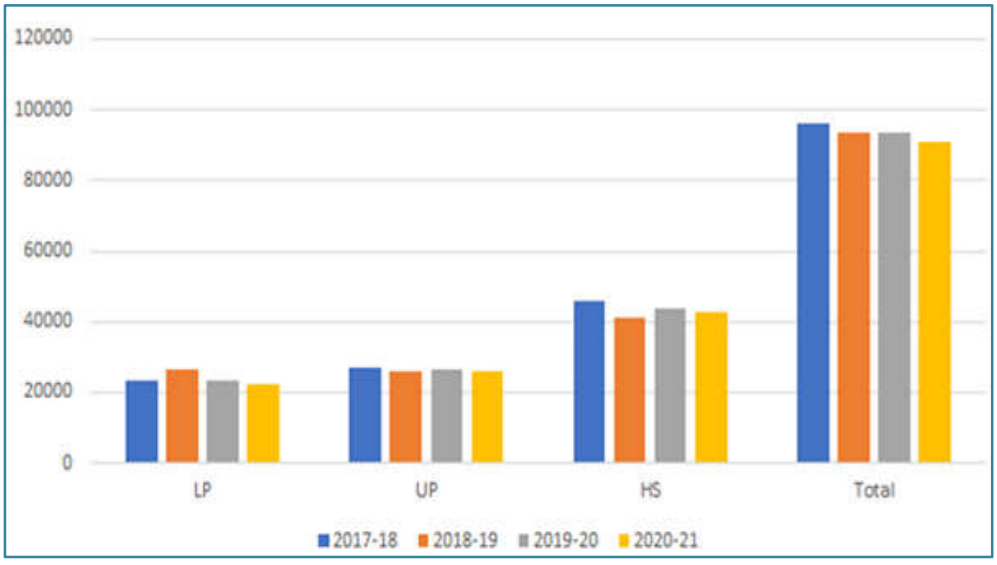
Number of Teachers Working in Aided Schools from 2017-18 to 2020-21

Year	Lower Primary	Upper Primary	High School	Total
2017-18	23219	26976	45872	96067
2018-19	26230	25997	41161	93388
2019-20	23166	26736	43825	93727
2020-21	22401	25804	42520	90725

A diagrammatic representation of trend of school teachers working in Aided schools over this period is shown below:

Figure 15

Trend of School Teachers Working in Aided Schools in Kerala from 2017 to 2021

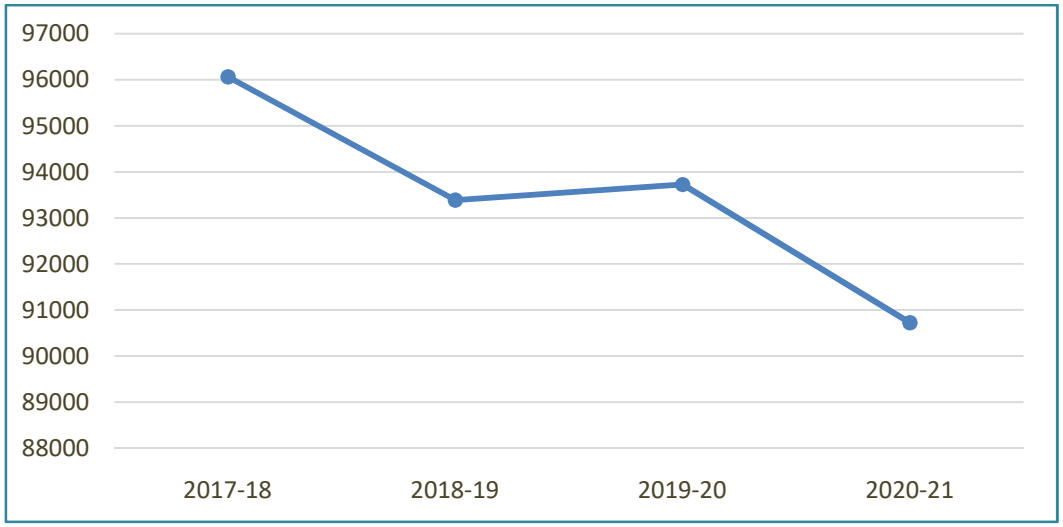


A declining trend in the number of teachers employed in aided sector is shown in Figure 15. From the period starting from the academic year 2017-18 to the academic year 2020-21.

The following trend line shows the teachers working in Aided schools in Kerala from 2017 to 2021.

Figure 16

Trend of Teachers Working in Aided Schools in Kerala from 2017 to 2021

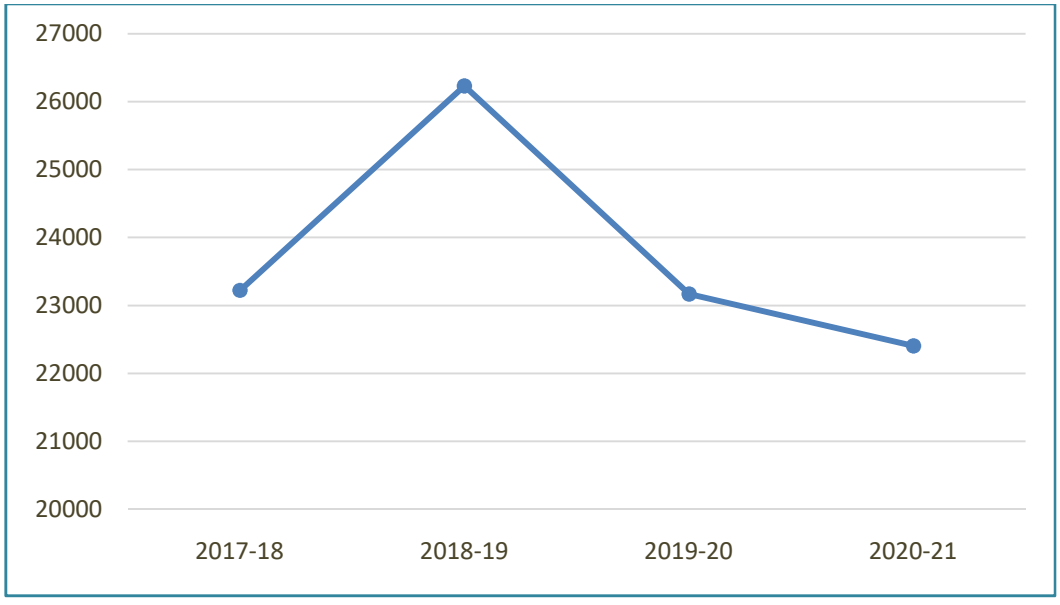


There was an increase in number of teachers employed in aided Lower Primary schools 2018-19 but it gradually declined over the period from 2018 to 2021.

The trend line of teachers working aided lower primary schools in Kerala from 2017 to 2024 is given below.

Figure 17

Trend of Teachers Working in Aided Lower Primary Schools in Kerala from 2017 to 2021

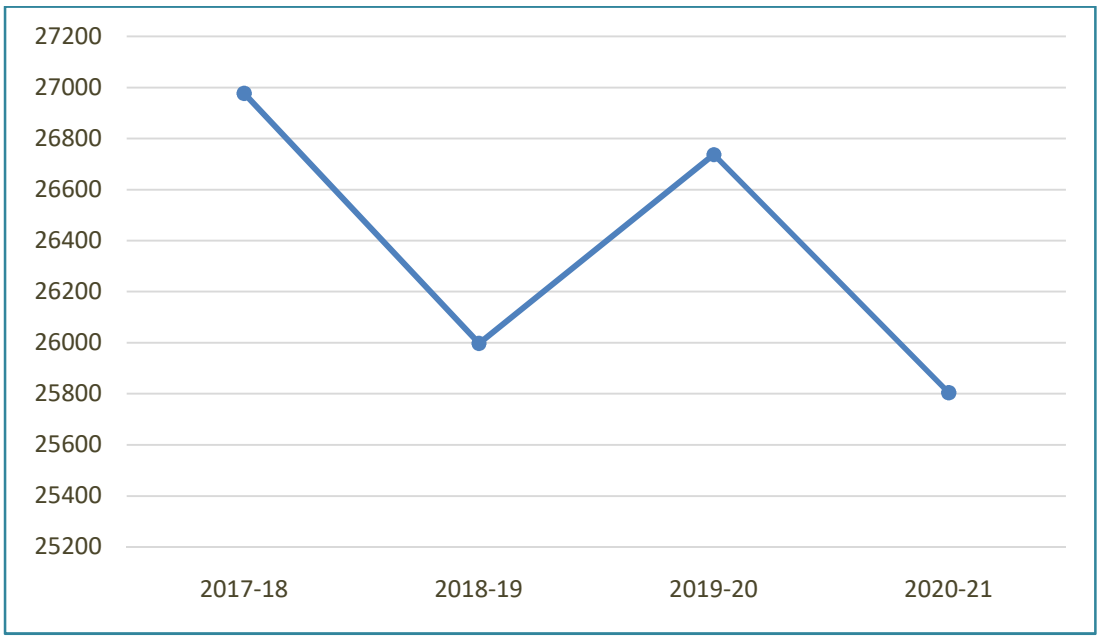


In the case of aided Upper Primary school teachers, the trend shows increase and decrease in subsequent years. The academic years 2017-18 and 2019-20 showed increase in the teacher employment and academic years 2018-19 and 2020-21 showed decrease in the teacher employment.

A trend line of teachers working in aided upper primary schools in Kerala from 2017 to 2021.

Figure 18

Trend of Teachers Working in Aided Upper Primary Schools in Kerala from 2017 to 2021

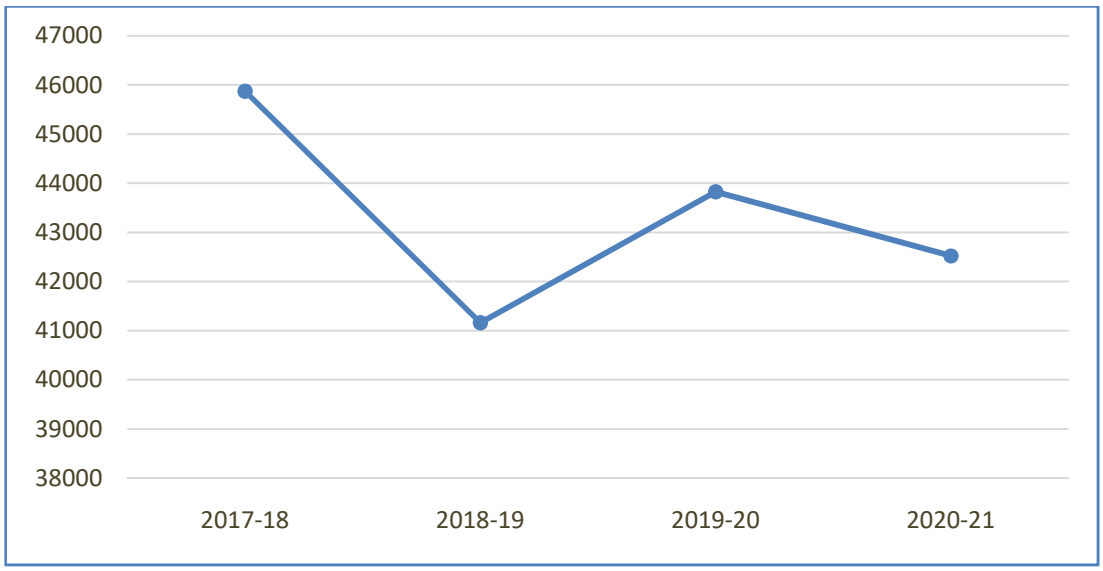


The number aided high school teachers showed a sharp decline when it reaches academic year 2018-19 from academic year 2017-18. Then it slightly increased in 2019-20 academic year and begin to recess again in 2020-21.

The following figure shows trend of teachers working in aided high schools from 2017 to 2021.

Figure 19

Trend of Teachers Working in Aided High Schools in Kerala from 2017 to 2021



The number of Lower Primary teachers increased from 2017-18 to 2018-19 by 3,011 teachers, then saw a decline in the following years, decreasing by 3,064 teachers in 2019-20 and by 765 teachers in 2020-21. The number of Upper Primary teachers showed a decrease of 979 teachers from 2017-18 to 2018-19, a slight increase of 739 teachers in 2019-20, and then a decrease of 932 teachers in 2020-21. The number of High School teachers decreased by 4,711 from 2017-18 to 2018-19, then increased by 2,664 in 2019-20, followed by another decrease of 1,305 in 2020-21.

Total number of teachers decreased by 2,679 from 2017-18 to 2018-19, showed a slight increase of 339 in 2019-20, and then decreased by 3,002 in 2020-21.The number of teachers in Lower Primary, Upper Primary, and High School categories showed a fluctuating trend over the four years. The overall trend indicates a general decline in the total number of teachers from 2017-18 to 2020-21. Upper Primary and High School categories reflect variability but generally exhibit a decrease in numbers, especially in High School from 2017-18 to 2018-19.The above data shows a consistent decline in the number of teachers in Aided schools from 2017-18 to 2020-21, with the most significant reduction observed in High School

teachers. This trend may reflect changing student enrolment patterns and staff retirement without replacement in Aided institutions.

Trend of Employment of School Teachers in Unaided Sector

The total number of school teachers working in unaided sector has decreased from 15029 in the academic year 2017-18 to 13356 in 2020-21. But in the case of Lower Primary school teachers in unaided sector it has increased from 2058 to 2413 in this period. Number of Upper Primary school teachers in unaided sector also shows an increase from 2288 to 2406. But the number of high school teachers has decreased from 10683 to 8537 in the academic year 2020-21.

Total number of teachers working in unaided schools from 2017 to 2021 is given in the table below:

Table 20

Number of Teachers Working in Unaided Schools from 2017-18 to 2020-21

Year	Lower Primary	Upper Primary	High School	Total
2017-18	2058	2288	10683	15029
2018-19	3435	3216	8187	14838
2019-20	2728	2444	8627	13799
2020-21	2413	2406	8537	13356

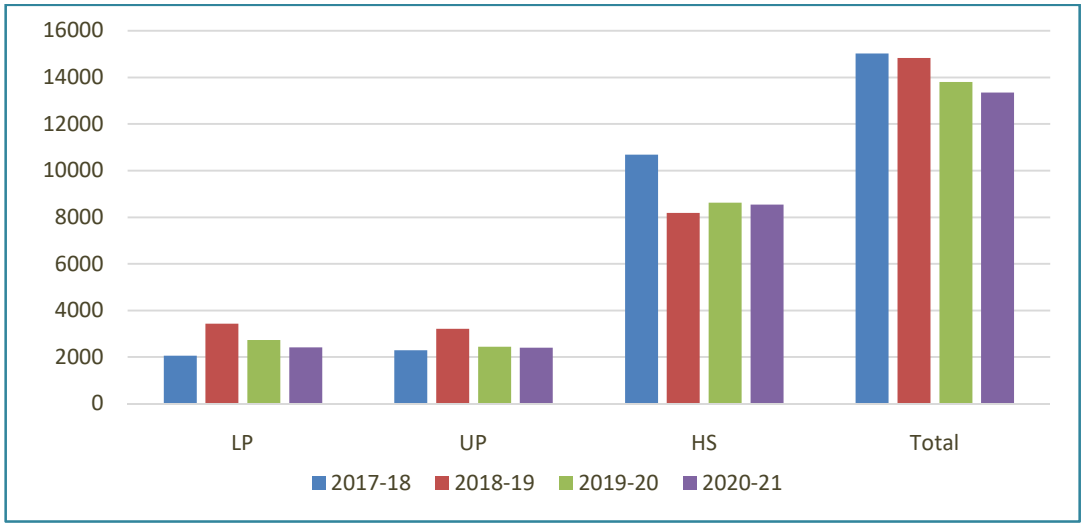
The number of Lower Primary teachers saw a significant increase from 2017-18 to 2018-19 by 1,377 teachers, then decreased by 707 teachers in 2019-20, and further decreased by 315 teachers in 2020-21. The number of Upper Primary teachers increased by 928 from 2017-18 to 2018-19, decreased by 772 in 2019-20, and saw a slight decrease of 38 in 2020-21. The number of High School teachers decreased by 2,496 from 2017-18 to 2018-19, then increased by 440 in 2019-20, followed by a slight decrease of 90 in 2020-21. The total number of teachers decreased by 191 from 2017-18 to 2018-19, further decreased by 1,039 in 2019-20, and then by 443 in 2020-21.

The number of teachers in all categories (Lower Primary, Upper Primary, High School) in Unaided schools showed fluctuating trends over the four years. The overall trend indicates a decline in the total number of teachers from 2017-18 to 2020-21. Lower Primary and Upper Primary categories both saw an initial increase in teachers from 2017-18 to 2018-19, followed by subsequent decreases in the following years. High School category experienced a substantial decrease from 2017-18 to 2018-19, a moderate increase in 2019-20, and a slight decrease in 2020-21. The total number of teachers in Unaided schools decreased by 1,673 from 2017-18 to 2020-21, suggesting potential issues such as reduced funding, declining enrolment, or changes in policy affecting the hiring of teachers in Unaided schools.

A figure representing total teachers working in unaided schools in Kerala from 2017 to 2021 is given below:

Figure 20

Teachers Working in Unaided Schools in Kerala from 2017 to 2021

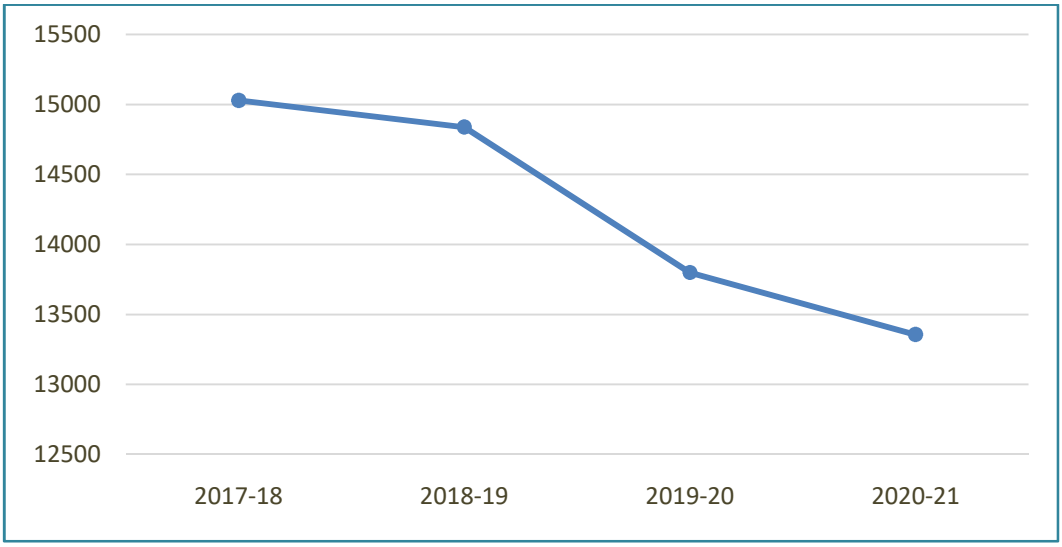


Unaided school teachers show a negative trend during the period from academic year 2017-18 to the academic year 2020-21.

Illustration of the trend of teachers working at various levels in unaided schools in Kerala from 2017-2021 given in the figure 20, 21, 22 and 23:-

Figure 21

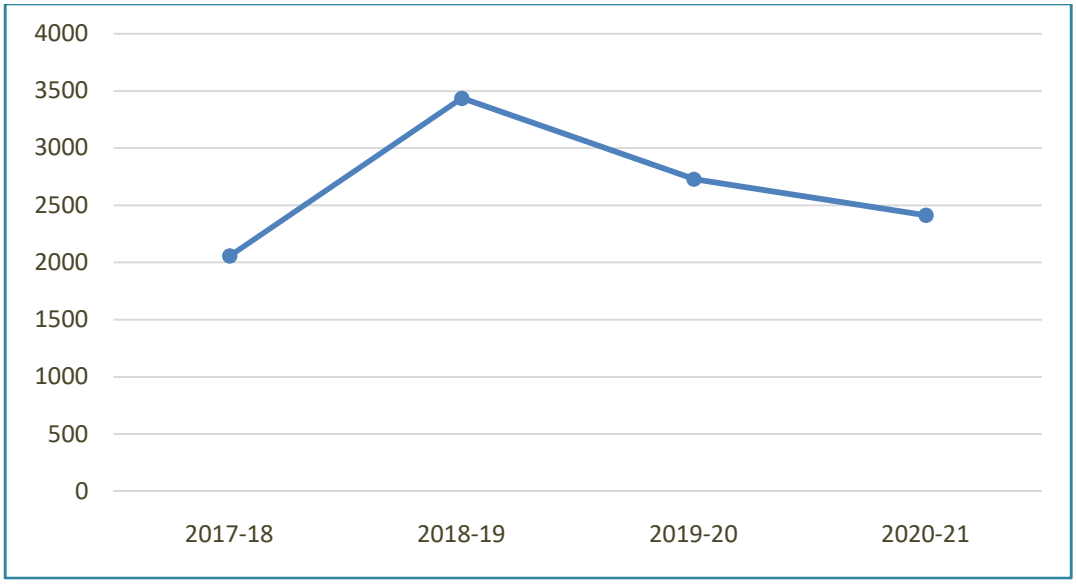
Trend of Teachers Working in Unaided Schools in Kerala from 2017 to 2021



Trend of unaided Lower Primary school teachers also shows negative trend after an increase in academic year 2018-19.

Figure 22

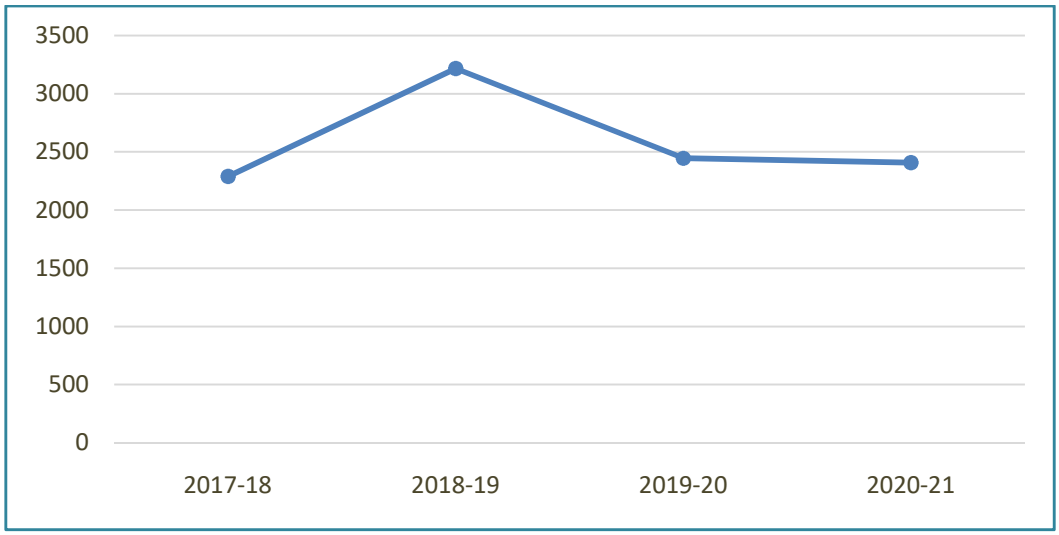
Trend of Teachers Working in Unaided Lower Primary Schools in Kerala from 2017 to 2021



Uniform trend can be observed in Upper Primary school teachers in unaided sector after a slight increase in 2018-19, during the period from 2018 to 2021.

Figure 23

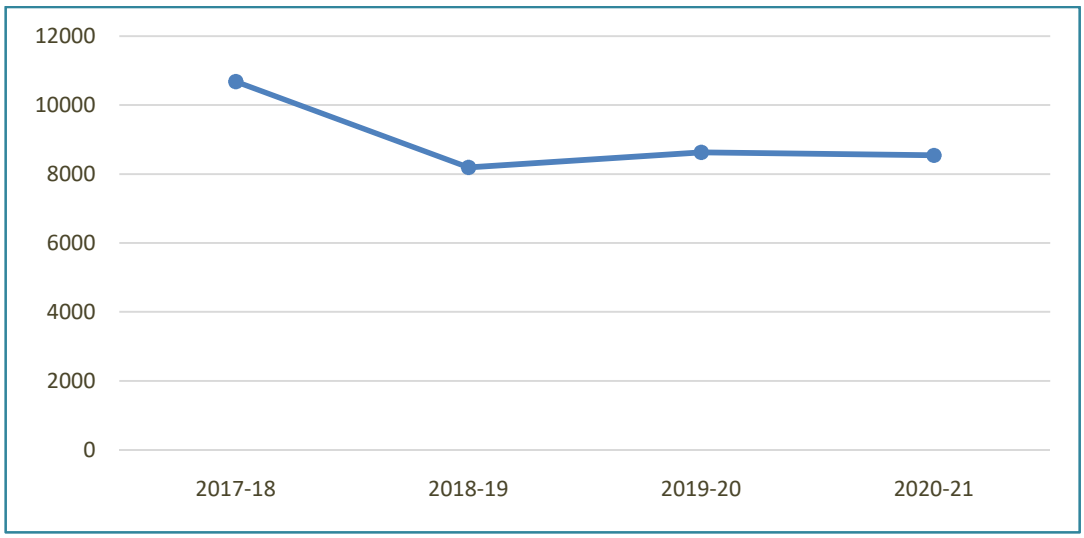
Trend of School Teachers Working in Unaided Upper Primary Schools in Kerala from 2017 to 2021



Uniform trend can be observed in the case of unaided high school teachers from 2018 to 2021. A slight decline can be seen in from the academic year 2017-18 to 2018-19.

Figure 24

Trend of Teachers Working in Unaided High Schools in Kerala from 2017 to 2021



The table given below shows total number of school teachers working in Kerala from 2017-18 to 2020-21.

Table 26

Total Number of School Teachers Working in Schools from 2017-18 to 2020-21

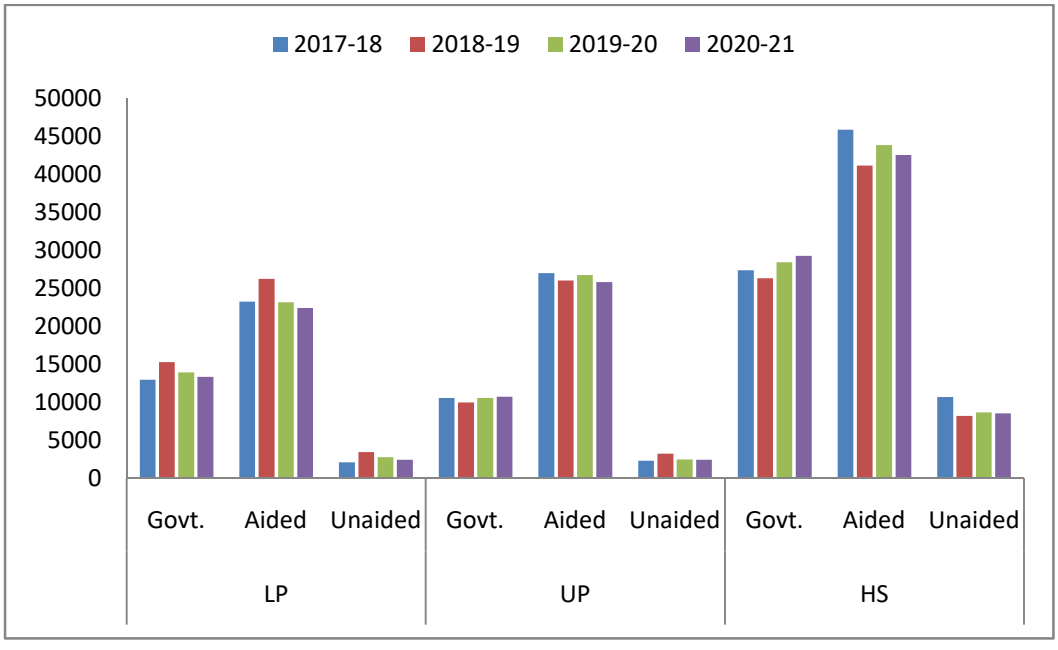
Year	Lower Primary			Upper Primary			High School		
	Govt.	Aided	Unaided	Govt.	Aided	Unaided	Govt.	Aided	Unaided
2017-18	12957	23219	2058	10548	26976	2288	27350	45872	10683
2018-19	15242	26230	3435	9948	25997	3216	26288	41161	8187
2019-20	13901	23166	2728	10558	26736	2444	28394	43825	8627
2020-21	13306	22401	2413	10710	25804	2406	29263	42520	8537

An overall view of teachers working in Kerala from the academic year 2017-18 to 2020-21 is shown in Table 22 and it is illustrated in Figure 25. It can be seen that the Aided high school sector is the largest component of teacher labour market filled up with teachers in all the academic years from 2017 to 2021.

A diagrammatic representation of teacher employment in Kerala at various levels under different types of managements is given below:

Figure 25

Total Number of School Teachers in Kerala from 2017-18 to 2020-21



An aggregate list of total teachers working in various schools and levels from 2017-18 to 2023-24 is given below:

Table 22

Number of Teachers Working in Schools from 2017-18 to 2020-21

Year	Lower Primary				Upper Primary				High School			
	Govt.	Aided	Unaided	Total	Govt.	Aided	Unaided	Total	Govt.	Aided	Unaided	Total
2017-18	12957	23219	2058	38234	10548	26976	2288	39812	27350	45872	10683	83905
2018-19	15242	26230	3435	44907	9948	25997	3216	39161	26288	41161	8187	75636
2019-20	13901	23166	2728	39795	10558	26736	2444	39738	28394	43825	8627	80846
2020-21	13306	22401	2413	38120	10710	25804	2406	38920	29263	42520	8537	80320
2021-22	13646	22576	2775	38997	10652	25512	2749	38913	29038	43131	8558	80727
2022-23	14779	22033	2118	38930	11260	26611	2678	40549	27436	41663	8963	78062
2023-24	14307	21944	1881	38132	11451	26371	2385	38132	27568	41563	9036	78167

The total number of teachers in Aided schools decreased over the period from 2017-18 to 2020-21. Similar to Aided schools, Unaided schools also saw a decrease in the total number of teachers over the same period. In contrast, Government schools experienced an overall increase in the total number of teachers from 2017-18 to 2020-21.Government schools show a positive trend in the total number of teachers, indicating potential increases in policy support and prioritization of public education. The fluctuating trends in Lower Primary and Upper Primary categories suggest adjustments in staffing to meet changing needs or policy directives. The consistent increase in High School teachers may reflect a focus on secondary education and the need for more qualified teachers at this level. The overall increase in the number of teachers in Government schools, contrasts with the decrease seen in Aided and Unaided schools.

Summary

Kerala teacher labour market is composed of Government, Aided and Unaided sectors representing organized, semi-organized and unorganized parts of labour market. Semi-organized sector including schools aided by government, occupy the largest portion of labour market. Organized sector, with government run schools administering the public education in the state, is the most transparent sector. Both semi-organized and unorganized sectors which allows private interferences and governance remains ambiguous in most of the areas regarding recruitment, retention, training etc. Teacher Labour Market in Kerala is a female dominant market in which 74 percentage of teachers are females. Government teacher employment showed an increasing trend over the period of four years when the teacher employment in aided and unaided sectors showed a decreasing trend.

Section 2-

Trend of Demand and Supply in Teacher Labour Market of Kerala

"The methods of recruiting teachers will be reorganised to ensure merit, objectivity and conformity with spatial and functional requirements."

- (The National Policy on Education, 1986)

Contents

Knowing how many teachers are needed is crucial to understanding labour market needs and thus ensuring that every community has access to a sufficient supply of well-qualified teachers. Estimating the demand for teachers is a complex process. There are different approaches for estimation of demand for teachers. Demand for teachers can be thought in two ways. Total teacher demand represents the total number of teachers required to educate the nation's students. Another way is considering 'the annual need for teaches to fill vacant positions' (Sutcher et al., 2019).

The demand for teachers can be broadly classified as ideal demand and actual demand. Ideal demand requires defining the desired pupil-teacher ratio, geographic teacher distributions, and course requirements to determine the perfect number of teachers necessary each year. The actual demand represents reality—the need for teachers based on the number of teachers actually hired and employed (Sutcher et al., 2019). Here, the actual demand for teachers is estimated using the data from the recruitment systems adopted by the Government sector.

Demand for Teachers

To analyse the demand for teachers, the researcher analysed 178 teacher recruitment notifications along with their examination schedules issued by Kerala Public Service Commission from the year 2015 to 2022 as shown in Table 24. There were more examinations in 2016 and 2022 as shown in Table 1. In 2022, there were 57 examinations. Lesser number of examinations were conducted from 2018 to 2020.The state was hit by Corona from January 2020 to 2021. But the lowest number of examinations were held in the year 2019.

Total number of teacher examinations conducted by Kerala Public Service Commission is given below:

Table 23

Total Number of Teacher Examinations Conducted by Kerala PSC from 2015 to 2022

Year	No. of Examinations
2015	10
2016	52
2017	18
2018	8
2019	2
2020	9
2021	22
2022	57
Total	178

Demand for Teachers in Kerala

The demand for teachers in Kerala from 2015 to 2022 is given in Table 24.

Table 24

Demand for Teachers in Kerala from 2015 to 2022

District	2015	2016	2017	2018	2019	2020	2021	2022
Alappuzha	73	567	568	45	--	168	2	63
Ernakulam	91	164	228	56	--	116	7	214
Idukki	95	132	329	51	--	82	2	34
Kasargod	186	903	759	67	1	254	5	161
Kozhikode	173	514	370	155	5	363	72	171
Kollam	124	818	610	153	5	447	18	74
Kannur	205	603	500	104	--	49	55	407
Kottayam	32	88	435	37	--	135	14	90
Malappuram	302	1139	1593	433	--	457	330	347
Palakkad	152	639	764	65	--	152	103	179
Pathanamthitta	15	241	26	32	--	176	23	72
Thrissur	21	216	293	165	--	448	35	259
Thiruvananthapuram	56	571	96	128	--	347	77	272
Wayanad	131	313	339	73	--	54	38	37
Total	1656	6908	6910	1564	11	3248	781	2380

Source: Kerala PSC Notifications from 2015 to 2022

Forces of demand and supply determines the direction of every labour market. The demand refers to the total number of qualified teachers required by the schools in the state. An ideal demand can be calculated by estimating aggregate number of students in schools and ideal pupil teacher Ratio. The concept of real demand represents the number of teachers that the institutions are actually willing to hire. Table 24 shows the number of teachers that the government wanted to hire over the period of 8 years from 2015 to 2022.

The aggregate demand for teachers in government sector was at the highest in 2016 and 2017 i.e., 6908 and 6910 respectively. The data shows afterwards, a

decline in the number of teachers demanded. There was an increase in demand in 2020 and 2022. In 2022, the demand showed a sudden hike from 11 to 3248. The demand for teachers in 2021 was only 781 and later it was increased to 2380 in 2022. In 2019, in which the number of examinations held was only 2, the number of required teachers was only 11. It was a demand from only 3 districts, Kasargod, Kozhikode and Kollam. The number of teachers demanded in each year and in each district are different. In 2015, the total number of teachers demanded in the state was 1656. Malappuram district had the greatest demand for teachers in this year i.e., 302. The demand for teachers in Kannur was 205. Kasargod, Kozhikode, Kollam, Palakkad, Wayanad districts' demand was above hundred. The districts with the demand for teachers less than 100 was Alappuzha, Ernakulam, Idukki, Kottayam, Pathanmthitta, Thrissur and Thiruvananthapuram. Among them, Pathanamthitta district had the lowest demand in the year i.e., 15.

A sudden rise in the number of teachers demanded is shown in every district in the year 2016. In Malappuram district the demand for teachers was increased more than three times from 302 in the year 2015 to 1139 in the year 2016. Similar increase can be seen in Alappuzha, Kasaragod, Kollam, Kannur, Palakkad, Pathanamthitta, Thrissur, Thiruvananthapuram and Wayanad. The highest demand was 1139 in Malappuram district and with lowest demand was 88 in Kottayam district. In the following year which is 2017 the aggregate demand maintained a balance. In 2016, the demand for teaches was 6908 and that was 6910 in 2017. In Malappuram district which marked the highest demand, a substantial increase from 1139 in 2016 to 1593 is visible. The Kottayam district also showed an increase from 88 to 435. But in contrary, remarkable decline can be shown in the case of districts Pathanamthitta and Thiruvananthapuram. In Pathanamthitta the demand was decreased from 241 in 2016 to 26 in 2017. There was a decrease from 571 to 96 in

Thiruvananthapuram district. Increase in the demand from 2016 to 2017 was shown by Ernakulam, Idukki, Palakkad, Wayanad and Thrissur districts and slightly in Alappuzha district.

The demand went down remarkably from 6910 in 2017 to 1564 in the year 2018. Among the districts, Malappuram showed highest demand 433. Five districts showed a demand above the 100 viz., Kozhikode, Kollam, Thrissur, Thiruvananthapuram and Kannur. The demand by districts such as Alappuzha, Ernakulam, Idukki, Kasargod, Kottayam, Palakkad, Pathanamthitta and Wayanad was below 100. Among them, the Pathanamthitta showed the lowest demand for teachers i.e., 32. In 2019, there were no much selection examinations for teachers. Only 11 teachers were demanded from Kasargod, Kollam and Kozhikode. The demand for teachers again began to hike in the year 2020. After 1564 in 2018 and 11 in 2019, the demand for teachers in the state was reached 3248 in 2020. Three districts such as Malappuram, Kollam and Thrissur showed higher demands among the districts 457, 447 and 448 respectively. The lowest demand 49 was shown by Kannur. Kozhikode and Thiruvananthapuram showed demand more than 300. The demand for teachers was less than 100 in Idukki, Kannur and Wayanad districts.

The teacher demand increased again in 2021. Aggregate demand for teachers in this year was decreased from 3428 to 781. It was Malappuram district again at the highest demand i.e., 330. Only Palakkad district showed demand above the 100. The demand in the rest of districts was less than 100. Alappuzha, Ernakulam, Idukki and Kasargod have the demand less than 10. Alappuzha and Idukki had the lowest number of teacher requirement i.e., 2 in each district. In 2022, the demand for teachers has stated to rise. From 781 in 2021 there was an immediate recovery and reached a level of 2380 in 2022. This time, Kannur district demanded the greatest

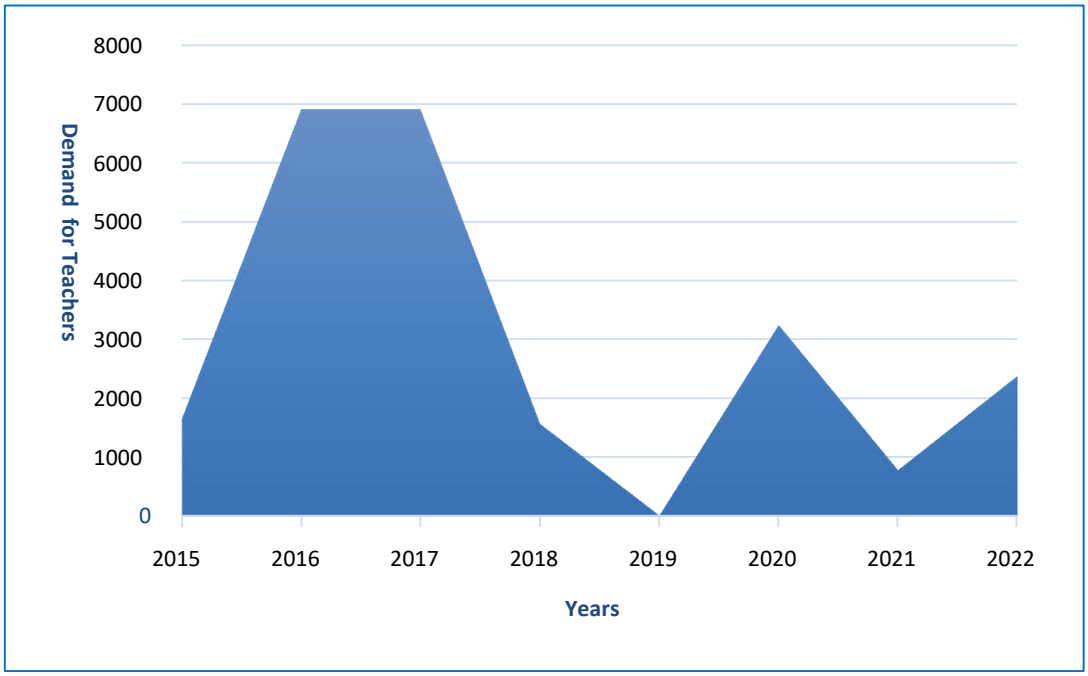
number of teachers i.e., 407. The demand for teachers in Malappuram was 347. Thiruvananthapuram, Thrissur, Palakkad and Ernakulam showed clear increase from the previous year and their demand was above 200. The demand in Idukki was only 34 and Wayanad 37.

It is very clear from Table 25 that the demand in each district is highly different and it also varies significantly in different years. These differences result in swings in the aggregate demand each year. The demand for teachers in Kerala does not show a steady increase or decrease. It varies over time because of the influence of different factors.

The following diagram shows the demand for teachers in government sector from the year 2015 to 2022:

Figure 26

Demand for Teachers in Kerala from the Year 2015 to 2022



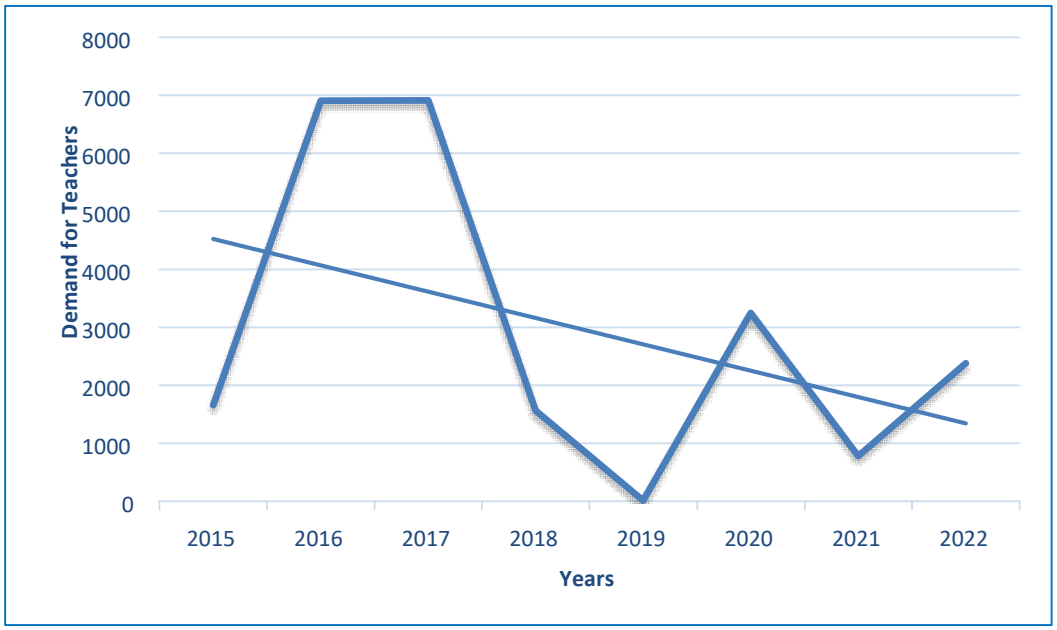
This irregularity of demand for teachers is graphically represented in Figure 26. Years from 2015 to 2022 are given on the Y axis and number of teachers demanded

on X axis. Demand for teachers in each year showed in shaded areas in graph. It shows the demand hike in the first few years and a steep fall in 2019 and gradual recovery in years from 2020 to 2022.

Trend of demand for teachers from 2015 to 2022 is given below:

Figure 27

Trend of Demand for Teachers from 2015 to 2022



The trend of demand for teachers in the state is illustrated with the help of a diagram in Figure 27. Years from 2015 to 2022 is given on X axis and demand for teachers over these years are given on Y axis. It is very clear from the diagram, that the demand for teachers was increased from 1656 in 2015 to nearly 7000 in 2016. The same demand was maintained in 2017 too before it suddenly declined in 2018 and further in 2019. Demand line attains a moderate increase thereafter in 2020. It slightly falls down again and it continues to rise in 2022. But the trend line which falls downwards from left to right shows a decreasing tendency of teacher demand over the period from 2015 to 2022. It gradually going downwards over the 8 years

from where it began before it reaches 2022 showing the declining trend of demand for teachers in the state of Kerala.

Supply of Teachers

Supply of teachers is an important component of teacher labour market. An ideal supply represents that qualified teacher fraction of the total work force including employed and unemployed teachers whereas the actual supply represents the number of qualified teachers willing to work at the point where they were demanded. In fact, the supply of teachers is a complex concept because it is composed of different subjects which can vary according to the demand. Hence the following data of supply of teachers neither represent the ideal supply nor the total actual supply. Instead, it shows the number of teachers supplied when a particular category of teachers was demanded.

The aggregate supply of teachers in response to demand notifications in government sector over the period from 2015 to 2022 is given in Table 26. The highest teachers supply was in 2016 and it was 139844 teachers. The lowest number of teacher supply was 168 in the year 2019. There was a supply above one lakh teachers in 2016 and 2017 years in which the demand for teachers was so high. There was a supply of 87594 teachers in 2020 and 84368 teachers in 2022. The supply of teachers was 49970 in 2015 when it was only 29203 in 2018.

Details of supply of teachers in Kerala from 2015 to 2022 is given in the following Table 25.

Table 25

Supply of Teachers in Kerala from 2015 to 2022

District	2015	2016	2017	2018	2019	2020	2021	2022
Alappuzha	1861	1214	3918	1841	--	5030	161	2191
Ernakulam	4380	6860	2536	2968	--	9618	1751	7384
Idukki	338	2842	8025	1390	--	1649	32	1925
Kasargod	2953	6740	7783	874	1	1951	259	5639
Kozhikode	5527	11150	4013	3270	1	1665	2324	6767
Kollam	3382	16461	6616	240	166	11465	918	7629
Kannur	4716	9680	6573	823	--	2741	3741	9797
Kottayam	1822	4750	6892	1803	--	880	2332	2420
Malappuram	6704	42818	36594	7259	--	11246	4665	16670
Palakkad	4335	9573	10290	452	--	2786	5904	6916
Pathanamthitta	1250	2935	375	1184	--	3661	68	1698
Thrissur	4332	10753	4324	3349	--	19219	153	8875
Thiruvananthapuram	6633	10724	1892	2230	--	10925	1596	3584
Wayanad	1737	3344	2011	1520	--	4758	356	2873
Total	49970	139844	101842	29203	168	87594	24260	84368

At a close look at the year 2015 in which the aggregate supply of teachers was nearly 50,000, it can be understood that the district with highest supply of teachers is Malappuram which supplies 6704 teachers. Thiruvananthapuram stands next to Malappuram with a supply of 6633. The Kozhikode supplies 5527 teachers when 3 districts such as Thrissur, Kannur, Palakkad and Ernakulam supply 4332, 4716,4335 and 4380 teachers respectively. The supply was 3382 in Kollam and 2953 in Kasaragod. The supply of teachers is above nearly 2000 in Wayanad, Kottayam and Alappuzha districts. The lowest supply of teachers is from Idukki i.e., only 368 teachers. In the year 2016, the supply was more than the double the year 2015. 139844 teachers were supplied in total of which 42818 teachers were supplied from Malappuram district. Four districts such as Thiruvananthapuram, Thrissur, Kollam

and Kozhikode supplied more than 10000 teachers when nearly ten thousand teachers were supplied by Kannur and Palakkad districts. It can be seen that in 2016, Alappuzha supplied the lowest number of teachers i.e., 1214.

A decline in the number of teachers can be seen the following year 2017. The aggregate supply was decreased from 139844 in 2016 to 101842 in 2017. It is a result of decrease in the number of teachers supplied by different districts in the year. All the districts had significant decrease in the teacher supply except in four districts viz., Alappuzha, Idukki, Kasargod and Kottayam districts. In Idukki, the teacher supply was increased about 3 times the year 2016 i.e., from 2842 to 8025. Similarly, in Alappuzha district, the teacher supply was more than the double i.e., from 1214 to 3918. The teacher supply of 6740 in 2016 was increased to 7783 in 2017 in Kasargod whereas the 4750 teachers supplied in Kottayam was increased to 6892 teachers in Kottayam. Apart from these four districts, the teacher supply showed remarkable decrease. For instance, in Thiruvananthapuram, the number of teachers supplied was 10724 in the year 2016. It was reduced to a sixth fraction i.e., 1892. Similarly significant decrease can be seen in the case of Kozhikode and Kollam districts. In Kozhikode, teacher supply 16461 in 2016 was reduced to 6616. Teacher supply was reduced by a 60 percent in Kollam from 11150 in 2016 to 4013 in 2017.

In Ernakulam, the supply was decreased from 6860 to 2536 in 2017. Although the numbers are not high, the proportion of decrease is at the highest in Pathanamthitta. The teacher supply of 2935 in the year 2016 was reduced to an eighth i.e., 375 in the year 2017. Then comes the sudden fall of total state teacher supply from 101842 in the year 2017 to 29203 in 2018 resulting from significant decline of teachers supplied in almost all districts of the state. In Malappuram

district, the supply of teachers was reduced from 36594 in 2017 to 7259 in 2018. Similar decline can be seen in the cases of Alappuzha, Idukki, Kasargod, Kozhikode, Kollam, Kannur, Kottayam, Palakkad, Thrissur and Wayanad districts. The lowest teacher supply in the year was Kollam district i.e., 240. On contrary, there was a sudden increase in the case of teacher supply in Pathanmthitta district in which the supply almost tripled from 375 in 2017 to 1184 in 2018.

In 2019, the supply was limited from Kasargod, Kozhikode and Kollam and the total supply was only 168. In the year 2020, there was an immediate rise in the quantity of teachers supplied to 87594, in the state. Thrissur contributed greatest supply 19219 in this year followed by Kollam 11465, Malappuram 11246 and Thiruvananthapuram 10925. The Ernakulam supplied 9618 teachers. The lowest supply was 880 from Kottayam district. The year 2021 witnessed another steep incline from 87594 in the year 2020 to 24260. It was a result of massive decrease in supply of different districts. Thrissur district which supplied 19219 in the year 2020 decreased to 153 in the year 2021. In Kollam, 11465 was reduced 918 and likewise Thiruvananthapuram also had a substantial decrease from 10925 to 1596. In Alappuzha district, supply was decreased from 5030 to 161. Similarly, supply was decreased in Ernakulam from 9618 to 1751, in Idukki from 1649 to 32, Kasargod from 1951 to 259, Pathanamthitta from3661 to 68. All the districts except Kottayam, Kannur, Palakkad and Kozhikode experienced this decreased supply. In the case of Kottayam supply was increased from 880 to 2332 and Kozhikode from 1665 to 2324. The supply increased from 2786 to 5904 in Palakkad and from 2741 to 3741 in Kannur districts.

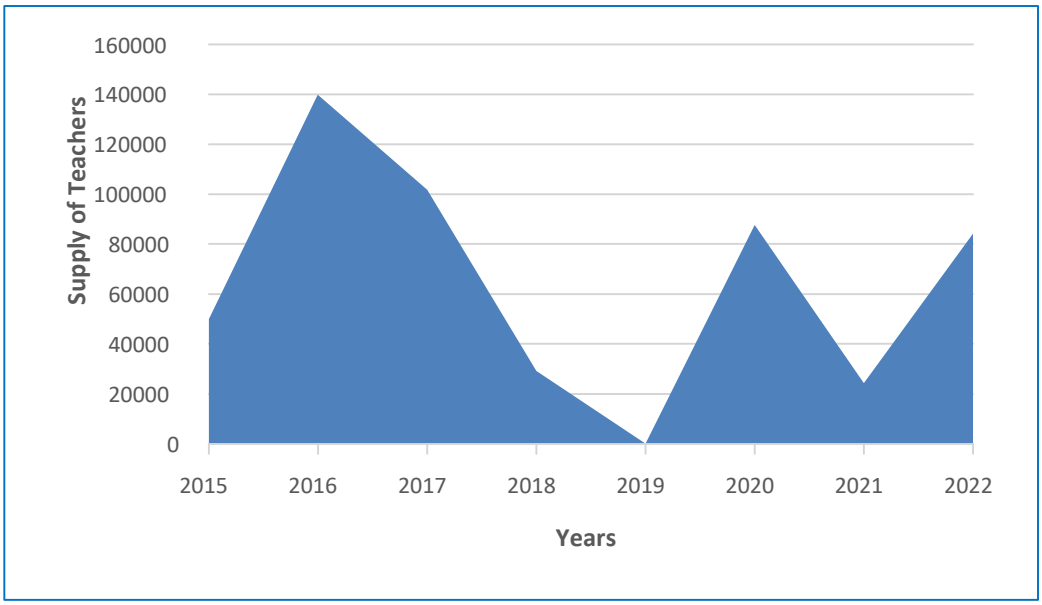
The supply of teachers in the state hiked again in the next year 2022 from previous year 24260 to 84368 resulting from the increase in the supply of all the districts. In Alappuzha district, the supply increased from 161 to 2191 and

Ernakulam from 1751 to 7384. There was a great increase in Idukki district from 32 to 1925 and in Kasargod, from 259 to 5638. In Kozhikode, the supply was increased from 2324 to 6767, in Kollam from 918 to 7629, Kannur 3741 to 9797. In Kottayam the supply was increased from 2332 to 2420. There was a massive increase in the supply of Palakkad district from 4665 in 2021 to 16670 in 2022 and in Pathanamthitta from 68 to 1698.

The following figure shows a representation of supply of teachers in Kerala from 2015 to 2022.

Figure 28

Supply of Teachers in Kerala from the Year 2015 to 2022

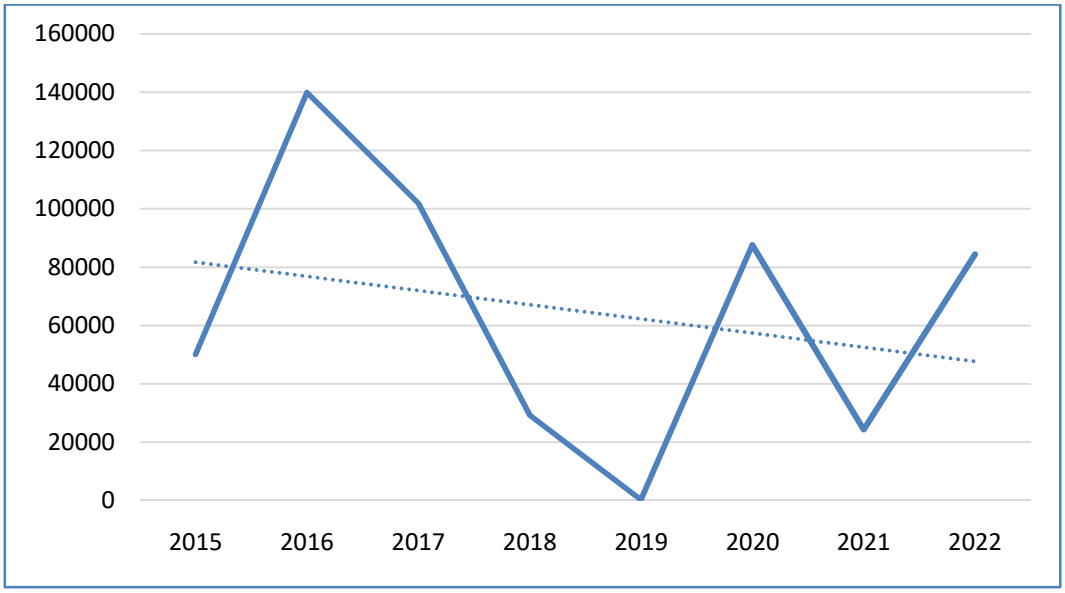


A graphical representation of supply of teachers in the state over the years from 2015 to 2022 is given figure 28. Years from 2015 to 2022 is given on X axis and supply of teachers is given on the Y axis. In the graph, shaded area represents the supply of teachers over different years. It can be seen a sharp rise in the year 2016 followed by a deep incline through 2017 to the year 2019. There was another positive rise in 2020 followed by another sharp decline in 2021. Finally, the supply line began to increase in the year 2022.

Trend of supply of teachers in the state of Kerala over the period from 2015 to 2022 is shown diagrammatically in Figure 29.

Figure 29

The Trend of Supply of Teachers from 2015 to 2022



On X axis the years are given and Supply of Teachers on Y axis. A linear trend line which slopes from left to right shows a declining trend in the supply of teachers in the state. The trend line continues to incline downward passing the year 2022 which indicates the supply of teachers in coming years will also continue to decline.

Comparison between Demand for Teachers and Supply of Teachers

Every labour market plays according to the interplay between the demand and supply. The analysis of demand and supply in Kerala labour market shows excessive supply of teachers towards a limited demand every year and in every district. From the above data, it is very clear that the excess teachers are supplied for a few numbers of vacancies. In 2015, Thrissur district shows a supply of 4332 teachers for the demand for 21 teachers. The demand for teachers in Thiruvananthapuram district was 53 and supply was 6633 teachers. More or less,

this huge difference between and supply is visible all over the districts and different periods. The aggregate demand was 1656 in the year and supply was 49970.

In 2016, when the aggregate demand was increased, the supply also increased. The demand was 6908 and supply was 139844. In Thiruvananthapuram district, the demand was 571 to a supply of 10724. In Thrissur supply was 10753, for a demand of 216 teachers. Figures are much bigger in the case of Malappuram district. The demand was 1139 and supply was 42818 teachers. For a demand of 514 teachers in Kozhikode district, the supply was 11150. In Ernakulam, it was 164 against 6860.

In 2017, the total demand for teachers was 6910 teachers. The supply in total against this demand was 101842 teachers. In Malappuram district, it was a supply of 36594 against a demand of 1593 teachers. In Palakkad district the demand for teachers in the year was 764 and the number of teachers supplied was 10290. In Kasargod district, the supply was 7783 against the demand for 759 teachers. The lowest demand for teachers was in Pathanamthitta, 26. The supply was much more even there. It was 375 teachers.

In 2018, the aggregate demand was reduced to 1564 from 6910 in the previous year. In the same way, the supply also came down from 101824 to 29203. The highest gap was found in Malappuram district. The demand for teachers in Malappuram district was 433 and the supply was 7259. In Pathanamthitta, the demand for teachers was 32 and supply of teachers 1184. Differences can be observed in the Supply to Demand Ratio of each and every district. The demand for teachers in districts Alappuzha, Ernakulam and Idukki were 45, 56 and 51 and the supply were 1841, 2968 and 1390 respectively.

This tendency of excess supply to limited demand is changed in the year 2019 where a limited information was available. The demand and supply were one

against one in Kasargod district and 5 against 1 in Kozhikode district. In Kollam district the demand was 5 and supply was 166 teachers.

The demand for teachers in the state in the year 2020 was 3248 and supply was 87594 teachers. Such a difference is visible in the cases of districts also. For instance, the demand for teachers was 448 in Thrissur district, and the supply towards this was 19219. But in the case of Kollam with a demand of 447, the supply was 11465. In Alappuzha, it was 168 against 5030. The lowest supply was 880 in Kottayam district against the demand for 135 teachers. The Kannur and Wayanad districts with the demand for 49 and 54 teachers and supply of 2748 and 4758 teachers respectively. The biggest difference between the demand for teachers and supply was in the year 2021. The demand for teachers was 781 and supply was 24260 teachers. In Palakkad district, the demand for teachers was 103 and supply of teachers was 5904. For a demand of 2,7,2 and 5 in Alappuzha, Ernakulam, Idukki and Kasargod respectively the supply were 161, 1751, 32 and 59 respectively.

In Kottayam it was 2332 against 14 and 918 against 18 in Kollam. In the year 2022, the total demand for teachers was 2380 against supply of 84368 teachers. In Malappuram district, the demand for teachers was 347 and supply of teachers was 16670. In Kannur, the demand for teachers was 407 and supply of teachers was 9797. It can be seen the demand for teachers was 179 in Palakkad district where as the supply of teachers was 6916. In Ernakulam district, the number of teachers demanded was 214 and the number of teachers supplied was 7384. In Wayanad, the demand for 37 teachers were responded by supply of 2873 teachers.

Supply to Demand Ratio (S/D Ratio)

The details regarding supply to demand ratio are given Table 31.

Table 31

The Supply to Demand Ratio from 2015 to 2022

District	2015	2016	2017	2018	2019	2020	2021	2022
Alappuzha	25.5	2.14	6.9	40.91	0	29.9	80.5	34.8
Ernakulam	48.1	41.8	11.1	53	0	82.9	250.1	34.5
Idukki	3.56	21.5	24.4	27.25	0	20.1	16	56.6
Kasargod	15.9	7.46	10.3	13.04	1	7.68	51.8	35
Kozhikode	31.9	21.7	10.8	21.1	0.2	4.59	32.28	39.6
Kollam	27.3	20.1	10.8	1.569	33.2	25.6	51	103
Kannur	23	16.1	13.1	7.913	0	55.9	68.02	24.1
Kottayam	56.9	54	15.8	48.73	0	6.52	166.6	26.9
Malappuram	22.2	37.6	23	16.76	0	24.6	14.14	48
Palakkad	28.5	15	13.5	6.954	0	18.3	57.32	38.6
Pathanamthitta	83.3	12.2	14.4	37	0	20.8	2.957	23.6
Thrissur	206	49.8	14.8	20.3	0	42.9	4.371	34.3
Thiruvananthapuram	118	18.8	19.7	17.42	0	31.5	20.73	13.2
Wayanad	13.3	10.7	5.93	20.82	0	88.1	9.368	77.6
Mean	50.3	23.5	13.9	23.77	2.4571	32.8	58.94	42.1

The analysis of S/D Ratio, the demand to supply Ratio, reveals that the S/D Ratio was at the highest in 2021. The S/D Ratio was 58.78. It means, there was a supply of 58 teachers for each teacher demanded. The lowest demand for teachers was in 2017, i.e., 13.85. The higher S/D Ratio is shown in the years 2015,2021 and 2022. In 2016 and 2018, the S/D Ratio was almost the same. When we analyse the S/D Ratio of districts over years, it can be found that the S/D Ratio was different everywhere. In the case of Alappuzha district, the S/D Ratio shows a gradual increase after the first year and decline again in 2020 and then in 2022. In the case of Ernakulam district, the S/D Ratio never went under 10. It was highest in the year 2021 i.e., 250. The lowest S/D Ratio was in 2017. The S/D Ratio declines in 2022 to 34.

In Idukki district, the S/D Ratio was at the highest in 2022. The lowest S/D Ratio was 4 in 2015. The S/D Ratio of Idukki district remained almost the same from

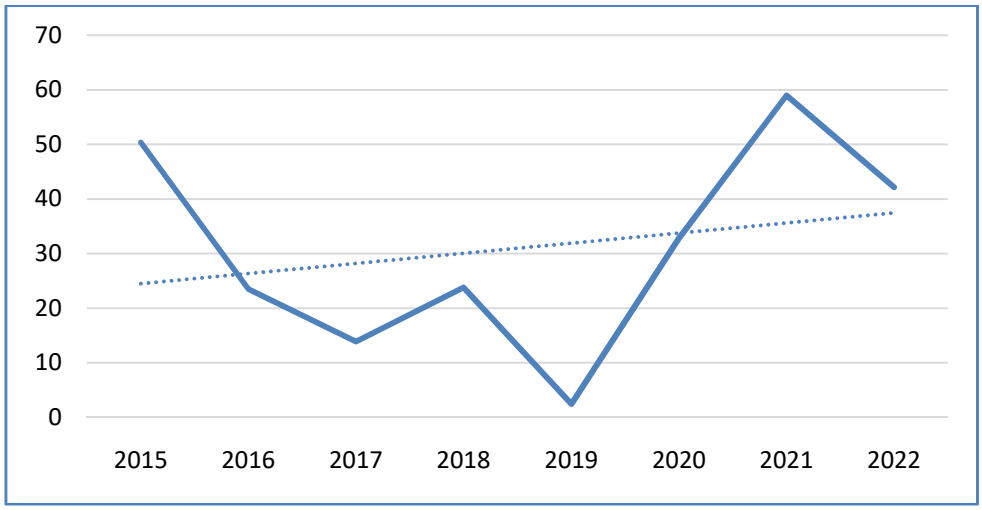
2016 to 2021. The highest S/D Ratio of Kasargod was also in the year 2021. The S/D Ratio was 52. It was at the lowest in the years 2016 and 2020. The S/D Ratio of Kozhikode was 32 in 2015. Then it went down in the following years until 2021. In 2021 it was 32 and it increased further in 2022 to 39. Similarly, in Kollam district, the S/D Ratio was 27 in the year 2015. Then it decreased until it reached 2 in the year 2018. There was a gradual hike in S/D Ratio from the year 2020 to 2022. In Kannur, the highest S/D Ratio was in 2021 and the lowest was in 2018. In Kottayam, the highest S/D Ratio was 166 in 2021 and lowest was in 2020. The highest S/D Ratio in Malappuram district was 48 in the year 2022. The lowest was in the year 2018. In Palakkad, the highest S/D Ratio was in 2021 and the lowest was in 2018. On the contrary, Pathanamthitta district shows the highest S/D Ratio in the year 2015 and lowest in 2021. In the same way, Thrissur has the highest S/D Ratio i.e., 206 in the year 2015 and lowest in the year 2021. In the case of Thiruvananthapuram, the highest S/D Ratio was in 2015. The lowest S/D Ratio was in the year 2022. In the case of Wayanad, the highest S/D Ratio was in 2020 and the lowest S/D Ratio was in the year 2017.

Trend of Supply to Demand Ratio

Trend of Supply to Demand Ratio in Kerala teacher labour market from the year 2015 to 2022 is graphically represented in the Figure 30.

Figure 30

Supply to Demand Ratio of Teachers from 2015 to 2022



The years from 2015 to 2016 are given on X axis and S/D Ratio values are given on the Y axis. The S/D Ratio line shows a decline from 2015 to 2017. Then it gradually increased in 2018 before it fell down in 2019. Then the S/D Ratio increases to its highest value in the year 2021 and then diminishes in the following year.

The trend line shows an increasing trend from the year 2015 to 2022. It means the demand and supply ratio of teachers are slowly increasing. It is very clear that the number of teachers supplied for a particular demand shows an increasing trend. In other words, the gap between demand and supply is increasing. It can be the effect of a decrease in demand or an increase in supply or both. It is very clear that the Kerala teacher labour market is influenced by excess supply.

Section 3- Analysis of Factors Influencing Demand for Teachers

*"Demand is less of a policy matter since the government has actually little leverage on the factors influencing teacher's demand"- **(Chevalier & Dolton, 2004)***

Contents

- Nature of demand for teachers in Government, Aided and Unaided schools
- General factors influencing demand for teachers
- Internal and external factors influencing demand for teachers
- Other factors influencing demand for teachers in Unaided schools

It is essential to ensure availability of professional teachers to provide quality education. The role of teacher is invaluable in creating inspiring classrooms and effective learning process. Teachers should equip themselves to adapt and conquer the evolving learning environment due to technological and social transformations. In order to ensure supply of qualified teachers in to the education process, state must undertake effective manpower planning every year. In this chapter, the nature demand for teachers in government, aided and private

schools are described separately. Then the factors influencing demand are studied in 3 ways: Firstly, the general factors which immediately cause the demand for teachers are extracted from government records. Secondly, the factors are expanded, based on qualitative data collected from the interviews and secondary sources such as commission reports, high court verdicts, circulars, orders etc., by categorizing them into internal and external factors. Finally, private or unaided schools are specially studied to know their factors influencing demand as they are working in highly elastic market.

Nature of Demand for Teachers in Government Schools

In Kerala, this manpower planning is done on the basis of enrolment on 6th working day. The authority to plan teaching and non-teaching requirements is vested in the hands of Assistant Education Officer (A.E.O) in the case of primary schools and District Education Officer (D.E.O.) in the case of high schools. The authority of creation and termination of a post is in the hands of state government in all other departments. But in the case of education, it was given to A.E.O. and D.E.O. at the time of framing Kerala Education Rule in order to avoid any delay in the appointment of teachers for the students who have enrolled in schools to pursue their studies. (Khadar Committee, 2019).

There are two types of recruitment in government schools: Internal and External. Internal recruitment is done through internal transfers and promotions. The external recruitment of teachers in government schools is done through Kerala Public Service Commission. Section 11 of the Kerala Education Act (1958) provided that appointments of teachers should be made by district wise selection through Public Service Commission. District offices of education in the state collecting data from schools and report the vacancies to KPSC, which conducts selection tests and filling up these vacancies.

Nature of Demand for Teachers in Aided Schools

In the case of aided schools, the managers of the schools are authorised to make appointments. The conditions of service of teachers are governed by the provisions contained in Section 12 of the Act and in the rules in Chapter XIVA of Kerala Education Rule. Rule 1, provides that whenever vacancy occurs in a government aided school, the Manager have to follow the directions issued by Government from time to time, for ascertaining the availability of qualified hand and for filling up the vacancies. Section 11 of the Act, as amended in 1960, empowers the Managers to appoint teachers subject to the rules and conditions laid down by Government, from among persons who possess the qualifications prescribed under Section 10. Section 12 of the Act empowers Government to prescribe the conditions of service of teachers in aided Schools, including conditions relating to pay, pension, provident fund, age of retirement and restricts the power of Manager to impose penalties of dismissal, removal and reduction in rank on teachers by insisting prior approval of educational officers and insists approval for placing any teachers under suspension beyond 15 days. The appointment of primary teachers thus made is later approved by Assistant Education Officers and the approval of high school teacher appointments are made by District Educational Officers.

Additional post for the requirements of new subjects and additional divisions for increased number of students are created. As a result, there will be a demand for new teachers. In the same way, when there is a division fall due to a smaller number of students, the post is terminated. Similarly, there are part time language teachers handling languages. Sometimes, when the number of students is increased, the part time teachers become full time teachers provided that there should be more than 16

students. This happens vice versa when the number of students decline, these teachers may become part time teachers.

Under Rule 6(viii) of Chapter V of KER, the Managers of schools which were upgraded or newly opened subsequent to the year 1979, have to execute an agreement with Government in which they have to agree that they shall fill up the vacancies in their schools by appointing protected teachers who were retrenched due to division fall after enjoying two vacation salary.

Nature of Demand for Teachers in Private Schools

In the case of private schools, the managements of such schools undertake all the steps of teacher recruitment from inviting applications up to the selection of suitable candidates and their placements.

The investigator analysed various official documents in district education offices in order to identify various determining factors of teacher demand.

Factors Influencing Demand for Teachers

The demand for teachers in Kerala, as in any other region, is influenced by a variety of factors. These factors can be broadly categorized into demographic, economic, educational, and policy-related factors. Apart from a broader categorization, in-depth analysis of occurrence of vacancies in schools and creation of teacher demand has been made in present study. In the case of government and aided schools in Kerala, the demand for teachers arises when the existing workforce of teachers are insufficient to cater the needs of students in classrooms. Fluctuations in student enrolment, effected from demographic factors and educational policies of the state lead to this situation. Similarly, in the case of private schools, demand for teachers arises when the existing number of teachers are less than what is actually required.

The demand arises in Government and Aided sector differ from that of private schools as the former demand appears in total which gives a macro level view of the phenomenon. In the case of most of private schools it is an individual concern of the particular school which is a micro level perspective of teacher demand. There are some private school groups who conduct centralised recruitment to various member schools. They do collective manpower planning for the total demand arose in their schools. Such institutions are rare in Kerala as the Government sector dominates the lion's share of the total employers in the labour market.

Analysis of General Factors Influencing Demand for Teachers in Government and Aided Schools

In the case of Government and Government Aided Schools, each school reports the demand for teachers to District Education Office who consolidates the total demand for teachers in the district. From the analysis of registers of vacancies and appointments kept in District Educational Offices, it is clear that the major factors influencing demand for school teachers in government sector are the following:

1. Enrolment of Students
2. Promotion and Demotion
3. Transfer of teachers
4. Personal Factors
5. Internal Reorganisation

Various factors which resulted in creating demand for teachers in government and aided schools in Kerala are listed in Table 27.

Table 27

Factors Influencing Demand for Teachers in Government and Aided Schools

General Factors	Percentage
i. Enrolment of Students	8.96
Additional Post	4.5
Fresh Appointment	2.8
Additional Division	0.83
Part Time and Full Time Changes	0.5
Anticipatory vacancy	0.25
Staff Fixation	0.08
ii. Promotion & Demotion	11.75
Promotion to Higher Level	5.17
Head Master Promotion	4.75
Deputation	1.5
Termination	0.25
Suspension	0.08
iii. Transfer of Teachers	55.92
Transfer	23.93
General Transfer	15.34
Inter District Transfer	7.83
Online Transfer	4.83
Intra District transfer	3.58
Panchayath	0.25
By Transfer	0.16
iv. Personal Factors	24.06
Retirement	18.43
New PSC	1.5
Not Joining Duty	1.41
Demise	0.83
Voluntary Retirement Scheme	0.41
New Job	0.16
Leave Without Allowances	0.16
Leave with Half Pay	0.083
Resignation	0.08
v. Internal Re-organization	0.89
Rearrangement	0.25
Head Teacher Vacancy	0.16
Provisional Vacancy	0.16
Appointment in another district	0.16
Removal of Protected Teacher	0.083
To parent department	0.08

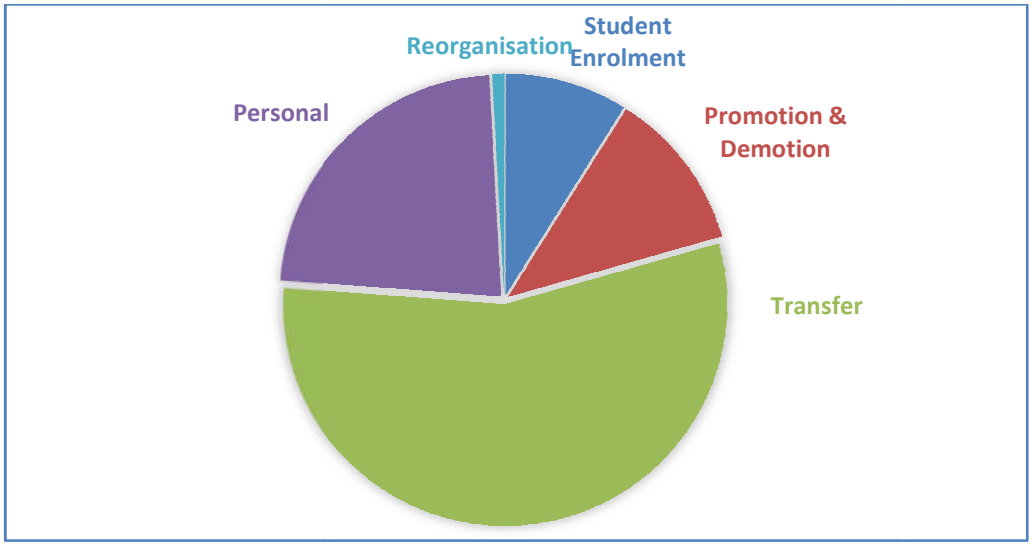
Source: Consolidated data from registers of District Educational Offices in Pathanamthitta, Kottayam and Alappuzha during 2016-22

Broadly, they can be categorised as student enrolment fluctuations, promotion and demotion, transfer of teachers, personal factors and internal rearrangements. From the overall analysis of this data, it is very clear that transfers and retirements occupy significant role in creation of demand for teachers in Kerala. The changes in student enrolment creates 8.96 percentage of teacher demand in the state. The demand raised due to promotion and demotion occupy 11.75 percentage. The various types of transfers result in 55.92 percentage of teacher demand when personal factors and internal reorganization 24.06 and 0.89 respectively.

The following figure shows factors influencing demand for teachers:

Figure 31

Factors Influencing Demand in Kerala



Further, a comprehensive analysis of these direct factors influencing teacher demand is necessary to get more insights about Kerala Teacher Labour Market and the demand dynamics. It is essential to investigate various factors which externally control the direct factors to get more vivid picture of the teacher demand. The demand for teachers in Kerala is shaped by a myriad of economic, social, and policy-related factors. Kerala, renowned for its high literacy rates and commitment to education, has cultivated an environment where the demand for qualified educators is a critical aspect of its socio-economic framework.

Internal and External Factors Influencing Demand for Teachers

For an in-depth analysis, the factors influencing demand for teachers in schools can be broadly classified into Internal and External Demand. Internal factors influencing demand include transfer, promotion and demand and internal re-organisation. External factors include enrolment, artificial demand, demographic patterns, other syllabus schools, government programmes to empower public education and teacher attrition.

I. Internal Factors Influencing Demand

Internal factors influencing demand imply the factors led to the demand for teachers that was occurred due to the internal transfers and reorganization. Most of such demand are supplied by the internal sources of recruitment such as transfers and promotions.

1. Transfer of Teachers

A large part of teacher demand is created due to transfer of teachers in the state. Unpredictable transfers affect the classroom ecosystem. 'Losing teachers suddenly can have harmful effects on students, particularly young children, with respect to their psychology and education. Transfers also prevent teachers from becoming truly invested in and building relationships with the schools and communities in which they serve.' (NEP, 2000). The transfers are made in all 14 revenue districts of Kerala in the vacancies available after the deployment of teachers in district level common pool. If a teacher gets a transfer as per the application, it cannot be cancelled. But, in the case of absence of vacancy, a transfer can be cancelled by the Deputy Director of Education (Circular DGE/3300/2024-A5). There are punishment transfers as part of disciplinary action. Teachers who are thus transferred as part of punishment shall not have the right to demand for a transfer to a higher option on the application for transfer that was made on online earlier.

The application for transfer is done through online these days. According to latest circular issued by office of Director of Public Instruction, only online

applications are taken into consideration. The teachers are deserved to apply for a General Transfer only if they are applying for the similar post which they are currently working. If a teacher was transferred to a Model Residential School as per the order of Public Education Director can apply for the General transfer only after the completion of three years of service. For those teachers who got inter district transfer, the seniority is calculated only from the date of joining in the new district.

Teachers who are eligible for transfers with special consideration are grouped into three categories as shown in Table 28.

Table 28

Categories of Teachers Eligible for Inter-district Transfers

Categories	Percentage	Teachers	Details
Category 1	60	Senior Teachers (General Seniority)	Teachers left with service of just 1 year for the pension will be completely given transfers to the available vacancies
Category II	20	Teachers applying for sympathetic transfers	Such transfers are restricted to: Permanent disability due to an accident or disease Chronic diseases that need long term treatment and dependence on others like Cancer. Chronic diseases of dependents Wife of a Died or Disabled Jawan
Category III	20	Teachers with special needs	These sections include: Backward Communities (SC, ST), Persons with Disabilities, Persons with locomotor disability including cerebral palsy, cured leprosy, dwarfism, acid attack victims, muscular dystrophy), Parents of disabled children, Dependents of Jawan killed in war etc.

Source: Circulars DGE/3300/2024-A5&A1/573/2021DGE dated 02/02/2021

From the table it is very clear that there are three categories of teachers eligible for inter-district transfers. Category I represents senior teachers, Category II represents

teachers applying for sympathetic transfers and Category III represents teachers with special needs. Details of each category and percentage of their representation are given in Table 29.

Table 29

Categories of Teachers Eligible for Inter-district Transfers

Categories	Priority (%)	Teachers
Category 1	60	Senior Teachers (General Seniority)
Category II	20	Teachers applying for sympathetic transfers
Category III	20	Teachers with special needs

Source: Circulars DGE/3300/2024-A5&A1/573/2021DGE dated 02/02/2021

The following table shows problem of transfer of teachers in Kerala:

Table 30

Problems in Transfer of Teachers in Kerala

	Problems	Actions Taken by Government
1	Increased number of applications requesting transfer every year	With the help of the E-Governance initiative undertaken by KITE, all the requests are prioritized according to the reasons indicated in the request.
2	Delayed transfer and posting	Through online system, the transfer can be completed within weeks
3	Ambiguity regarding the number of available vacancies	Available vacancies shall be published in advance so the applicant can view it in advance
4	Corruption and nepotism and lack of transparency in transfer	A provisional list of transfer is published on the website to ensure transparency
5	Complaints about the internal arrangement transfer against norms made by aided schools with corporate managements	Unresolved
6	Transfer is made throughout the academic year ignoring its impact on learners	Unresolved

Sources: Official website of Department of General Education, Khadar Committee Report 2019, Draft NEP 2019 and Circulars DGE/3300/2024-A5 & A1/573/2021DGE dated 02/02/2021

The table 30 shows problems of transfer of teachers in Kerala. The increasing number of transfer, its delays, ambiguities, corruption, nepotism, etc. are the major problems caused by transfer.

2. Promotion and Demotion

The details of promotion and demotion are given in Table 31.

Table 31

Vacancies Created by Promotion and Demotion

Sl. No.	Vacancies Created Due to Promotion and Demotion
1	Promotion of primary teachers as high school teachers
2	Promotion of Senior teachers as Head Masters
3	Deputation on foreign service
4	Suspension of teacher who was reported to commit crimes or engage in anti-social behaviour
5	Termination of the post of teacher by District Education Officer
6	A teacher who is detained in custody on a Civil, Criminal or other proceeding for a period exceeding 48 hours, shall be deemed to have been under suspension
7	Compulsory retirement imposed upon a teacher

The demand for teachers is created due to promotion of teachers, deputation and disciplinary actions such as suspension and termination. The promotion to higher level is done based on the qualification of the teacher. A primary school teacher who possesses qualification for becoming a high school teacher can be promoted. The senior teachers are also promoted as HMs of the schools. The Head Master promotion is conducted on the basis seniority of the service by the teachers. This sole criterion for the appointment of Head Master is often disputed. In contemporary school system, the Head Master, as a leader of institution, should not only be aware of the past practices but also possess administrative skills and vision to transform schools as the centers of quality. (Khadar Committee, 2019). Some vacancies arise when the teacher is suspended or terminated from the service. The teachers who were reported to commit crimes or engage in antisocial activities are suspended for a

period of time. The authority to suspend and terminate a post of teacher is vested with the District Education Officer.

3. Internal Re-organisation

Various vacancies created as a result of internal re-organization, is given in the Table below.

Table 32

Vacancies Created Due to Internal Reorganization

Sl. No.	Vacancies by Internal Re-organization
1	Filling up of provisional vacancy
2	Removal of protected teachers
3	Returning of protected teacher to parent department
4	Head Teacher Vacancy

Source: Circular DGE/7208/2024-H2-Part (1)

This category includes vacancies created due to the internal rearrangements such as filling up of provisional vacancy, removal of protected teachers, returning of a protected teacher to parent department etc. It also includes the Head Master Teaching Vacancy which arises when the Head Master is heavily loaded with work and no time to engage the classroom due to the busy administrative duties. In such case a new teacher from teacher bank can be appointed as Head Teacher Vacancy. (Circular DGE/7208/2024-H2-Part (1))

II. External Factors Influencing Demand for Teachers

External factors influencing demand refer to the factors that led to the changes in demand due to the factors such as enrolment changes and teacher attrition.

1. Enrolment of Students

Student enrolment is the most important external factor of demand for teachers. The relationship between enrolment of students and demand for teachers is

directly proportional. As the number of students enrolling in schools increases, the need for an adequate teacher workforce also rises to ensure effective learning. This demand is particularly influenced by the determined teacher-student ratios.

At national level, the school is taken as the unit of teacher appointment. So, considering a primary school with classes 1 to 5 as one unit, 2 teachers can be appointed for 60 students. If the number of students is up to 90, 3 teachers can be appointed. Four teachers can be appointed from 91 to 120 students. But Right to Education Act stipulates 5 teachers are to be appointed for 120 to 200 students. There should be at least 5 teachers in a primary class with 5 classes in order to get a teacher to each class. The student teacher ratio according the Act, should not be more than 40:1. But in Kerala, a teacher for one division is the policy adopted since the Kerala Education Rule came into effect in 1959. The student teacher ratio is 45:1. (Khadar Committee, 2019)

Analysis of the student enrolment includes 3 types of analysis:

1. Historical Analysis of Student Enrolment in Kerala
2. Level-wise Analysis of Student Enrolment

Historical Analysis of Student Enrolment

History of student enrolment in Kerala is the history of an educational revolution. The historical trends in enrolment illustrate the transition of the state from rapid educational expansion to a phase of demographic maturity and stabilization. The challenges posed by these demographic changes include optimizing teacher recruitment, maintaining quality education in all areas of the state and adapting well to the technological updates in learning. By leveraging these insights, the state of Kerala can continue to lead an educational model for the nation.

An In-depth Historical Examination of Student Enrollment and Teacher Demand Dynamics in Kerala (1956-57 to 2023-24) delves into the patterns and shifts within Kerala's educational landscape, focusing on student enrolment and teacher demand for grades 1 through 10, spanning from 1956-57 to 2023-24.

Total enrolment in schools from 1 to 10 and number of teachers during the period from 1950-57 to 2023-24 is given in the following table 33.

Table 33

Enrolment in Kerala in Classes 1 to 10 and Number of Teachers from 1956-57 to 2023-24

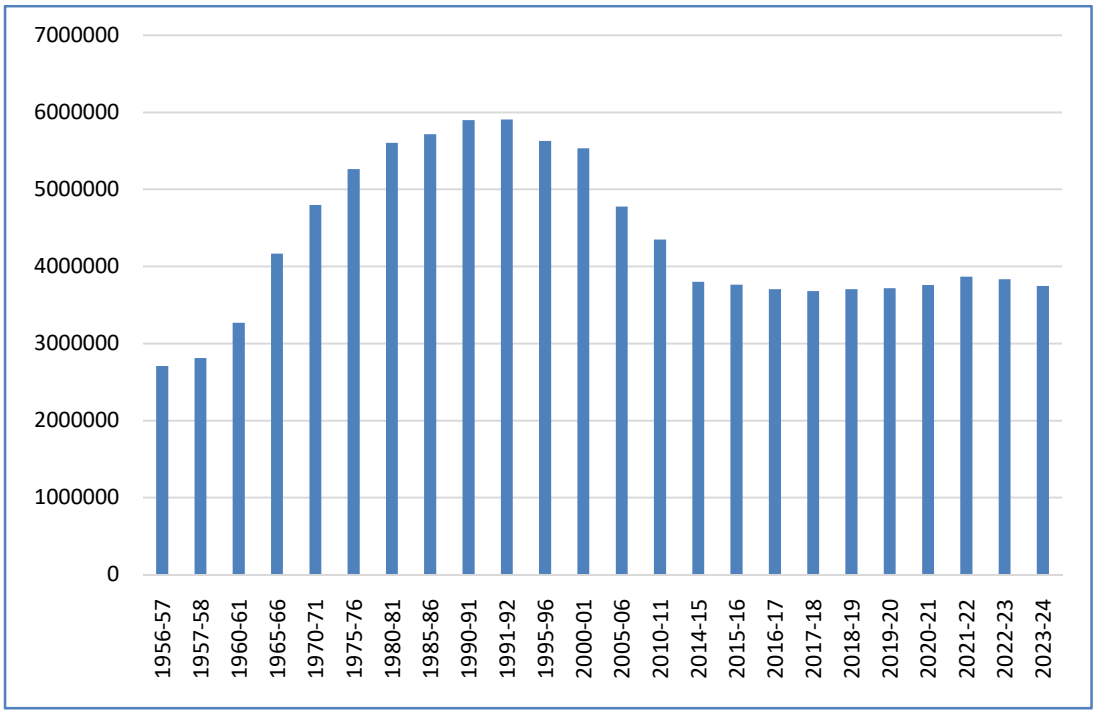
Year	Enrolment 1-10 Classes	Number of Teachers
1956-57	2709271	77652
1957-58	2813703	83520
1960-61	3270301	108857
1965-66	4167836	124821
1970-71	4799532	142305
1975-76	5265351	162385
1980-81	5602953	175434
1985-86	5716151	188354
1990-91	5901101	191008
1991-92	5907005	Not available
1995-96	5627753	189006
2000-01	5534224	182186
2005-06	4776306	176569
2010-11	4351225	168062
2014-15	3800526	164154
2015-16	3763169	164207
2016-17	3705820	163160
2017-18	3680740	161951
2018-19	3703818	162627
2019-20	3716897	162045
2020-21	3757694	160379
2021-22	3868111	158637
2022-23	3832395	157541
2023-24	3746647	156506

Source: Economic Review of respective years and Khadar Committee Report 2019

The following figure shows enrolment in Kerala in classes 1 to 10 from 1956 to 2024.

Figure 32

Enrolment in Kerala in Classes 1 to 10 from 1956-57 to 2018-19



The total enrolment in schools in classes 1 to 10 from the year 1956-57 to 2023-24 as shown in Table 32, we can understand that the fluctuation in student enrolment is not a new phenomenon in Kerala.

Highlighted areas of the above historical analysis reveals the following key facts as shown in Table 34:

Table 34

Highlights of Historical Analysis of Student Enrolment and Teacher Workforce from 1956 to 2024

Period		Characteristics
1956-1981	Period of Exponential Growth	Escalated enrolment 106.8 % and teaching workforce from 125.9%
1980-1992	Period of Stabilization	Enrolment slowdown to 5.43% and teacher workforce stabilization 8.87 %
1995-2015	Period of decline in enrolment	Enrolment declined 32.48% and teacher population 13.15 %
2014-2024	Period of Recent Stabilization	Enrolment increased 5.27% but decline in number of teachers 4.03 %

Period of Exponential Growth (1956- 1981)

In the years following the establishment of the state, there was a marked escalation in student enrolment, ascending from 2,709,271 in 1956-57 to 5,602,953 in 1980-81. This period, characterized by an annual enrollment growth rate of approximately 100,000 students, was influenced by the state's commitment to Universal Primary Education to enhance school accessibility and enrollment rates. The efforts for the universalization of primary education of the state was triggered by the Royal Rescript of Maharani Uthrittathi Thirunal Gowri Parvathi Bayi in 1817. The period also shows demographic expansion. In other words, an increase in the school-age population directly contributed to higher enrollment figures. Teacher Recruitment was also enhanced during this era to accommodate the increasing student population, the number of teachers swelled from 77,652 in 1956-57 to 175,434 in 1980-81.

Period of Stabilization (1980 to 1992)

The subsequent years witnessed a slowdown in enrollment growth, culminating in a peak of 5,907,005 students in 1991-92. This phase of relative stability

was marked by a demographic Shift. There was a decline in fertility rates which impacted the growth of the school-age population. During this period, the teacher workforce also saw a moderate increase sustaining optimal teacher-student ratios.

Period of Enrolment Decline (1995 to 2015)

A significant downturn in enrollment was observed post-1991-92, with figures going down from 5,627,753 in 1995-96 to 3,800,526 in 2014-15. A decline in the fertility rate below replacement levels resulted in a diminished school-age population (Khadar Committee, 2019). During this period, the Rise of Private Education has also contributed to a decline in government school enrolments (Ganga, 2022). Correspondingly, the teacher population experienced a gradual decline, adjusting from 189,006 in 1995-96 to 164,154 in 2014-15, in response to the diminished demand.

Period of Recent Stabilization (2014 to 2024)

A remarkable stabilization and minor recovery in enrollment figures were observed, with numbers increasing from 3,680,740 in 2017-18 to 3,874,647 in 2023-24. Initiatives such as the Right to Education (RTE) Act and the integration of digital learning platforms played important role in stabilizing enrollment figures. Despite this, the teacher count has continued to marginally decline, from 164,154 in 2014-15 to 157,541 in 2022-23 as a preparation for contracting demand.

Trends in Enrolment

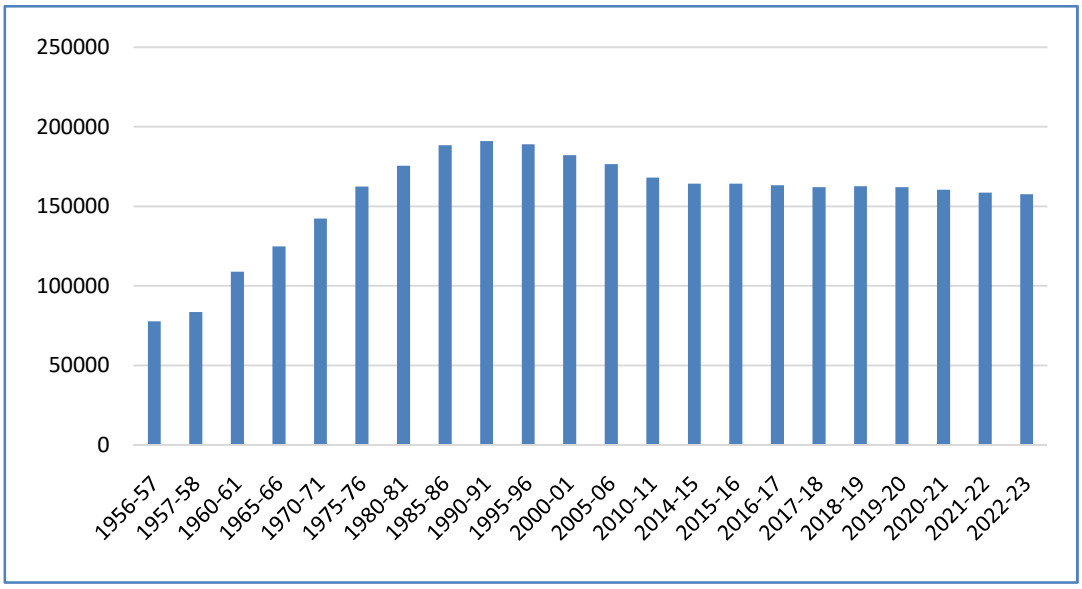
A peak in 1991-92 followed by a significant downturn, with a stabilization and slight recovery observed in recent years. Initial rapid growth in teacher numbers, with a gradual decline commencing in the mid-1990s, reflecting the adjustment to reduced student numbers and enhanced operational efficiency. Thus, the historical trajectory of student enrolment and teacher dynamics in Kerala delineates a transition from a phase of educational expansion to demographic stabilization. It is very clear that the changing enrolment in the state as a result of many other factors results in fluctuations

in demand each year. There is a small decrease in the enrolment of students in 2023-24 (provisional) to 37.46 lakh from 38.32 lakh in 2022-23. This decrease is seen in all sections but large quantity is in Lower Primary section and this may be attributed to the low birth rate of the State. (Economic Review, 2023)

Graphical representation of total number teachers in Kerala from 1956 to 2023 is given below:

Figure 33

Number of Teachers in Kerala from 1956 to 2023



In the year 1956-57, the total number of teachers was 77,652. In 2022-23, it is 1,57,541. The academic year with the largest number of teachers in the schools was 1990-91 which was 1.91 lakhs. Then there was a decrease in the number of teachers in proportion to the decrease in the number of students enrolled.

Level-wise Analysis of Enrolment

The data given in Table provides insights into student enrolment trends across three levels of education—Lower Primary (Lower Primary), Upper Primary (Upper Primary), and High School (High School)—in Kerala over the period from 2017-18 to 2023-24. Below is a detailed level-wise and overall analysis.

The following Table shows level wise enrolment of students and strength of teacher workforce in 2017 to 2023:

Table 35

Level-wise Enrolment of Students and Teacher Work Force from 2017-18 to 2022-23

Year	Lower Primary		Upper Primary		High School Level	
	Enrolment	Teachers	Enrolment	Teachers	Enrolment	Teachers
2017-18	1282369	38234	1101772	39812	1296599	83905
2018-19	1314944	44907	1112767	39161	1276107	75636
2019-20	1329219	39795	1120713	39738	1266965	80846
2020-21	1357607	38120	1134253	38920	1265834	80320
2021-22	1418079	38997	1175521	38913	1274511	80727
2022-23	1373066	38930	1186030	40549	1273299	78062

Source: Directorate of General Education& Economic Review

A comparative analysis of the data from Table 37 is given below:

Table 36

Comparative Level Wise Analysis of Enrolment and Teacher Workforce

Levels	Enrolment	Teacher Workforce
Lower Primary	Increased in 2021-22 (10.58 %) declined 3.18 % in 2022-23	Increased in 2018-19 17.45 %
Upper Primary	Increased in 2022-23a 7.65%	Fluctuations are seen decrease in 2017-18 and increase in 2022-23.
High School	A gradual decline in 2022-23 (1.80 %)	Significant decline in the number of teachers in 2022-23 (6.97%)

A detailed analysis of student enrolment and teacher workforce at different educational levels in Kerala from 2017-18 to 2022-23 is given in Table 36. The enrolment in lower primary schools showed a consistent increase from 1,282,369 in 2017-18 to 1,418,079 in 2021-22, marking a 10.58 percentage growth over

five years. However, in 2022-23, the enrolment declined to 1,373,066, reflecting a 3.18 percentage decrease. The number of teachers in lower primary schools increased from 38,234 in 2017-18 to 44,907 in 2018-19, followed by fluctuations around 38,930 in 2022-23. In upper primary level, the enrolment increased from 1,101,772 in 2017-18 to 1,186,030 in 2022-23, showing a 7.65 percentage rise.

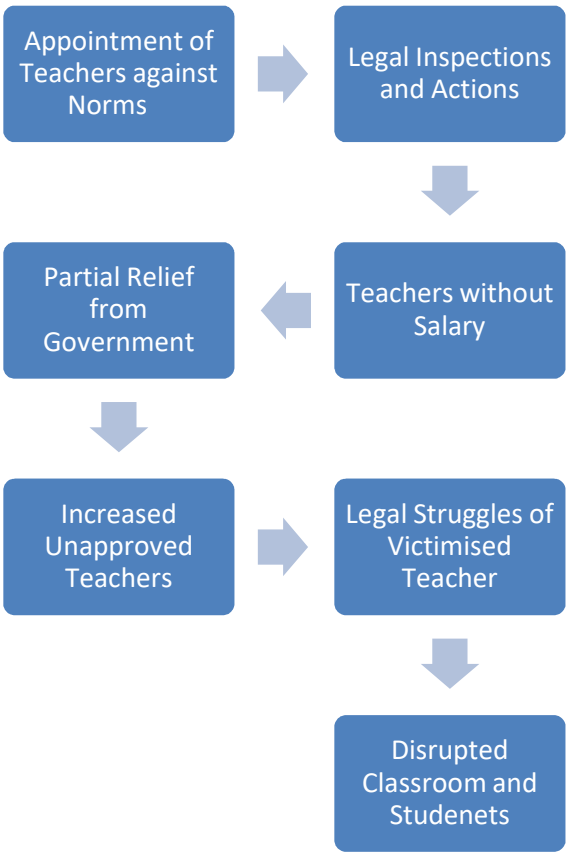
The teacher workforce fluctuated slightly, decreasing from 39,812 in 2017-18 to 38,913 in 2021-22, before increasing to 40,549 in 2022-23.Enrolment in high schools showed a gradual decline from 1,296,599 in 2017-18 to 1,273,299 in 2022-23, marking a 1.80 percentage reduction over six years. The decline is relatively small compared to primary levels which indicated a more stable retention. A significant decline was seen in the number of teachers from 83,905 in 2017-18 to 78,062 in 2022-23. The 6.97 percentage decrease in high school teachers suggests a decline of qualified teaching staff at this level. Lower primary level witnessed the highest enrolment increase (10.58 percentage) but also a recent decline (3.18 percentage). Upper Primary level enrolment growth (7.65 percentage) remained stable. High School level enrolment showed a slight decrease (1.80 percentage), but the workforce reduction (6.97 percentage) was more significant.

2. Artificial Demand

The pictorial representation of chaos caused by artificial demand is given in Figure 34.

Figure 34

Flow Chart of Chaos Created by Illegal Teacher Appointments in Aided Schools



The figure 34 given shows, how the illegal appointment of teachers by the managers of government aided schools leads to confusion in aided sector because of the misuse of this provision. The managers appoint teachers for anticipated vacancies with an expectation of approval of the government on the basis of enrolment on 6th working day. Some appointments made without conforming to the norms were subject to legal inspections and actions later. Managers consistently disobeyed the norms and they appointed fresh hands they prefer in their schools. The educational officers did not approve such illegal appointments made in disobedience of rules. It resulted in production of large number of teachers continuing in such schools for several years without salary. Seeing the heartburn of such teachers, the Government issued orders relaxing the provisions in the rules directing the Managers to appoint

at least one protected teacher in such schools. The violation continued in several schools even after such relaxation, enhancing the number of unapproved teachers. (The Manager vs. State of Kerala, 2015). Victimized teacher who is getting stranded has to visit different departments as part of legal proceedings. In such circumstances, the class rooms are affected very badly. There is a tendency to fill up classrooms by bringing students even from the undesirable distances in fully loaded school vehicles (Khadar Committee, 2019). This tendency disturbs the learning ecosystem of the state in many ways as given in Table 37.

Table 37

Effects of Cramming Students for Creating Artificial Demand

Sl. No.	Effects of Cramming Students for Creating Artificial Demand
1	The perspective of neighbourhood schools is vanished
2	Some schools become enormously bigger in size by attracting too many students
3	Maintaining quality and equity is challenged because of the unfavourable practices to create more enrolment and thus more teaching positions.
4	Some schools become remarkably smaller and uneconomic because of the lower number of students.
5	The small size of schools makes them “economically suboptimal” and “operationally complex”
6	The schools even resort to multigrade teaching which reduce the effectiveness of educational transaction

Sources: Dongre and Tiwary (2020), National Educational Policy (2020)

3. Demographic Shifts

The declining crude birth rate in Kerala from 2010 to 2021 is given in Table 38.

Table 38

Birth Rate in Kerala from 2010 to 2021

Year	Crude Birth Rate (per 1000 population)
2010	15.75
2011	16.75
2012	16.37
2013	15.88
2014	15.75
2015	15.13
2016	14.48
2017	14.62
2018	14.1
2019	13.79
2020	12.77
2021	11.94

Source: Department of Economics and Statistics, Annual Vital Statistics Report 2021

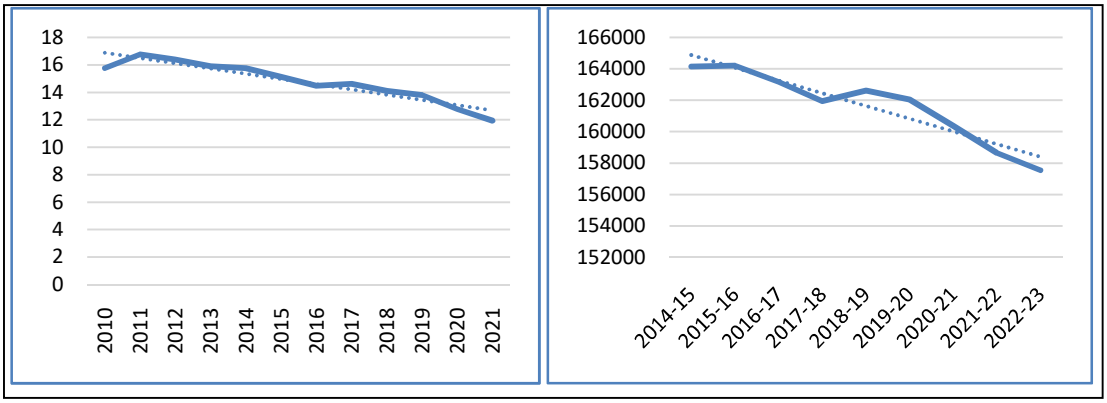
From Table 38, it is very clear that the Crude Birth Rate (CBR) in Kerala shows a consistent decline from 15.75 in 2010 to 11.94 in 2021. It represents a 24.2 percentage reduction over the period of 11 years indicating a very important demographic shift. During the period from 2010 to 2014, the CBR remained relatively stable, fluctuating between 15.75 and 16.75. The period from 2015 to 2018 showed a steady decline with the CBR falling from 15.13 in 2015 to 14.1 in 2018. The decline accelerated during the period from 2019 to 2021, with the CBR dropping from 13.79 in 2019 to 11.94 in 2021. The sharpest decline occurred between 2019 and 2020, where the CBR dropped from 13.79 to 12.77 marking a 7.4 percentage decline in single year. The year 2021 recorded the lowest CBR at 11.94. The data reveals a decline in Kerala's birth rate, with sharp slopes particularly in

recent years. This trend has far-reaching implications for Kerala's education system. The declining fertility has attributed to the cut in the school going population at primary level of education.

The following diagrams show crude birth rate and flow of teacher work force.

Figure 35

Crude Birth Rate (2010-2021) and Teacher Workforce (2014-2023)



The decline in number of teachers as a result of decline in enrolment is mainly due to demographic transition and not due to the increase in unaided schools in the state. There was an increase in the enrolment in unaided private schools from 0.18 lakhs in 1973 to 0.79 lakhs in 1993, which constituted only a meagre 0.73 percentage of total Lower Primary school enrolment in 1993. (James,1995). The fertility decline has directly affected the declining school enrolment in aided and government schools as its direct impact. Many things attribute the trend to a change in the demographic pattern of the state due to a low birth rate brought about by effective family planning initiates. In Kerala, which has the lowest population growth in the country, children in the age group 0 to 6 comprise only 10 per cent of the population. This has reflected in declining enrolment over the last one decade. (Retnakumar, 2003)

4. Increasing Number of Schools Teaching Other than State Syllabus

Details of schools in Kerala teaching other than state syllabus are given in Table 39.

Table 39

Number of Schools in Kerala (Other than State Syllabus)

Year	CBSE	ICSE	Kendriya Vidyalaya	Jawahar Navodaya	Total
2014-15	1178	148	33	14	1373
2021-22	1309	164	36	14	1523
2023-24	1370	167	40	14	1591

Source: Directorate of Public Instruction, Kerala Economic Review

According to Table 39, the total number of schools following non-state syllabi increased from 1,373 in 2014-15 to 1,591 in 2023-24, marking a 15.9 percentage growth over the period. The increase indicates a growing preference for alternative educational systems such as CBSE, ICSE, and central government-run schools in Kerala. The number of CBSE schools increased from 1,178 in 2014-15 to 1,370 in 2023-24, showing a net increase of 192 schools (approximately 16.3 percentage growth). The largest growth occurred between 2021-22 and 2023-24, with 61 new CBSE schools established. The number of ICSE schools increased from 148 in 2014-15 to 167 in 2023-24, reflecting a 12.8 percentage increase over the period. The number of KVs increased slightly from 33 in 2014-15 to 40 in 2023-24, adding 7 new schools during the period. The number of JNVs remained constant at 14 throughout the observed period.

The data highlights a clear upward trend in the number of schools following CBSE, ICSE, and central government syllabi in Kerala. Apart from low birth rate, the growth of schools under the CBSE syllabus too has affected state board schools. In 2003, the state had only 373 schools under CBSE (Varghese, 2015) and by 2023-24, it is increased to1370. Increase in the number of students seeking such schools

affect the student enrolment in state syllabus schools and as a result, decrease in the number of teachers demanded.

5. Teacher Attrition

Details of various factors leading to teacher attrition is presented in Table 40.

Table 40

Factors of Teacher Attrition

S. No.	Personal Factors Leading to Teacher Attrition
1	Retirement of teachers on maturity of the age
2	Death/Demise of Teachers
3	Getting new job through Kerala PSC or other
4	Resignation of teachers
5	Voluntary Retirement Scheme
6	Leave without allowances
7	Leave with half pay

The personal factors which contribute to the teacher demand in the state are retirements, death, getting new job through Kerala Public Service Commission or other, resignations, Voluntary Retirement Scheme, leave without allowances, leave with half pay etc. The age for retirement is 56. But some teachers may leave the profession with allowance taking VRS or resigning without allowance. Teachers who get better opportunities may avail leave without pay for a maximum of 5 years and later rejoin the profession.

Other Factors Influencing Demand in Unaided Schools

Along with the external and internal factors influencing demand in government and aided schools, the private schools show more factors influencing demand. As the private schools are working in a real competitive market, interview with principals of such schools revealed the following factors influencing demand for teachers too:

The following table shows factors influencing demand according to principals in unaided schools.

Table 41

Factors Influencing Demand in Unaided Schools

Sl. No.	Factors Influencing Demand	Percentage
1	Socio-economic factors	100
2	Reputation of Schools	90
3	Academic and Non-academic achievements of school	90
4	Feedback of Parents and students	90
5	Programmes in Schools	70
6	Discipline of School	70
7	Proficiency in English	60
8	Changes in Technology	60

1. Socio-Economic Factors

All the principals reported economic status of parents, economic status of management and Parental Preferences also influence the demand for teachers. The financial status of parents leads to the willingness to invest more for the education of the ward which leads to a pressure on management in employment of a greater number of qualified teachers in school. Similarly, the managements with more financial capacity tend to make recruitments every year. Parental preferences in academic enrichment of the children also prompt the management to acquire more teachers instead of relying on a few teachers handling different subjects. The communal polarization and religious preferences of parents also lead to their orientation towards particular community schools and curriculum which includes aspects of their community or religion.

2. Reputation of School

According to 90 percentage of principals, the schools with reputation can attract more students and always create opportunities for new teachers. Similarly, managements of such schools make quality check every year and conducts fresh recruitments. Teachers also tend to prefer reputed schools.

3. Programmes in Schools

In the opinion of 70 percentage of teachers, Arts fests, sports events, motivation programmes, celebrity visits, excursions, exhibitions etc. attract more students and it leads to more demand for teachers.

4. Academic and Non-academic Achievements of Schools

Among principals, 90 percentage views that academic and non-academic accomplishments of school lead to more intake in schools which in turn results in increase in the number of teachers.

5. Feedback of Parents and Students

Principals (90 percentage) agreed that the parents of unaided schools are more vigilant because they spend money directly for the education of their child. So, they give immediate feedback to the performance of teachers in class rooms. Elder students also respond to the teacher evaluation surveys honestly which forces management to promote the best performing teachers, leave under performers and hire more teachers.

6. Proficiency in English

From the view of 60 percentage of principals, importance given to the English proficiency in the school policy has led to the firing of teachers who lack linguistic skills and hiring of proficient teachers.

7. Discipline in Schools

According to 70 percentage principals, school which maintains high discipline in school creates demand in two ways. Firstly, more parents are attracted to send their children to such schools. The increase in enrolment lead to acquisition of more teachers. On the other hand, such schools are very rigorous in the performance of teachers. So, the underperformers will be forced to leave profession which leads to staff recurrent recruitment.

8. Changes in Technology

About 60 percentage of principals viewed that technology changes such as introduction of smartboards, online classes, AI applications etc. forces teachers to get trained and adapted to the modern systems of technological changes. Thus, the teachers who are capable of adaptation survive and those who are not exit the system.

Summary

The teacher labour market in Kerala is a dynamic and multi-faceted sector influenced by various economic, social, and institutional factors. Understanding the factors influencing demand for teachers is crucial to addressing workforce needs, ensuring quality education, and promoting equitable access to teaching opportunities. This part of analysis chapter analysed the factors influencing demand in government, aided, and private schools in Kerala, highlighting general, internal, external, and specific factors in private schools. The teacher labour market in Kerala is shaped by a complex interplay of general, internal, external, and sector-specific factors. While government and aided schools primarily respond to policy and demographic factors, private schools operate in a market-driven environment with unique challenges and opportunities. Understanding these factors is essential for

stakeholders to ensure adequate teacher supply, improve educational outcomes, and address disparities across different types of schools.

Section 4-Factors Influencing Supply of Teachers: Perceptual Analysis

'Economic behaviour of market participants is at the root of both the problems of faculty shortage and of declining quality of education'

- Sen (2011)

Contents

- Perceptions of
  - Total teachers
  - Female and male teachers
  - Teachers in High School, Upper Primary and Lower Primary levels
  - Teachers in Aided, Government and Unaided schools
  - Teachers differing in years of experience
  - Teachers from different age categories

The teaching profession in Kerala has undergone significant transformation over the decades. While the state has consistently been a leader in education, the state is witnessing excess supply of teachers. There are various factors that influence the supply of teachers in the state. Understanding these factors is very important because the supply of quality teachers is an essential component of ensuring equitable access for all sections of society into quality education. Factors Influencing supply of teachers represent the factors that influence willingness of qualified teachers to join and retain in the teaching profession. Normally, from the part of qualified teachers, when the notifications of vacancies are published, they make applications and go through the recruitment procedures. Majority of teacher professionals are preferring government sector and the reason is believed to be remuneration and job security. Although the aided school teachers have equal

privileges, supreme authority of manager and lack of transparency restricts limits teacher applications towards available vacancies. Most of the qualified teacher candidates seek for unaided schools only when they have no chance of getting into government or aided schools. The supply of teachers represents willingness of a qualified teacher to apply for the vacancy of teachers, to teach in classrooms and to be available for the work. Understanding the factors influencing supply—ranging from teacher retention to graduate orientation—is crucial for sustaining the state's educational excellence. Survey was conducted to identify the factors that determine the supply of qualified professional teachers in to the market.

The analysis of various factors influencing supply of teachers are analysed from six different perspectives:

1. Total teachers
2. Female and male teachers
3. Male and female teachers at High School, Upper Primary and Lower Primary levels
4. Male and female teachers differing in years of experiences
5. Male and female teachers working under different types of management
6. Male and female teachers from different age groups

A survey was conducted using a questionnaire to study the factors influencing the supply of teachers. Detailed analysis of the responses of teachers revealed the following:

Perceptions of Total Teachers on Factors Influencing Supply of Teachers

Teachers' perceptions on various factors influencing the supply of teachers are shown in Table 42.

Table 42

Factors Influencing Supply Perceived by Teachers

Factors Influencing Supply	Percentage
Support from Management and Colleagues	91.65
Occupational Choices	89.91
Status of the Teaching Profession	88.69
Opportunities for Professional Development	86.95
Teacher Autonomy	84.52
Prestige of Schools	61.91
Remuneration and Incentives	50.6

The Table 42 represents teachers' perceptions of various factors influencing the supply of teachers. It is clear from the table that three factors are show highly influential from the perspective of teachers: Support from management and colleagues, occupational choices and status of teacher profession. Support from Management and Colleagues (91.65 percentage) – This is the most significant factor influencing teacher supply, indicating that a strong support system within schools enhances teacher retention and attracts new entrants. Occupational Choices (89.91 percentage) – The availability of alternative career options plays a crucial role in teacher supply. If teaching competes with other attractive careers, supply may be affected. Status of the Teaching Profession (88.69 percentage) – A high percentage suggests that how society views teaching impacts recruitment and retention. If the profession is seen as prestigious, more people may enter the field.

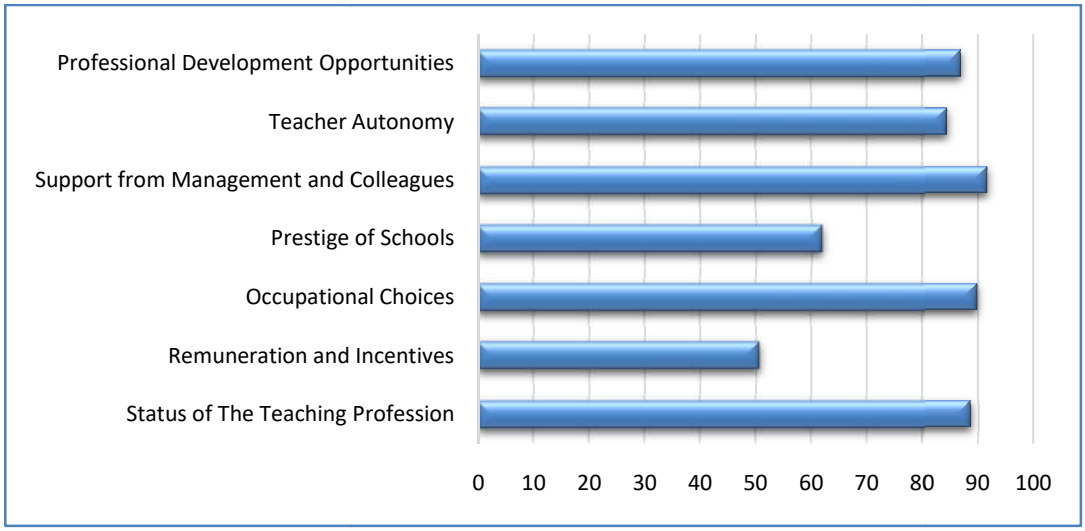
Professional Development Opportunities influence the supply of teachers according to 86.95 percentage of teachers. It shows that teachers value opportunities for growth, and a lack of these may discourage people from entering or remaining in the profession. Teacher Autonomy is considered as factor for supply of teachers by 84.52percentage teachers. It means having control over teaching methods and decision-making is essential for ensuring teacher supply. Teachers who emphasise

the importance of prestige of school and remuneration and incentives as factors influencing supply are comparatively less. The Prestige of Schools is a factor of supply only for 61.91percentage of teachers. It means the reputation of a school influences teacher supply but is not as significant as broader professional factors. Remuneration and Incentives (50.6percentage) is the least influential factor from the perspective of teachers.

A diagrammatic representation of perceptions of total teachers on factors influencing supply of teachers is given in the following figure.

Figure 36

Factors Influencing Supply Perceived by Teachers



Perceptions of total teachers on factors influencing supply is depicted in Figure 36. It is very clear that three factors are shown as highly influential from the perspective of teachers: Support from management and colleagues, occupational choices and status of teacher profession. Analysis of total teachers' response over factors influencing supply suggest that teachers value workplace environment which is enriched by support from management, autonomy and professional development and these are the major factor factors that help teachers to retain in the profession. For the most of the teachers the overall status of teaching and available career choices

are significant factors to come into the profession. Although it is important, salary and incentives do not become strongest motivators for teachers compared to other job-related factors.

Perceptions of Female and Male Teachers on Factors Influencing Supply of Teachers

Analysis of the Factors Influencing Supply of Teachers Perceived by Female and Male Teachers is given in Table 44. Male and female teachers may have differing perceptions of the numerous factors that affect the teacher supply.

Following table shows factors influencing supply of teachers perceived by total female and male teachers.

Table 43

Factors Influencing Supply of Teachers Perceived by Total Female and Male Teachers

Factors Influencing Supply	Percentage	
	Female	Male
Status of the Teaching Profession	90.93	84.5
Remuneration and Incentives	53.6	45
Occupational Choices	92	86
Prestige of Schools	64.8	56.5
Support from Management and Colleagues	93.6	88
Teacher Autonomy	84.53	84.5
Opportunities for Professional Development	87	86.87

The Table 43 shows that both female and male teachers acknowledge the status of the teaching profession as a key factor of teacher supply. However, female teachers (90.93 percentage) view this factor as slightly more significant than male teachers (84.5 percentage). It indicates that the profession's perceived societal value may influence women's decision to pursue or remain in teaching more than men. Salary and financial incentives play a more significant role for female teachers (53.6

percentage) than for male teachers (45percentage). This difference may indicate that female teachers are more sensitive to financial rewards when deciding on a teaching career.

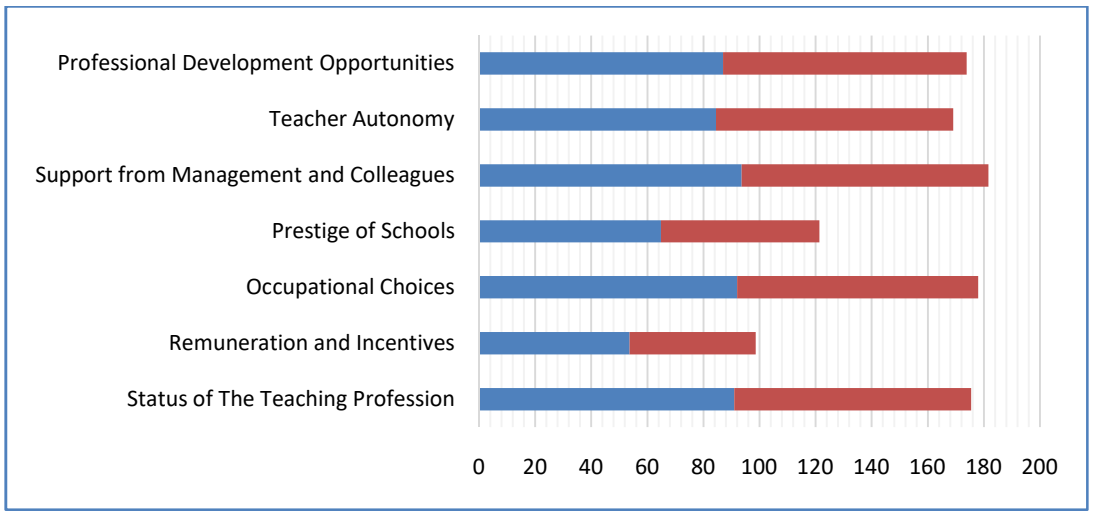
Occupational choice is a strong factor for both genders, with female teachers (92 percentage) slightly more influenced by this factor than male teachers (86 percentage). This suggests that women may have a stronger inclination towards teaching compared to men. Female teachers (64.8 percentage) are more influenced by the prestige of schools than male teachers (56.5 percentage). This could indicate that women may place more importance on the institutional reputation when choosing a workplace. A significant percentage of both female (93.6 percentage) and male teachers (88 percentage) value support from management and colleagues.

The slightly higher percentage for women suggests that workplace support and collaborative environments may be more vital to their career satisfaction and retention. Teacher autonomy is nearly equally valued by both genders, with female teachers (84.53 percentage) and male teachers (84.5 percentage) perceiving this factor as a crucial factor of their profession. This indicates a need for independence in decision-making within the classroom and the profession. Both female (87 percentage) and male teachers (86.87 percentage) highly value professional development opportunities, which shows that continuous growth and learning are crucial for teachers across genders.

The following figure shows factor influencing supply of teachers perceived by female and male teachers.

Figure 37

Factors Influencing Supply of Teachers Perceived by Female and Male Teachers



Factors Influencing Supply of teachers perceived by female and male teachers are represented in Figure 37. It shows that both female and male teachers acknowledge the status of the teaching profession as a key factor of teacher supply. Both male and female teachers strongly value support from management, teacher autonomy, and professional development, suggesting that these should be key focus areas for improving teacher retention. Female teachers consistently rate all factors higher than male teachers, indicating that they may have stronger inclinations in choosing to enter or stay in the profession. Improving teacher salaries and incentives could be more effective in attracting and retaining female teachers. School's reputation is a major attraction for teachers, particularly females. Management should foster a encouraging work environment to ensure teacher satisfaction and retention.

Factors Influencing Supply of Teachers Perceived by Teachers in High School, Upper Primary and Lower Primary Levels

Analysis of the factors influencing the supply of teachers in Kerala as perceived by male and female teachers across High School, Upper Primary (Upper Primary), and Lower Primary (Lower Primary) levels reflects the percentage of teachers who consider various factors significant in their professional choices as shown in Table 44.

According to the analysis, female instructors have a generally more positive perception of the teaching profession and the factors that influence it than do male teachers.

Factors influencing supply perceived by teachers working at various levels are given in Table below

Table 44

Factors Influencing Supply Perceived by Teachers Working in High School, Upper Primary and Lower Primary levels

Factors Influencing Supply	Percentage					
	High School		Upper Primary		Lower Primary	
	Female	Male	Female	Male	Female	Male
Status of the Teaching Profession	89.33	82.22	90	76.67	93.33	100
Remuneration and Incentives	48.67	42.22	52.22	30	60	68.57
Occupational Choices	93.33	85.92	88.89	86.67	92.59	85.71
Prestige of Schools	60.67	57.03	56.67	53.33	74.81	57.14
Support from Management and Colleagues	92.67	87.4	91.11	86.67	96.29	91.42
Teacher Autonomy	86	77.78	81.11	90	92.59	77.14
Opportunities for Professional Development	90	84.25	76.38	91.67	90.74	92.86

From Table 44, it is clear that, across all levels, female teachers perceive the status of the teaching profession more positively than male teachers. The highest agreement comes from Lower Primary male teachers (100 percentage), while the lowest comes from Upper Primary male teachers (76.67 percentage). This suggests that men at the Upper Primary level perceive the profession as less attractive than their female counterparts. A lower percentage of teachers consider remuneration and incentives as a major factor, particularly among male teachers. Lower Primary male teachers (68.57 percentage) perceive it as more significant compared to other male teachers. Female teachers at the Lower Primary level (60 percentage) rate remuneration higher than their counterparts at Upper Primary

(52.22 percentage) and High School (48.67 percentage) levels. This factor is highly rated across all levels, suggesting that teaching remains a strong occupational choice for both genders. High School female teachers (93.33 percentage) rate it the highest, while Lower Primary male teachers rate it the lowest (85.71 percentage). The gap between male and female perceptions is more significant at the High School level.

Female teachers generally perceive school prestige as more important than male teachers, with the highest ratings from Lower Primary female teachers (74.81 percentage). Male teachers across all levels perceive this factor as less important, with the lowest rating at Upper Primary level (53.33 percentage). This is a critical factor across all categories, with very high agreement rates. Female teachers at Lower Primary level (96.29 percentage) perceive strong support, while male teachers at Upper Primary level rate it the lowest (86.67 percentage). At the Upper Primary level, male teachers (90 percentage) find autonomy more significant than female teachers (81.11 percentage). The lowest perception comes from Lower Primary male teachers (77.14 percentage), while Lower Primary female teachers rate it significantly higher (92.59 percentage). Professional growth opportunities are widely regarded as important across all levels. Male teachers at the Upper Primary level (91.67 percentage) and Lower Primary level (92.86 percentage) perceive more opportunities than female teachers. High School female teachers (90 percentage) and Lower Primary female teachers (90.74 percentage) also rate it highly.

The three areas with the biggest gender disparities are autonomy, professional prestige, and compensation. Perception varies the greatest at the Lower Primary level, when female instructors rate the majority of factors higher than male teachers. At the Upper Primary level, male teachers feel less supported and have less autonomy, even if professional growth and career options are still important at all levels.

Factors Influencing Supply of Teachers Perceived by Teachers at Different Experience Levels

The Table 4 shows the factors influencing the supply of teachers in Kerala as perceived by male and female teachers across different experience levels. The analysis reveals that female teachers generally perceive the teaching profession and its related factors more positively than male teachers, especially in the early years of their career.

The table below shows factors influencing supply of teachers differing in years of experience.

Table 45

Factors Influencing Supply of Teachers Perceived by Teachers Differing in Years of Experience

Factors Influencing Supply	Percentage							
	0-5 Years		6-10 Years		11-20 Years		Above 20 Yeas	
	Female	Male	Female	Male	Female	Male	Female	Male
Status of the Teaching Profession	87.65	70	95	83.64	93.85	86	90	90.76
Remuneration and Incentives	55.29	46.67	49	47.27	52.3	36	60	49.23
Occupational Choices	91.76	53.33	90	96.36	95.38	86	92.5	92.3
Prestige of Schools	58.82	40	67	56.36	75.38	60	55	69.23
Support from Management and Colleagues	91.76	86.67	96	78.18	96.92	94	90	92.3
Teacher Autonomy	82.35	60	89	83.64	95.38	82	90	83.07
Opportunities for Professional Development	83.08	75	91.25	90.9	96.15	85	78.12	90.38

The Table 45 shows that female teachers across all experience levels perceive the status of the teaching profession more positively than male teachers. The highest

agreement comes from female teachers with 6-10 years of experience (95 percentage), while the lowest comes from male teachers with 0-5 years of experience (70 percentage). Male teachers with above 20 years of experience have the highest perception (90.76 percentage), suggesting an increase in perception with experience. Remuneration and Incentives is rated lower across all experience levels, particularly among male teachers with 11-20 years of experience (36 percentage). Female teachers with more than 20 years of experience rate remuneration the highest (60 percentage), indicating that long-term teaching benefits might be more appreciated. The lowest perception comes from male teachers with 11-20 years of experience, suggesting dissatisfaction in mid-career phases.

The factor Occupational Choices is highly rated by female teachers across all experience levels, with the highest agreement among those with 11-20 years (95.38 percentage). Male teachers with 0-5 years of experience show significantly lower agreement (53.33 percentage), which increases with experience. Male teachers with 6-10 years show the highest perception (96.36 percentage), reflecting a shift in attitude after early career stages. Female teachers perceive school prestige as more important than male teachers across all experience levels. The highest agreement comes from female teachers with 11-20 years of experience (75.38 percentage), while male teachers with 0-5 years rate it the lowest (40 percentage). Male teachers' perception generally increases with experience, reaching 69.23 percentage in the above 20 years category. Support from Management and Colleagues is a critical factor across all experience levels, with very high agreement rates.

Female teachers with 6-10 years of experience rate it the highest (96 percentage), while male teachers in the same experience range rate it much lower

(78.18 percentage). Male teachers with 11-20 years and above 20 years show higher agreement (94 percentage and 92.3 percentage, respectively), indicating growing support over time. Female teachers perceive teacher autonomy more positively than male teachers across all experience levels. The highest perception comes from female teachers with 11-20 years of experience (95.38 percentage), while male teachers with 0-5 years rate it the lowest (60 percentage). Autonomy perception is relatively stable for male teachers across experience levels but peaks among female teachers in mid-career stages. Professional growth opportunities are widely regarded as important across all experience levels. Female teachers with 11-20 years of experience rate it the highest (96.15 percentage), while female teachers with above 20 years rate it significantly lower (78.12 percentage). Male teachers with above 20 years show strong agreement (90.38 percentage), indicating interest in professional development.

Factors Influencing Supply of Teachers Perceived by Teachers at Schools in Different Types of Management

The factors affecting Kerala's teacher supply as perceived by male and female educators in the three categories of school administration: government, unaided/private and aided. According to the data, female teachers have a higher positive perception of the job across the majority of factors.

The factors influencing supply perceived by teachers at schools in different types of management is given in Table below:

Table 46

Factors Influencing Supply Perceived by Teachers at Schools in Different Types of Management

Factors Influencing Supply	Percentage					
	Types of Management					
	Aided		Government		Unaided/ Private	
	Female	Male	Female	Male	Female	Male
Status of the Teaching Profession	90.59	85	90.32	81.17	91.85	52.38
Remuneration and Incentives	47.05	42.5	56.77	48.23	54.07	42.67
Occupational Choices	91.76	85	93.54	87.05	90.37	85.33
Prestige of Schools	50.58	52.5	67.09	52.94	71.11	62.67
Support from Management and Colleagues	92.94	92.5	90.96	82.35	97.03	92
Teacher Autonomy	88.23	85	82.58	72.94	91.85	84
Opportunities for Professional Development	86.76	93.75	90	82.35	86.11	88.33

Female teachers consistently rate the status of the teaching profession higher than male teachers across all management types. The highest perception is among female teachers in unaided/private schools (91.85 percentage), while the lowest is among male teachers in the same category (52.38 percentage). Male teachers in government schools (81.17 percentage) perceive the profession slightly less favorably than those in aided schools (85 percentage). Government school teachers rate remuneration the highest (56.77 percentage for females, 48.23 percentage for males), likely due to stable salaries and benefits. Aided school teachers rate remuneration the lowest, with female teachers at 47.05 percentage and male teachers at 42.5 percentage.

Male teachers across all management types perceive remuneration lower than their female counterparts. Teaching remains a strong occupational choice across all school types, with female teachers in government schools rating it the highest (93.54 percentage). Male teachers have a slightly lower perception, with ratings ranging from 85 percentage to 87.05 percentage. Overall, occupational choice is a consistently strong factor of supply. About Prestige of Schools, female

teachers in unaided/private schools perceive the highest prestige (71.11 percentage), followed by those in government schools (67.09 percentage). Male teachers across all categories rate school prestige lower, with government and aided school teachers showing the lowest perception (52.5 percentage and 52.94 percentage, respectively). Male teachers in unaided/private schools rate prestige higher (62.67 percentage), suggesting a perceived advantage in certain private institutions.

Support from Management and Colleagues is a crucial factor across all management types, with female teachers in unaided/private schools rating it the highest (97.03 percentage). Male teachers in government schools perceive the lowest level of support (82.35 percentage), while their aided and private school counterparts rate it similarly (92.5 percentage and 92 percentage). Female teachers across all school types perceive more support than their male counterparts. Female teachers in unaided/private schools report the highest autonomy (91.85 percentage), while government school female teachers report the lowest (82.58 percentage). Male teachers perceive autonomy slightly lower across all categories, with the lowest rating from those in government schools (72.94 percentage). The data suggests that unaided/private schools may provide greater flexibility and autonomy to teachers. Male teachers in aided schools rate professional development the highest (93.75 percentage), indicating strong training opportunities in this category. Female teachers in government schools rate it highly (90 percentage), while their aided and private counterparts rate it slightly lower (86.76 percentage and 86.11 percentage). Male teachers in government and private schools perceive slightly lower opportunities (82.35 percentage and 88.33 percentage, respectively).

Factors Influencing Supply of Teachers Perceived by Teachers across Different Age Categories

Factors influencing the supply of teachers in Kerala, based on perceptions of male and female teachers across three different age categories: 22-30 years, 31-45

years, and 46-60 years are shown in Table 48. The key factors include the status of the teaching profession, remuneration and incentives, occupational choices, prestige of schools, support from management and colleagues, teacher autonomy, and professional development opportunities.

The following table shows various factors influencing supply perceived by teachers from different age categories

Table 47

Factors Influencing Supply Perceived by Teachers from different Age Categories

Factors Influencing Supply	Percentage					
	Age of Teachers					
	22-30 Years		31-45 Years		46-60 Years	
	Female	Male	Female	Male	Female	Male
Status of The Teaching Profession	86.67	72.5	91.33	84.7	91.11	90.67
Remuneration and Incentives	73.33	45	50.67	38.82	60	52
Occupational Choices	90	70	91.67	89.41	91.85	90.67
Prestige of Schools	63.33	35	66	63.52	57.78	56.25
Support from Management and Colleagues	90	90	93.67	83.52	95.56	92
Teacher Autonomy	83.33	75	87.33	80	88.89	81.33
Professional Development Opportunities	87.5	78.12	86.67	86.76	88.89	91.67

Status of the Teaching Profession is highly regarded across all age groups and genders. Female teachers consistently rate the status of the profession higher than male teachers across all age categories. The highest perception is among females aged 31-45 years (91.33 percentage) and the lowest among males aged 22-30 years (72.5 percentage). Remuneration and Incentives shows relatively lower ratings, particularly among male teachers. Female teachers perceive remuneration and incentives more positively than male teachers. The lowest rating is observed among males aged 31-45 years (38.82 percentage), while the highest is among females aged

22-30 years (73.33 percentage). Occupational Choices was regarded with consistently high perception across all age groups and genders. Female teachers report slightly higher levels of satisfaction in occupational choices. The highest percentage is observed among females aged 46-60 years (91.85 percentage).

Perceptions of school prestige vary significantly by gender and age. Younger male teachers (22-30 years) rate this factor the lowest (35 percentage), while female teachers aged 31-45 years rate it higher (66 percentage). The perception of prestige declines slightly in the older age group (46-60 years) across both genders. Female teachers consistently rate 'Support from Management and Colleagues' factor higher across all age groups. The highest rating is found among females aged 46-60 years (95.56 percentage). Male teachers aged 31-45 years report the lowest perception (83.52 percentage). Coming to 'Teacher Autonomy', it is generally rated positively across all groups, with female teachers reporting higher levels of perceived autonomy. The highest rating is among females aged 46-60 years (88.89 percentage), while the lowest is among males aged 22-30 years (75 percentage). 'Professional Development Opportunities' is consistently rated high across all groups, with male teachers' perception increasing with age. The highest rating is among males aged 46-60 years (91.67 percentage) and the lowest among males aged 22-30 years (78.12 percentage).

In short, the supply of teachers in Kerala is influenced by multiple factors, with significant variations across gender and age groups. The data shows female teachers generally have a more positive perception of the teaching profession compared to male teachers. Younger male teachers (22-30 years) consistently report lower satisfaction across multiple factors. The importance of professional development opportunities grows as teachers age, with older male teachers rating it highest. Male teachers, especially younger ones, express lower satisfaction with remuneration and incentives. Female teachers consistently rate most factors higher than male teachers, while younger male teachers express lower satisfaction levels,

particularly in remuneration and prestige of schools. Addressing these concerns through improved financial incentives and professional development opportunities could enhance the supply and retention of teachers in Kerala.

Table given below shows most influential factors for each category of teachers.

Table 48

Most Influential Factor for Each Category of Teachers

Sl. No.	Category of Teachers	Female	Male
1	High School Level	Occupational Choice (93%)	Support from Management and Colleagues (96.29%)
2	Upper Primary Level	Status of The Teaching Profession (90%)	Professional Development Opportunities (91.67%)
3	Lower Primary Level	Support from Management and Colleagues (96.29%)	Status of the Teaching Profession (90%)
4	0-5 Years Experience	Occupational Choice (91.76%)	Support from Management and Colleagues (96.29%)
5	6-10 Years Experience	Support from Management and Colleagues (96.29%)	Occupational Choice (96.3%)
6	11-20 Years Experience	Support from Management and Colleagues (96.29%)	Support from Management and Colleagues (96.29%)
7	Above 20 Years Experience	Occupational Choice (92.3%)	Status of The Teaching Profession (90%)
8	Aided School	Support from Management and Colleagues (96.29%)	Support from Management and Colleagues (96.29%)
9	Government School	Occupational Choice (93.5%)	Occupational Choice (87.05%)
10	Unaided School	Support from Management and Colleagues (96.29%)	Support from Management and Colleagues (96.29%)
11	22-30 Years Old	Occupational Choice (90%)	Support from Management and Colleagues (96.29%)
12	31-45 Years Old	Support from Management and Colleagues (96.29%)	Occupational Choice (89.4%)
13	46-60 Years Old	Support from Management and Colleagues (96.29%)	Professional Development Opportunities (91.67%)

Summary

The teaching profession in Kerala is influenced by a variety of factors that shape the supply of qualified teachers. The interplay of preferences among qualified teachers reveals a complex ecosystem. Among the various factors support from management and colleagues is the most positively rated factor across all categories of teachers. 'Remuneration and Incentives' is the most concerning factor, especially among younger and male teachers, as well as in private schools. Female teachers consistently rate the profession more positively than male teachers showing their attraction to the profession. More experienced and older teachers show a higher level of job satisfaction compared to younger teachers. Private school male teachers exhibit the lowest perception of job status and remuneration. Addressing remuneration concerns, particularly for younger teachers and those in private schools, along with enhancing professional development opportunities, could improve teacher retention and supply in Kerala. To sustain Kerala's educational achievements, addressing systemic challenges and nurturing a supportive environment for teachers is vital. This includes enhancing job satisfaction and ensuring fair recruitment practices. A harmonious effort to balance expectations and interests of society, personal aspirations of teachers, and needs of educational institutions will be essential in building a resilient and dedicated teaching workforce for the future.

Chapter 5

MAJOR FINDINGS AND CONCLUSIONS

MAJOR FINDINGS AND CONCLUSIONS

"The Labour Market in Kerala is very complex,
vibrant and has been changing continuously"

– Anitha (2017)

This chapter includes:

- Study in Retrospect
- Major Findings of the Study

The State of Kerala is known all over the world as an educationally advanced part of the country, which has many outstanding achievements in the fields of education, health, habitat, land reforms etc. (*SPB Economic Review, 2023*). In an economic view of educational process, teachers with all other inputs contribute to the student competencies. The market of qualified teachers ready to work is called teacher labour market. It also includes employers who are seeking qualified teachers to their educational institutions. Teacher labour market acts like any other market. It functions with demand and supply of teachers. The schools and government are the major employers in the market. The study is focusing identifying and analysing demand and supply factors in the Kerala teacher labour market. Demand factors denote the various factors which are influencing the number qualified teachers required by various employers. Similarly, the factors influencing supply refer to various factors which are determining the number of qualified teachers willing to work.

Study in Retrospect

This section includes restatement of the problem, variables of the study, objectives of the study, methodology, sample, tools and technique used in the study and statistical procedures used.

Restatement of Problem

The study was primarily aimed to analyse the determining factors of demand for teachers and supply of teachers in teacher labour market of Kerala. Hence the study was entitled as "**ANALYTICAL STUDY OF DEMAND AND SUPPLY IN TEACHER LABOUR MARKET OF KERALA STATE"**.

Variables of Study

The present study is based on two variables:

1. Demand in Teacher Labour Market
2. Supply in Teacher Labour Market

Objectives of Study

The present study is directed towards the following broad objectives:

- To analyse teacher labour market of Kerala
- To analyse the trend of demand and supply in teacher labour market of Kerala.
- To analyse the factors influencing demand in teacher labour market of Kerala.
- To analyse the factors influencing supply in teacher labour Market of Kerala.

Methodology

The study utilised a qualitative research method to make a profound analysis of demand for teachers and supply of teachers because these two variables are deeply rooted in societal expectations and individual aspirations.

Sample

Teachers working in various schools in Kerala were taken as samples. Number of teachers taken as sample is 220. Out of these, 144 teachers were female and 76 were male. Principals in Unaided schools were also taken as samples for the study out of which 2 were females and 8 males.

Tools and Techniques used in the Study

For the study of demand for teachers, the investigator used document analysis. The tools used in the study were the following:

1. Questionnaire on Factors influencing Supply of Teachers (Noufal & Naseema, 2021)
2. Interview Schedule to Principals of Private Schools (Noufal & Naseema, 2021)

Techniques Used

Document Analysis was the technique used for the study.

Statistical Procedures Used

The investigator made use of the following statistical techniques for the analysis of data collected:

- Preliminary Analysis
- Percentage Analysis
- Trend Analysis
- Supply-to-Demand Ratio Analysis

Major Findings of the Study

The major findings of the study based on the objectives set for the study are detailed below:

Objective 1: Analysis of Teacher Labour Market of Kerala

I. Structure of Teacher Labour Market in Kerala

- Kerala has a total of 12,972 schools distributed across 14 districts. The majority of schools are Aided schools (56 percentage), followed by Government schools (36 percentage), and Unaided schools (8 percentage).

- Malappuram has the highest number of schools (1,572), accounting for 12.1 percentage of the total schools in Kerala. Wayanad has the least number of schools (305), representing just 2.35 percentage of the total.
- Government Schools are highest in Malappuram (555) and lowest in Wayanad (173). Aided Schools are most concentrated in Kannur (963) and least in Wayanad (113). Unaided Schools are significantly higher in Malappuram (211) and lowest in Wayanad (19).
- Malappuram, Kannur, and Kozhikode collectively account for a substantial portion of Kerala's total schools, emphasizing their educational density. Districts with lower percentages, such as Wayanad and Idukki, reflect the challenges of geographical constraints and smaller population densities.
- Densely populated and urbanized districts like Ernakulam, Thrissur, and Kozhikode show a significant presence of Unaided schools, indicating demand for private education services.

II. Number of Schools in Kerala

- The total number of schools in Kerala increased significantly from 9,137 in 1956-57 to 12,959 in 2022-23. The growth indicates persistent focus to improve educational infrastructure across different school categories.
- High schools showed notable growth, rising from 762 in 1956-57 to 3,125 in 2022-23.Government high schools increased 8.8 times from 140 to 1,229, indicating a strong public sector role in secondary education. The number of Unaided High Schools increased significantly from 10 in 1956-57 to 463 in 2022-23, marking a rise in private sector participation.
- The total number of Upper Primary schools increased from 1,589 in 1956-57 to 3,000 in 2022-23, indicating an expansion to meet rising student

enrolment. However, the number of Government Upper Primary Schools has declined slightly in recent years (from 960 in 1990-91 to 871 in 2022-23).

- The number of Lower Primary schools initially grew steadily but has experienced a slight reduction in recent years, declining from 6,699 in 1956-57 to 6,834 in 2022-23.
- The most significant growth in total schools occurred between 1970-71 and 1990-91, reflecting Kerala's active push to improve educational access and literacy rates. Expansion slowed after 2000-01.
- The number of Aided Schools has remained relatively stable across the years, maintaining a strong presence in Kerala's school system.

III. Details Regarding Teaching Workforce

- There is a gender imbalance in teaching workforce in Kerala. Female teachers form a significant majority across all school levels. Out of the total 158,637 teachers in Kerala, 116,843 are female, representing approximately 74 percentage of the total workforce, while 41,794 male teachers account for only 26 percentage. In Lower Primary Schools, female teachers dominate with 29,705 teachers (about 76 percentage) compared to 9,292 male teachers (about 24 percentage). In Upper Primary schools, female teachers constitute about 73 percentage (28,532) while male teachers account for 27 percentage (10,381). In high schools, although the gender gap narrows slightly, female teachers still form the majority with 58,606 (about 73 percentage) compared to 22,121 male teachers (about 27 percentage).
- Lower Primary School Teachers account for about 24.6 percentage of the total teaching workforce. Upper Primary School Teachers contribute about 24.5 percentage. High School Teachers make up the largest segment, constituting about 50.9 percentage of the total teachers in Kerala.

- The dominance of female teachers is most evident in Lower Primary and Upper Primary schools. The relatively higher presence of male teachers in high schools indicates a tendency for male teachers to opt for higher-level teaching positions.
- With 1,58,637 teachers employed in Kerala's schools, this reflects a strong educational workforce supporting the state's well-developed education system.

IV. Trend of Employment of School Teachers in Government Sector

- The total number of teachers in government schools increased steadily from 50,855 in 2017-18 to 53,279 in 2020-21, marking a net increase of 2,424 teachers (approximately 4.8 percentage growth over four years). This consistent rise shows the efforts to strengthen the government school workforce.
- The number of Lower Primary school teachers increased from 12,957 in 2017-18 to 15,242 in 2018-19, followed by a decline to 13,306 in 2020-21. The overall change from 2017-18 to 2020-21 shows a net increase of 349 teachers in Lower Primary schools.
- The number of Upper Primary school teachers decreased from 10,548 in 2017-18 to 9,948 in 2018-19, then increased steadily to 10,710 in 2020-21. The net increase of 162 teachers from 2017-18 to 2020-21 shows modest growth.
- The number of High School teachers consistently increased from 27,350 in 2017-18 to 29,263 in 2020-21, reflecting a net increase of 1,913 teachers.
- Among the three levels, High School teachers showed the highest growth in numbers. Lower Primary Schools experienced both growth and decline. Upper Primary Schools showed moderate fluctuations but maintained relative stability.

- By 2020-21, Lower Primary teachers made up about 25 percentage of the total workforce, Upper Primary teachers about 20 percentage, and High School teachers accounted for the largest share at 55 percentage.

V. Trend of Employment of School Teachers in Aided Sector

- The total number of teachers in Aided schools decreased consistently from 96,067 in 2017-18 to 90,725 in 2020-21, marking a net decline of 5,342 teachers (approximately 5.6 percentage decrease). The number of Lower Primary school teachers initially increased from 23,219 in 2017-18 to 26,230 in 2018-19, followed by a consistent decline to 22,401 in 2020-21.Overall, Lower Primary school teachers decreased by 818 teachers over the four years.
- The number of Upper Primary school teachers showed minor variations, declining from 26,976 in 2017-18 to 25,804 in 2020-21. The net reduction of 1,172 teachers reflects a gradual decrease, possibly linked to changing student enrolment trends.
- The number of High School teachers dropped significantly from 45,872 in 2017-18 to 42,520 in 2020-21, a net decrease of 3,352 teachers.
- The High School teacher category experienced the largest reduction both in absolute numbers (3,352) and proportionally. While Lower Primary and Upper Primary teacher numbers also declined, the decrease was less pronounced compared to High School levels.

VI. Trend of Employment of School Teachers in Unaided Sector

- The total number of teachers in unaided schools shows a consistent decline from 15,029 in 2017-18 to 13,356 in 2020-21. This reflects a reduction of

1,673 teachers (approximately 11.13 percentage decrease) over the four-year period. The number of Lower Primary teachers increased from 2,058 in 2017-18 to 3,435 in 2018-19, then declined steadily to 2,413 in 2020-21 reflecting fluctuating enrolment patterns. The number of Upper Primary teachers rose from 2,288 in 2017-18 to 3,216 in 2018-19, then dropped to 2,406 in 2020-21. High School teacher numbers started at 10,683 in 2017-18, dropped significantly to 8,187 in 2018-19, and remained relatively stable at around 8,500 in the following years.

- The year 2018-19 saw a notable reduction in High School teachers but an increase in Lower Primary and Upper Primary teachers. This may suggest a shift in staffing priorities or changes in student distribution across school levels. From 2019-20 onwards, all categories experienced a steady decline, indicating broader factors such as reduced student enrolment, school closures, or budget constraints.
- The data highlights a significant reduction in the number of teachers in unaided schools in Kerala from 2017-18 to 2020-21, with sharper declines in the High School category.

Objective 2: Analysis of Demand and Supply in Teacher Labour Market

I. Demand for Teachers

- The total demand for teachers in Kerala shows considerable fluctuation over the period. The highest demand was recorded in 2016 (6,908) and 2017 (6,910), indicating a sharp rise. Demand dropped significantly in 2018 (1,564) and further decreased in 2019 to only 11 recorded vacancies. From

2020 onwards, demand started recovering, reaching 3,248 in 2020, 781 in 2021, and 2,380 in 2022.

- Malappuram consistently showed the highest demand across multiple years, peaking at 1,593 in 2017 and maintaining a strong presence in subsequent years. Kasargod, Kollam, and Kozhikode also experienced significant demand in 2016 and 2017. Pathanamthitta consistently recorded low teacher demand, with the highest figure being 241 in 2016.Wayanad had consistently low figures across all years, suggesting stable staffing needs or limited school growth in the district.
- There are significant fluctuations in teacher demand in Kerala, peaking in 2016 and 2017, followed by a sharp drop in 2019 and partial recovery post-pandemic. Districts like Malappuram, Kasargod, and Kollam played a dominant role in driving demand, while districts like Wayanad and Pathanamthitta consistently reported lower requirements. The data suggests policy changes, demographic shifts, and possibly delayed recruitment cycles as key factors influencing these trends.

II. Supply of Teachers

- There was a great teacher supply in 2016, especially in districts like Malappuram, Kozhikode, and Kollam and 2019 marked a significant drop in teacher supply.
- Kollam, Kasargod, and Kozhikode exhibited remarkable year-to-year changes indicating unstable recruitment patterns. Malappuram, Thrissur, and Kollam consistently recorded the highest supply trends, indicating potential teacher supply in these regions.

- The sharp decline in 2021 across several districts suggests a significant reduction in recruitment and impact caused by external factors like the COVID-19 pandemic.

III. Comparison between Demand for Teachers and Corresponding Supply of Teachers

- The supply of teachers consistently exceeding the demand across all districts and years in Kerala.
- Districts like Malappuram, Thrissur, and Kollam showed substantial teacher supply, while districts such as Wayanad and Pathanamthitta maintained relatively lower figures.
- Highest S/D Ratio was recorded in 2021 with a value of 58.78, indicating remarkable oversupply of teachers (There were 58 teachers available per teacher demanded). Lowest S/D Ratio was in 2017 with a value of 13.85, indicating a relatively better balance between supply and demand. There was a significant oversupply in 2021 suggesting Kerala's teacher labour market experienced an imbalance that year, due to reduced recruitment.

Objective 3: Analysis of Demand for Teachers

I. Analysis of Demand in Government and Aided Schools

- Teacher transfer is the primary factor of teacher demand in Kerala. Retirement is the most remarkable personal factor, indicating the aging teacher workforce and the ongoing need for replacements.
- Enrolment trends have a relatively low impact on teacher demand, suggesting Kerala’s stable student population during this period does not significantly influence workforce needs.

- Factors like Staff Fixation, Resignations, and New Job Appointments have minimal impact on overall teacher demand.
- The data indicates that Kerala's teacher demand is primarily influenced by internal workforce dynamics such as transfers, retirements, and promotions rather than external factors like rising student enrolment.

II. Internal and External Factors influencing Demand for Teachers

i. Internal Factors

- A large part of teacher demand is created due to transfer of teachers in the state. Unpredictable transfers affect the classroom ecosystem. There is well developed system which promote internal transfers. Majority of transfers are made based on the application of teachers.
- Promotion and demotion, internal re-organization, punishment transfers also occur as internal factors influencing demand.

ii. External Factors

- ***Student Enrolment*** is an important factor of demand which directly and indirectly influence the demand for teachers.

  i. Historical Analysis of Student Enrolment in Kerala:

  1. The sharp decline in enrolment after 1991 highlights demographic changes that have shaped Kerala's education sector.
  2. There was relatively stable teacher workforce after 2015 which reflects Kerala's focus on educational quality, teacher retention, and maintaining a balanced PTR.

ii. Level-wise Analysis of Enrolment

1. Lower Primary level saw the highest enrolment growth but also a recent sharper decline while Upper Primary level maintained steady enrolment growth with minor fluctuations in teacher numbers.
2. There was a slight decrease in high School level enrolment but a more considerable drop in number of teachers, which could impact education quality.

iii. Level wise Comparison of Enrolment and Number of Teachers

1. Historically, Lower Primary and Upper Primary levels had the largest number of teachers, but recent trend shows a shift of teaching resources toward the High School level. The number of Lower Primary teachers has decreased by 46 percentage, while the number of High School teachers have grown significantly.
2. There was a remarkable improvement in PTR over the period at High School level. In 1956-57 high school PTR was 33:1 and it was improved to 16:1 in 2022-23 due to decline in High School enrolment and stable teacher retention. It also suggests a need for inquiry about overstaffing and wastage of resources.

- ***Artificial Demand***: Attempts to increase enrolment in aided schools by transporting students from distant areas, has disrupted the concept of neighbourhood schools, resulting in some schools becoming overcrowded.
- ***Demographic Shifts****:* The Crude Birth Rate (CBR) steadily declined from 15.75 in 2010 to 11.94 in 2021, reflecting a 24.2 percentage decrease. The declining trend also reflects in student enrolment.

- ***Increasing Other Syllabus Schools***: The total number of non-state syllabus schools increased from 1,373 in 2014-15 to 1,591 in 2023-24, marking a 15.9 percentage growth over the period. CBSE schools experienced the highest growth, rising from 1,178 in 2014-15 to 1,370 in 2023-24 – an increase of 192 schools (approximately 16.3 percentage).
- ***Education Programmes of the State***: Kerala's educational empowerment programmes have significantly improved school enrolment and retention by addressing social inequities and promoting inclusive education.
- ***Teacher Attrition***: The personal factors which contribute to the teacher demand in the state are retirements, death, getting new job through PSC or other, resignations, Voluntary Retirement Scheme, leave without allowances, leave with half pay etc. These factors represent 24 percentage of total factors influencing demand.

III. Other Factors influencing Demand in Private School

- The economic status of parents and school management, along with parental preferences, significantly influence teacher demand in private schools, as wealthier parents are willing to invest in better education.
- Schools with a good reputation attract more students, conduct regular quality checks, and frequently recruit new teachers, attracting candidates seeking employment opportunities.
- Arts fests, sports events, motivation programmes, celebrity visits, excursions, exhibitions etc. attract more students and it leads to more demand for teachers.

- Academic and non-academic accomplishments of school lead to more intake in schools which in turn results in increase in the number of teachers.
- The parents of private schools are more vigilant as they spend money directly for the education of their child. So, they give immediate feedback to the performance of teachers in class rooms. Elder students also respond to the teacher evaluation surveys honestly which forces management to promote the best performing teachers, leave under performers and hire more teachers.
- Feedback from parents and students in private schools forces management to promote high-performing teachers, replace underperformers, and hire additional staff to maintain educational standards.
- Importance given to the English proficiency in the school policy has led to the firing of teachers who lack linguistic skills and hiring of proficient teachers.
- Schools with high discipline attract more students, increasing teacher demand, while their rigorous performance standards often result in frequent staff turnover and recruitment.
- Technological changes like smartboards, online classes, and AI applications lead to the retention of adaptable teachers and the exit of those who cannot.

Objective 4: Analysis of Factors influencing Supply of Teachers

a) Perceptions of Total Teachers on Factors influencing Supply of Teachers

- The status of the teaching profession and occupational choices are key factors influencing entry to teaching profession.

- Support from management and colleagues is the most influential factor in teacher retention and supply.
- Financial Factors such as remuneration and incentives appear to have the least impact, indicating that financial incentives alone may not be the motivator for teachers.

b) Perceptions of Total Female and Male Teachers

- Across all listed factors, female teachers consistently reported higher influence than male teachers, indicating women are more influenced by these factors in their career decisions.
- Remuneration and incentives showed a notable gender difference, with 53.6 percentage of female teachers perceiving it as a key factor compared to 45 percentage of male teachers.
- Both genders perceived teacher autonomy and professional development opportunities as important factors.

c) Perceptions of Teachers at High School, Upper Primary and Lower Primary Levels

- Lower Primary teachers generally reported higher influence across most factors compared to High School and Upper Primary teachers, indicating they are more sensitive to the factors.
- Across all levels, support from management and colleagues was highly valued, particularly by Lower Primary teachers (96.29 percentage of females and 91.42 percentage of males), underscoring the importance of workplace relationships in retaining teachers.

d) Perceptions of Female and Male Teachers with Different Years of Experiences

- Teachers with 6-10 years of experience (both genders) rated the status of the teaching profession highest (95 percentage for females and 83.64 percentage for males). New entrants (0-5 years) and senior teachers (above 20 years) showed slightly lower perceptions, indicating changing attitudes over time.
- Female teachers across all experience levels valued remuneration more than their male teachers. The highest concern for remuneration was shown by female teachers with over 20 years of experience.
- Teachers with 6-10 years of experience (especially males at 96.36 percentage) reported the strongest perception of occupational choices as a factor.
- Teachers with 11-20 years of experience ranked prestige of schools as a stronger factor (75.38 percentage for females and 60 percentage for males). Teachers in their early career phase (0-5 years) placed less emphasis on school prestige.
- Consistently high across all experience levels, with female teachers with 11-20 years of experience rating support from management the highest (96.92 percentage).
- Perceptions of teacher autonomy were strongest among female teachers with 11-20 years of experience (95.38 percentage) and male teachers with over 20 years of experience (83.07 percentage).Early career male teachers (0-5 years) showed the lowest value (60 percentage), indicating limited autonomy in the initial career stages.

- Teachers with 11-20 years of experience reported the highest emphasis on professional development (96.15 percentage for females), while perceptions declined slightly for teachers with more than 20 years of experience.
- Teachers with 11-20 years of experience showed the strongest positive perceptions across multiple factors, indicating this period as the most influential phase for career stability and professional engagement.
- Newer entrants (0-5 years) appeared less concerned with school prestige and autonomy, while senior teachers (above 20 years) showed higher reliance on remuneration and job stability.

e) Perceptions of Female and Male Teachers Working under Different Types of Management on Factors Influencing Supply of Teachers

- Female teachers across all management types consistently reported higher perceptions of the status of the teaching profession compared to males. Unaided/private school male teachers showed notably lower perception (52.38 percentage) compared to their peers in aided (85 percentage) and government (81.17 percentage) sectors.
- Government school teachers reported the highest recognition of remuneration and incentives as a factor, especially among female teachers (56.77 percentage). Unaided/private school teachers reflected the lowest perception of incentives, with male teachers (42.67 percentage)**.**
- Occupational Choices is strongly valued across all management types, with the highest perception recorded by female government school teachers (93.54 percentage).

- Unaided/private school teachers placed the highest emphasis on school prestige, especially among female teachers (71.11 percentage). But the aided school teachers perceived school prestige as a less influential factor compared to their counterparts.
- Perceptions of support from management and colleagues were high across all school types, with female teachers in unaided/private schools (97.03 percentage) rating it highest. Government school male teachers (82.35 percentage) reported the lowest perception in this category.
- Female teachers in private schools (91.85 percentage) reported the highest sense of teacher autonomy, while male government school teachers (72.94 percentage) recorded the lowest.
- Male aided school teachers (93.75 percentage) reported the highest emphasis on professional development. Across all management types, female teachers generally perceived professional development as slightly less significant than male teachers.
- Female teachers in private schools reported high perceptions across most factors, especially in teacher autonomy, school prestige, and support from management.
- Government school teachers emphasized remuneration, occupational choices, and professional development more than other groups.

f) Perceptions of Female and Male Teachers at Different Age Groups on Factors Influencing Supply of Teachers

- Across all age groups, female teachers consistently rated the status of the profession higher than male teachers.

- The highest perception for status of teaching profession factor was reported by female teachers aged 31-45 years (91.33 percentage) and male teachers aged 46-60 years (90.67 percentage).
- Younger teachers (22-30 years) showed significantly higher concern for remuneration, especially females (73.33 percentage) compared to males (45 percentage). The concern for remuneration declines with age, with male teachers consistently reporting lower importance across all age groups.
- Occupational choice was consistently valued across all groups, with female teachers showing slightly higher ratings than males. Female teachers in the 46-60 age group had the highest perception of this factor (91.85 percentage).
- Younger female teachers (22-30 years) rated school prestige much higher (63.33 percentage) than males (35 percentage).
- Support from management and colleagues was highly valued across all age groups. Female teachers in the 46-60 age group showed the highest perception (95.56 percentage).
- Perception of teacher autonomy improved with age, with the highest values reported by female teachers aged 46-60 years (88.89 percentage).Male teachers consistently rated this factor lower than female teachers across all groups.
- Across all age groups, this factor was rated highly, with older male teachers (46-60 years) giving the highest rating (91.67 percentage).Female teachers maintained consistently high perceptions across age groups.
- Female teachers across all age groups tended to place greater importance on most factors, especially in areas such as status of the profession, remuneration, and support from management.

- Younger teachers (22-30 years) demonstrated greater concern for remuneration, while older teachers (46-60 years) valued support from management and professional development opportunities more prominently.

Summary

Purpose of the study was to analyse the factors influencing demand and supply in teacher labour market in Kerala state. The investigator analysed the structure and components of the teacher labour market and patterns of relationship between demand for teachers and supply of teachers. A detailed analysis of various factors that influence the demand and supply has also been made. The major conclusions the investigator arrived at after the analysis of data can be described as follows:

(i) Teacher Labour Market of Kerala State

Analysis of Kerala's teacher labour market shows distinct patterns in school distribution, teacher demographics, and employment trends across various sectors. The fact that aided schools make up 56% of all schools shows how important they are to the educational system and teacher employment. Geographical limitations result in a restricted school presence in Wayanad and Idukki, whereas Malappuram, Kannur, and Kozhikode emerge as important educational centres.

Kerala's educational system has evolved to show significant improvements in facilities, especially in high schools, which suggests that attempts are being made to increase secondary education accessibility. Recent patterns, however, point to a minor fall or standstill in Lower Primary and Upper Primary schools, as a result of decreased demand and demographic changes. According to teacher demographics, male teachers are comparatively more in numbers in high schools, but female teachers dominate the sector, particularly in Lower Primary and Upper Primary schools. In line with

initiatives to improve public education, employment trends consistently show a rise in government school teachers, especially at the high school level. On the other hand, both the aided and unaided sectors have seen consistent drops in the number of teachers, especially in high schools, which suggests shifting enrolment trends.

Overall, the data highlights the necessity of strategic planning to maintain the positive rise in government school employment while addressing the diminishing numbers of teachers in both the aided and unaided sectors. Maintaining a steady and productive teaching staff in Kerala will require keeping an eye on enrolment trends, refining recruitment system, and making sure that districts are distributed fairly.

(ii) Demand and Supply in Kerala Teacher Labour Market

The analysis of demand for and supply of teachers in Kerala unleashes significant fluctuations, highlighting key trends and challenges in the state's teacher labour market. The sharp rise in teacher demand in 2016 and 2017, followed by a drastic decline in 2019, points to inconsistent recruitment patterns influenced by policy changes, demographic shifts and delayed appointment processes. While demand showed partial recovery during post-pandemic period, it remained unstable across districts. The data indicates that districts like Malappuram, Kollam, and Kasargod with a greater number of schools experienced consistently higher demand, whereas Wayanad and Pathanamthitta with lesser number of schools showed lower teacher requirements. The supply of teachers consistently exceeded demand in all districts and all years, which indicates a persistent oversupply in Kerala's teacher labour market. The highest oversupply in 2021, with a Supply-to-Demand (S/D) ratio of 58.78, highlights the wide gap between teacher availability and vacancies, resulting from limited recruitment during the COVID-19 pandemic. These findings underscore the need for strategic manpower planning to address the persistence of

oversupply of teachers in the state. Effective policy interventions, improved forecasting of teacher demand, and systematic recruitment strategies can help to maintain a better balance between teacher supply and demand.

(iii) Factors influencing Demand and Supply in Kerala Teacher Labour Market

The analysis of factors influencing teacher demand in Kerala reveals a complex interplay of internal and external factors shaping the state's educational employment. Internal dynamics, particularly teacher transfers, retirements, and promotions, emerge as primary factors influencing teacher demand in government and aided schools. Generally, the enrolment is a key factor of teacher demand. But enrolment trends have shown limited influence on teacher demand in the state due to Kerala's stable student population in recent years. Demographic changes, such as declining birth rates and reduced student enrolment after 2021, further contribute to fluctuating demand. While Kerala’s improved Pupil-Teacher Ratio (PTR) in high schools is reflecting better teacher retention and enhanced educational quality, it also points out to focus on potential overstaffing.

In the private sector, other than these factors, parental expectations, economic conditions, and school reputation play an important role in shaping teacher demand. Schools with higher discipline standards, English proficiency requirements, and technological advancements result in frequent staff turnover. The expansion of non-state syllabus schools, particularly CBSE institutions, has further influenced teacher demand in state syllabus schools, signalling a shift in parental preferences and educational trends. Further, Kerala’s educational empowerment programmes have positively influenced enrolment and retention, contributing to stability in teacher demand despite demographic changes. There is a need for strategic workforce planning that controls internal staffing patterns and manages

demographic shifts and evolving educational preferences. Balancing teacher employment with enrolment trends, controlling teacher transfers, and supporting quality development according to technological advancements will be vital in ensuring a stable and effective teacher workforce in Kerala.

The study reveals several critical insights into the factors influencing the supply of teachers in Kerala too. The factors influencing supply vary across different categories of teachers. Non-monetary factors such as the status of the teaching profession, occupational choices, and support from management and colleagues significantly impact supply of teachers. While remuneration and incentives have comparatively less influence for most of the teachers, they remain relevant for specific teacher groups, particularly female teachers and senior teachers with over 20 years of experience. Female teachers consistently reporting stronger perceptions across key factors, such as remuneration, support systems, and professional development opportunities which suggests that women teachers are more responsive to most of the factors. Teachers with 6-10 years of experience have the highest perceptions across multiple factors, indicating this period as a crucial phase for teacher engagement. Teachers in their early years (0-5 years), showed less concern for school prestige and autonomy, whereas senior teachers (20 and more years) emphasized remuneration and job security more prominently.

The study also showed clear trends, with teachers in government schools prioritising remuneration and professional growth whereas teachers in private schools – especially women teachers – valued independence, school prestige, and management support. These variations highlight the necessity of distinguished retention strategies for various management domains. Younger teachers are more concerned about remuneration, while older teachers prioritize professional

development and support. This shift reveals the evolving career preferences as teachers progress through different stages of their professional journey. The importance of strengthening workplace support systems, enhancing career progression pathways, and balancing financial incentives with non-monetary motivators can be noted from the study, to ensure a stable supply of quality teachers in Kerala.

Chapter 6

EDUCATIONAL IMPLICATIONS & SUGGESTIONS

EDUCATIONAL IMPLICATIONS AND SUGGESTIONS

Educational economics is a novel branch of study which unleashes to areas in which Economics and Education disciplines come together. Teacher is a significant and vital factor of educational process. It is essential to establish an efficient system for effective manpower planning and utilization. The present study is an attempt to examine various factors which influence demand and supply forces in teacher labour market. The investigator studied the structure of labour market for teachers in Kerala and factors influencing demand for teachers and supply of teachers. The investigator collected documents from government offices, questionnaires from teachers and interviews with principals of unaided schools. The major educational implications of the study are given below.

Educational Implications

From the analysis of Kerala's teacher labour market, the following key educational implications can be suggested:

1. The steady rise in government school teachers reflects positive growth. However, continued investment in recruitment, professional development, and resource allocation is crucial for strengthening government school workforce.

2. To address the decline in aided and unaided School workforce, particularly at the high school level, demands strategies to manage teacher attrition. This may include improved job security, enhanced incentives, and targeted recruitment to fill gaps.

3. The dominance of female teachers across Lower Primary, Upper Primary, and high school levels highlights the need for policies that ensure work-life balance, professional growth and leadership opportunities for female teachers.
4. The remarkable increase in number of high schools reflects Kerala's focus on secondary education. Actions to enhance learning resources, improve teacher training, and ensure curriculum with contemporary educational needs and relevance are essential.
5. The fluctuating trends in teacher employment, especially in Lower Primary and Upper Primary levels, indicate a need for updated workforce planning. Authorities should make proper teacher recruitment strategies with reference to enrolment projections to avoid oversupply or shortages.
6. The reduction in unaided school teachers indicate financial instability and shifting enrolment patterns. Policies to support unaided institutions, particularly in urban areas, could help to sustain teacher employment in this sector.
7. Teacher numbers are facing fluctuations year to year. Hence, there is a need to emphasize quality teaching practices, continuous professional development, and effective classroom management strategies to maintain educational outcomes.
8. Districts like Wayanad and Idukki having lower school density, require interventions to improve educational access, such as digital learning initiatives, and incentives for teachers in underserved regions.
9. The high Supply-to-Demand (S/D) ratio indicates teacher surplus which lead to underemployment and job insecurity for qualified teachers. The education system should consider diversifying teacher roles, promoting specialized

training, and expanding employment opportunities to manage the surplus effectively.

10. The declining student enrolment trend after 2021, combined with Kerala's demographic shifts, requires a reorganisation of teacher recruitment strategies. Policies should focus on flexible staffing models that adapt to changing student populations.
11. The surplus of teachers brings about an opportunity to upskill the teaching workforce. Specialized training in emerging educational technologies, inclusive education and subject expertise can enhance teacher employability.
12. The imbalance between teacher demand and supply reflects the need for effective policy interventions from the part of government.
13. Institutions in regions with oversupply can offer career guidance, alternative career pathways and entrepreneurship programmes in the field of education to support teacher employment beyond traditional classroom roles.
14. Oversupply only suggesting teacher availability. So, the attention must be given to enhancing instructional quality and ensuring teachers are equipped with modern pedagogical skills and effective classroom strategies.
15. 'Losing teachers suddenly can have harmful effects on students, particularly young children, with respect to both their psychology and their educations. Transfers also prevent teachers from becoming truly invested in and building relationships with the schools and communities in which they serve.' (National Educational Policy, 2020). Since teacher transfers are a primary factor of demand, better management of transfer policies is important. Establishing strict guidelines for transfers can reduce classroom disruptions.

16. The reduction in Lower Primary teachers and increase in High School teachers requires strategic reorganisation and monitoring to prevent overstaffing at higher levels and under-resourcing at lower levels and also to minimize resource wastage.
17. The declining crude birth rate and falling student enrolment stress on the need for educational institutions to adopt flexible staffing policies to manage shrinking student populations effectively.
18. The practice of artificially boosting enrolments in aided schools, destructs neighbourhood schooling patterns. Authorities should monitor such practices for ensuring fair resource allocation and balanced teacher distribution.
19. The focus on English proficiency in private schools highlights the need to provide language training for teachers to improve their linguistic skills and improve classroom effectiveness.
20. Technological advancements like smartboards, online classes, and AI applications should be incorporated in teacher training programmes.
21. The role of parental and student feedback in teacher recruitment and retention in private schools is important. There is a need to adopt similar evaluation models in government and aided schools to improve teaching quality and accountability.
22. As Kerala's educational empowerment programmes have successfully improved school enrolment and retention, focus should be there on ensuring equitable access to marginalized groups.
23. Educational institutions should focus on the development positive workplace relationships to improve teacher retention.

24. Establishing effective training for teachers, especially for early years of career, can provide emotional and professional support which in turn reduce attrition rates.
25. Financial incentives should be enhanced for groups that value it most, such as female teachers, senior teachers, and teachers in low-demand regions. Developing performance-linked incentives or experience-based allowances can attract and retain skilled teachers.
26. As female teachers reported stronger perceptions across multiple factors, reforms such as flexible working hours, family support programmes, and childcare facilities can improve female teacher retention.
27. As teacher autonomy was valued more by the experienced teachers, especially in private schools, empowering such teachers providing decision-making roles and classroom innovation opportunities can improve job satisfaction.
28. Government schools should focus on improving remuneration structures and career advancement programmes to sustain long-term retention.
29. Private schools should focus on promoting teacher autonomy, enhancing prestige, and improving teacher-student relationships to maintain staff stability.
30. Younger teachers (22-30 years) need greater focus on financial security, early career guidance, and mentoring programmes to improve entry and stability whereas older teachers (46-60 years) are more attracted to wellness initiatives, reduced workload, and administrative roles.
31. Teachers across all demographics strongly valued occupational choices, status of the profession, and school prestige etc. Hence, enhancing the dignity of teaching through public recognition programmes and professional awards can have positive impact on supply trends.

Suggestions for Further Research

Educational Economics is an important field of study which is unfortunately lacking much research endeavours. Understanding the close relationship between educational systems and economic outcomes requires deeper researches in the field of educational economics. It is necessary for guiding policies that enhance educational access, quality, and equity because education is crucial in determining human capital, productivity, and social mobility. Various stakeholders can benefit greatly from investigating issues like teacher labour markets, resource allocation, and the financial effects of educational investments. Research in this area can also help identify ways to improve funding methods, address educational outcomes inequities, and assess the cost-effectiveness of different educational initiatives. The following areas can be studied deeper for making deeper understanding and investigations:

- **Teacher Demand and Recruitment Patterns:**

Role of subject specializations and communal reservation policies in shaping teacher demand an area that should be investigated in detail. In spite of excess demand for teachers, there are teacher vacancies which are not filled up because of lack of teachers belonging to particular communities and reserved groups. Such vacancies are notified year to year as N.C.A. (No Candidate Available).

- **Teacher Attrition and Turnover**

Teacher attrition is a significant factor of demand in Kerala. Factors influencing teacher resignation, retirement, and career shifts are to be closely analysed. This study can be further developed by the analysis of attrition rates in different school types (government, aided, private). Meanwhile, influence of job dissatisfaction, workload, government policies on teacher exits are also have to be brought under light. Such studies also direct to role of emotional well-being and work-life balance in teacher retention.

- **Quality and Effectiveness of Teachers**

Impact of teachers on student performance is an area much studies. But the impact of teacher qualification levels on student performance and influence of continuous professional development on teaching effectiveness are the areas to be significantly followed. A thorough study of effectiveness of teacher training programmes in Kerala and performance appraisal of teachers could bring about more insights.

- **Impact of Education Policy on Teacher Labour Market**

Analysis of Kerala's Public Service Commission (PSC) recruitment policies and government interventions in ensuring equitable teacher distribution are important areas to be studied. Evaluation of commission reports and recommendations in teacher labour market is also to be analysed in depth.

- **Gender and Social Equity in Teacher Employment**

Gender disparities in teacher recruitment, role of social background, caste, and community representation in teacher employment are the areas of study which help to understand the internal patterns of socio-economic and cultural factors and their inter relationship.

- **Technological Advancements and the Teacher Workforce**

Impact of digital learning and technology adoption on teacher roles, effect of emerging trends such as online teaching, hybrid learning, and smart classrooms and role of humanoid robots and AI tools in reshaping teacher roles are the emerging areas of research which have significant impact on teacher labour market.

- **Teacher Motivation, Job Satisfaction, and Workplace Culture**

Comprehensive analysis of internal factors like factors influencing teacher career decisions and influence of school leadership, management support, and colleague relationships can help to understand the complex workplace culture and improve teacher retention.

- **Teacher Migration**

Financial stability and migration patterns are important areas of study. Domestic migration which is within the country denotes the teachers crossing the borders of the state to work in other states or alternative educational systems. There are a great number of teachers migrating internationally to work in other countries.

- **Historical Evolution of Teacher Employment in Kerala**

A comprehensive historical analysis of trends in teacher recruitment from pre-independence to the present and changes in teacher qualification requirements over time can provide a vivid picture of the evolution of the profession, cultural and social elements aligning to the profession and recruitment strategies of different governments.

- **Future Projections and Workforce Planning**

Projections of future teacher demand and supply in Kerala, strategies for ensuring a sustainable teacher workforce when declining the student enrolment, innovative approaches for addressing teacher shortages or oversupply in specific regions etc. are the areas to be profoundly investigated.

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