

A STUDY ON PERFORMANCE OF PUBLIC CARRIER'S TRANSIT SYSTEM IN KANYAKUMARI DISTRICT

Submitted in partial fulfillment of the requirements for the award of

MASTER OF BUSINESS ADMINISTRATION

by

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SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

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SCHOOL OF MANAGEMENT STUDIES

BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of **ROJER LAL.B 40410144** who carried out the project entitled “**A Study on Performance of Public carrier’s transit system in Kanyakumari District**”

” Under my supervision from January 2022 to March 2022.

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DECLARATION

I **ROJER LAL B (40410144)** hereby declare that the Project Report entitled **“A Study on Performance of Public carrier’s transit system in Kanyakumari District”** done by me under the guidance of **DR.M. VELUMONI** is submitted in partial fulfillment of the requirements for the award of Master of Business Administration degree.

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ABSTRACT

India's growing economy has witnessed a rise in demand for transport infrastructure and services. India is the second most populated country in the world, and a quick developing economic system, is seeing horrible road congestion troubles in its towns. Due to population growth and the emergence of economies in developing countries, and the high economic growth in developed countries, the rapid development of technology makes cities more attractive and thereby increases the growth of urbanization. The study is to find how the products are delivered to the customers and study about the disturbance occurred while travelling through lorry in the roads, handling the costs and profits gained in the transport service. Convenient sampling techniques were adopted. The collected data is analyzed with appropriate statistical tools. The statistical tools were selected on the basis of nature of data included for the analysis. Frequency Analysis, Chi-Square Test, Correlation Analysis were used. The study explores the public transits and about the cost efficiency of lorry drivers, on time efficiency disturbance occurred in fast tag etc. Also the fuel consumption of the vehicle also analyzed in this study.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION:

It's no secret that the supply chain of most companies remains an area of untapped value. Executives are broadly aware of opportunities to reduce supply chain costs/assets and improve processes, but they need to put a few basic principles to work to capture more value from the improvement initiatives. These days, an executive doesn't make it to the top without being aware of some fundamental supply chain issues.

- Under-utilized distribution centers are expensive
- Excess inventory is a waste
- Transportation modes should satisfy customers at the best possible cost.

Armed with this basic knowledge, each year's list of supply chain initiatives is typically designed to keep supply chain cost and service within an "acceptable" range. These kinds of initiatives make sense at a managerial level and satisfy the need for purposeful direction, but most companies, if they follow a few basic principles, can obtain greater value from supply chain initiatives. Information technology has had a substantial impact on supply chains. Scanners collect sales data at the point-of-sale and electronic data interchange (EDI) allows these data to be shared immediately with all stages of the supply chain. The application of these technologies, especially in the grocery industry, has substantially lowered the time and cost to process an order, leading to impressive improvements in supply chain performance.

As a result of these success stories, there is now a general belief within industry that capturing and sharing real-time demand information is the key to improved supply chain performance. The purpose of this research is to find out the principles of materials handling GE stamping. This is done through a structured questionnaire, which will be distributed among the respondents working for the company. Collected samples are interpreted and analyzed to arrive at the findings. From the study findings, suggestions are recommended to the organization for an effective evaluation of stock.

1.1.2 SUPPLY CHAIN MANAGEMENT:

The best companies around the world are discovering a powerful new source of competitive advantage. It's called supply-chain management and it encompasses all of those integrated activities that bring product to market and create satisfied customers. The Supply Chain Management Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program. Successful supply chain management, then, coordinates and integrates all of these activities into a seamless process. In addition to the departments within the organization, these partners include vendors, carriers, third-party companies, and information systems providers.

1.1.3 IMPORTANCE OF SUPPLY CHAIN MANAGEMENT:

If we take the view that Supply Chain Management is what Supply Chain management people do, then in 1997 Supply Chain Management has a firm hand on all aspects of physical distribution and materials management. Seventy-five percent or more of respondents included the following activities as part of their company's Supply Chain

Management department functions:

- Inventory management
- Transportation service procurement
- Materials handling
- Inbound transportation
- Transportation operations management
- Warehousing management

Moreover, the Supply Chain Management department is expected to increase its range of responsibilities, most often in line with the thinking that sees the order fulfilment process as one coordinated set of activities. Thus the functions most often cited as planning to formally include in the Supply Chain Management department are:

- Customer service performance monitoring
- Order processing/customer service

- Supply Chain Management budget forecasting

On the other hand, there are certain functions which some of us might feel logically belong to Supply Chain Management which companies feel are the proper domain of other departments. Most difficult to bring under the umbrella of Supply Chain Management are:

- Third party invoice payment/audit
- Sales forecasting
- Master production planning

These include engineering change control for packaging; custom design packaging; drafting national Supply Chain Management standards; and implementing SCM software.

1.2 INDUSTRY PROFILE

The global logistics market reached a value of US\$ 1,171 Billion in 2017. The global logistics market in its present state has come about as a result of an amalgamation of supply side and demand side trends. The rapid proliferation of trade agreements among various nations is the major demand driver of the global logistics market. Additionally, the initiatives aimed at increasing globe trade activities have expanded the demand for logistics in order to keep pace with the rising needs of importers and exporters.

Logistics refers to the process of planning and coordinating resources and services from the point of origin to the point of consumption. This process provides efficient and effective transportation and storage of goods and services. The major components of logistics involved in the proper functioning of an organization or a business include inventory management, inbound and outbound transportation, material handling, warehousing, etc. In recent years, the logistics industry has benefitted from the advancements made in technology, integration, globalization, legislation, and confederations.

The advancements in technology which involve automated material handling equipment, biometrics, GPS etc.... aid organizations and businesses to work proficiently, thereby spurring the growth of the logistics market across the globe. The upsurge in internet retailing and the increasing popularity of online shopping are some of the other factors supporting the market growth. Looking forward, the market is projected to reach a value of US\$ 1,374 Billion by 2023, registering a CAGR of 2.7% during 2018-2023. In a move to cut down costs, producers are exploring around the globe in search for the lowest

cost exporters/suppliers. Lured towards developing countries in south-east Asian region for lower-wages, transportation industry is stretching its reach longer than ever before. Major players are focusing overseas markets for outsourcing cheap manufacturing as well as expanding their businesses. The rest of the plants are gaining the developing rhythm, but must export overseas now to sustain their positions in the market.

Logistics is about moving materials, information and funds from one business to another or from a business to the consumer. It is a vital part of the business economic system and is a major global economic activity. For any country, the logistics cost is estimated between 9 and 20 per cent of its GDP. Every company dream of achieving the seven R's - delivering the right product in the right quantity and the right condition, at the right place at the right time, for the right customer at the right cost-Effective logistics management alone can make this possible.

Logistics is one of the oldest and also the newest activities of business management. It involves combining diverse functions and service providers who may be culturally and objectively different. In the past quality of products and services was the key differentiating factor for companies operating in the same market In due course, quality and low cost became the winning combination.

Today, responsiveness to the customers' needs is the determining factor. An enterprise that caters instantly to the needs of the customer is the winner. Integrated logistics can serve as a potent tool for success in today's competitive business environment

Logistics is an organized process of managing the flow of merchandise from the source of supply - the vendor, wholesaler or distributor - through internal processing functions like warehousing and transportation, until the merchandise is sold and delivered to the end customer. Logistics management aims to reduce inventory-holding costs and improve profits, while enhancing customer satisfaction. Anything can be ordered online, but receiving a tangible product is impossible.

Logistics management is that part of the supply chain which plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services and information between the point of origin and the point of consumption in order to meet customers' requirements, A professional working in the field of logistics management is called a logistician, Logistics as a business concept evolved only in the 1950s This was mainly due to the increasing complexity of supplying one's business with materials and shipping out products in an increasingly globalized supply chain calling for experts in the

field who are called Supply Chain Logisticians. This can be defined as having the right item in the right quantity at the right time at the right place for the right price and it is the science of process having its presence in all sectors of the industry. The goal of logistics work is to manage the fruition of project life cycles supply chains and resultant efficiencies.

Logistics is the management of the flow of goods, information and other resources, including energy and people, between the point of origin and the point of consumption in order to meet the requirements of consumers. Logistics involve the integration of information, transportation, inventory, warehousing, material-handling and packaging.

1.2.1 ORIGIN AND DEFINITION OF LOGISTICS:

The term "logistics" originates from the ancient Greek ("logos"-ratio, word, calculation, person, speech, and oration") Logistics is considered to have originated in the military's need to supply themselves with arms ammunition and rations as they moved from their base to a forward position. In ancient Greek, Roman and Byzantine empires, there were military officers with the title 'Logistics who were responsible for financial and distribution of supplies.

The Oxford English dictionary defines logistics as "The branch of military science having to do with procuring maintaining and transporting material personnel and facilities. "Another dictionary definition is: "The time related positioning of resources" As such, logistics is commonly seen as a branch of engineering which creates "people systems rather than "machine system.

1.2.2 PROSPECTS OF GROWTH IN THE INDUSTRY

In years gone by, the traditional warehousing and logistics facility was located by railroad tracks a water port, and or freeways, usually in the least desirable parts of cities or large towns This stereotype then faded as gigantic, state-of-the-art facilities began to sprout in more rural areas on the outskirts of transportation and population hubs The World started beginning to see such facilities showing up in even less traditional areas, Modern warehouses now are being located in carefully manicured industrial parks that are sprouting as fast as the corn and what once did in these open spaces –often in out-of-the-way places Why the emphasis on such location for logistics companies.

In turn, 3PL providers are continually looking to provide innovative supply chain solutions to customers by focusing on value added capabilities, differentiating themselves from the competition They focus on key objectives, such as implementing information

technologies, instituting effective management processes, integrating services and technologies globally, and delivering comprehensive solutions that create value for 3PL users and their supply chains. This need to partner with customers and become more integrated into their supply chain processes has created the ancillary need to locate close to these customers

That isn't to say the need for easy access to transportation hubs and different modes of transportation won't continue to be important, but the above it in business strategy, along with the advances technology and enhanced communication has opened the door for logistics facilities to operate effortlessly in a myriad of locations. Profit warnings share price pressures, mergers reorganizations relocations disposals, painful layoffs and great geopolitical uncertainties can sweep away even the most comprehensive logistics strategies and that's despite outstanding management over many years. These are exceptionally difficult times and it has ever been more important to connect logistics and freight planning to executive board thinking than now. It's easy to lose sight of the bigger picture in the rush to cut infrastructure cost and conserve cash Hopefully organization succeed in protecting the business, satisfying shareholders and analyst, but what about capacity and flexibility, morale and momentum.

1.2.3 INDIAN SCENARIO:

The country's logistics industry is projected to be worth \$215 billion by 2020-21, recording a 10 per cent compounded annual growth rate (CAGR) over its approximate size of \$160 billion in 2016-17. The industry's growth will be fuelled by the strides in manufacturing, retail, fast-moving consumer goods and e-commerce sectors. Development of logistics related infrastructure, like dedicated freight corridors, logistics parks, free trade warehousing zones and container freight stations, are expected to improve efficiency, a report by CARE Ratings observed. At present, the logistics sector is dominated by transportation, which has over 85 per cent share in value terms. Its share is set to remain high for the next few years. The remaining 15 per cent share is accounted for by storage. The sector is employment intensive, absorbing 22 million people.

Logistics costs have a significant bearing on exports. It is estimated that slashing logistics costs by 10 per cent could widen exports by five to eight per cent. Steep logistics costs in India vis-a-vis other nations have been a vexing issue. Logistics costs as a percentage of the country's gross domestic product (GDP) is 13-14 per cent. Higher logistics costs in India could be ascribed to the lack of efficient inter-modal and multi-modal traditional systems, the ratings agency said in its report. Going ahead, the logistics costs

as a share of the GDP is expected to decline, led by initiatives like the implementation of goods and services tax (GST), investments in road infrastructure, development of inland waterways and coastal shipping, and the thrust on dedicated freight corridors.

At present, the Indian logistics industry is highly fragmented and unorganized. Owing to the presence of numerous unorganized players in the industry, it remains fragmented, with the organized players accounting for approximately 10 per cent of the total market share. With the consumer base of the sector encompassing a wide range of industries, including retail, automobile, telecom, pharmaceuticals and heavy industries, the logistics industry has been increasingly attracting investments in the last decade.

1.3 NEED OF THE STUDY

The Need of the study is to find how the products are delivered to the customers and study about the disturbance occurred while travelling through lorry in the roads, handling the costs and profits gained in the transport service.

1.4 OBJECTIVES OF THE STUDY:

- To analyze the cost optimization of Fuel in the transit system.
- To study about the on-time performance of the transit system.
- To investigate the event disturbance occurred while travelling.
- To study the delivery handling process of the respondents.

1.5 SCOPE OF THE STUDY:

This study helps to analyze the cost optimization, on time performance of the transport, also to learn about the disturbance that occurred after the implementation of EV bill. And how the delivery handling process made by the transport people.

CHAPTER 2

REVIEW OF LITERATURE

REVIEW OF LITERATURE:

Margarita Isoraite et al (2004) the article analyses the following issues performance measurement in literature. The performance measurement has an important role to play in the efficient and effective management of organizations. Kaplan and Johnson highlighted the failure of the financial measures to reflect changes in the competitive circumstances and strategies of modern organizations. Many authors have focused attention on how organizations can design more appropriate measurement systems. Based on literature, consultancy experience and action research, numerous processes have been developed that organizations can follow in order to design and implement systems. Many frameworks have been proposed that support these processes. The objective of such frameworks is to help organizations define a set of measures that reflect their objectives and assess their performance appropriately. Transport sector performance and its impacts measuring. The purpose of transport measurement is to identify opportunities enhancing transport performance. Successful transport sector management requires a system to analyse its efficiency and effectiveness as well as plan interventions if transport sector performance needs improvement.

Daven. Carter et al (2006) has developed a methodology to evaluate the relative performance of operators of rural transit service funded through the Section 18 Program of the former Urban Mass Transportation Administration (now the Federal Transit Administration). It was found that the agencies could be compared using measures of cost efficiency, cost-effectiveness, service utilization, vehicle utilization, quality of service, labor productivity, and accessibility. The transit agencies and the Texas Department of Transportation can use these measures for analysis of performance trends, evaluation of overall system performance, transit planning, and technical assistance. The procedure uses a standard score methodology to compare the performance of individual agencies to the mean of all rural transit operators in Texas.

Gabriela Beirao (2007) presents the results of a qualitative study of public transport users and car users in order to obtain a deeper understanding of travelers' attitudes towards transport and to explore perceptions of public transport service quality. The key findings indicate that in order to increase public transport usage, the service should be designed in a way that accommodates the levels of service required by customers and by doing so,

attract potential users. Furthermore, the choice of transport is influenced by several factors, such as individual characteristics and lifestyle, the type of journey, the perceived service performance of each transport mode and situational variables. This suggests the need for segmentation taking into account travel attitudes and behaviors.

Laura Ebol et al (2008) develops a Stated Preference (SP) experiment that provides a way to measure service quality in public transport. The paper introduces an empirical procedure for optimizing the SP experiment. This procedure permits the identification of the choice alternatives defining the experiment by simulating the choices of a user sample. By using the data collected from an experimental survey, a Multinomial Logit model was calibrated.

Cinzia Cirillo et al (2009) investigated the heterogeneity of transit users in perceiving service quality. Users' perceptions of transit services are heterogeneous for many reasons: the qualitative nature of some service aspects, the different users' socioeconomic characteristics, the diversity in tastes and attitudes towards transit. In this research, heterogeneity is treated through a mixed logit model with a non-parametric distribution of the coefficients, allowing the asymmetry in user perception heterogeneity to be considered.

Chunqin Zhang (2014) evaluate the performance of public transit systems based on a combined evaluation method (CEM) consisting of information entropy theory and super efficiency data envelopment analysis (SE-DEA). Taking 13 transit operators in Yangtze Delta Region of China as the research object, we integrate the public transit industry regulations, transit operation and passenger requirements to construct an evaluation indicator system based on satisfaction and efficiency.

Gang Lin et al (2014) mitigate car traffic problems, the United Nations Human Settlements Programme (Unhabitat) issued a document that provides guidelines for sustainable development and the promotion of public transport. The efficiency of the policies and strategies needs to be evaluated to improve the performance of public transportation networks. To assess the performance of a public transport network, it is first necessary to select evaluation criteria. Based on existing indicators, this research proposes a public transport criteria matrix that includes the basic public transport infrastructure level, public transport service level, economic benefit level, and sustainable development level. A public transport criteria matrix AHP model is established to assess the performance of public transport networks. The established model selects appropriate evaluation criteria based on existing performance standards.

Laura Eboli et al (2014) represents a very useful tool for ensuring continuous increase of the quality of the delivered transit services, and for allocating resources among competing

transit agencies. Transit service quality can be evaluated by subjective measures based on passengers' perceptions, and objective measures represented by disaggregate performance measures expressed as numerical values, which must be compared with fixed standards or past performances. The proposed research work deals with service quality evaluation based on objective measures; specifically, an extensive overview and an interpretative review of the objective indicators until investigated by researchers are proposed.

Cheng and Chen. (2015) Mobility level of a city can be improved by providing a well-organized transportation system. Hence, accessibility of public transport stops, connectivity of modes of public transport and system mobility should be considered to provide a user-friendly system of public transport.

Pons Rotger and Nielsen, (2015) Research on effects of job accessibility improved by public transport system in Copenhagen estimated minimum street distance from residences to a metro station. Employment percentages of residents were calculated for the analysis corresponding to distance from the metro station. Employment rate of 84.7 % was recorded where residence was ranging 0.5-2.7 km from station where the same parameter of employed was rated to 84.0 % for the residences ranging from 2.7-6.2 km from station. Same trend was recorded in case of earnings.

Tatenda Mbara (2015) Whether or not cities, which are hubs connecting markets such as those on labor, investment, education, commerce, recreation and health care, etc., can prosper depends, among others, on the accessibility of these markets. The accessibility, in turn, is influenced by the availability of an efficient and effective transport system. What is an effective and efficient urban transport system? It is one that can satisfy the numerous and diverse requirements of the metropolitan mobility, including minimizing travelling time between various locations, while at the same time internalises externalities to positively affect the well-being and the quality of life of the citizens of that area. Among the most apparent externalities are traffic congestion, traffic accidents and environmental pollution including climate change. The larger the metropolitan area, the greater is its complexity and the potential for transport externalities and therefore for transport disruptions. Introducing and sustaining an effective and efficient transport system is therefore not an easy but possible task. This requires that the appropriate authorities transform the available land and financial resources, both limited capital inputs, into relevant transport infrastructure and networks to provide, what is considered, the right combination between the various motorized individual or collective/public and non-motorized transport modes, as well as easy transfers between them to meet the mobility demand. In this paper they discussed about high quality service for public transport

Das T et al (2016) improve the facilities provided by public buses, a performance analysis is essential. Conventional empirical models, such as generalized linear mode (GLM) and multiple regression models have been used in several studies to predict bus performance characterizing parameters and overall performance of bus network system. This paper proposes a methodology for evaluating the overall performance provided by the bus network system at different operating conditions(viz. Office Days, Weekend Holidays, Festive Days, Rainy Days) prevailing in Dhaka Metropolitan city. A Structural Equation Model (SEM) is used to reveal the observed and unobserved performance defining parameters and their relationship with the overall performance of bus network system. Under the study, performance of the public buses has been identified by processing field survey data according to a suitable mathematical procedure. For this purpose, a total of 400 passengers of buses were interviewed with a predetermined structured questionnaire at different operating conditions to know their experience, level of satisfaction and opinion about the existing service as well as their expectations. Some attention-grabbing results have been obtained.

Saghapour et al., (2016) transportation leads to social exclusion, transport and land use policies focus on accessibility and aim at enabling people to reach destinations at reasonable costs and times. Therefore, providing efficient public transport in terms of accessibility is one of the main objectives of policy makers and planners in metropolitan areas throughout the world.

van Wee, (2016) suggested to use this measure of perceived accessibility in order to determine the traveller's (or possible travellers) opinion of accessibility in transport planning or accessibility-mapping, or for directing interventions aimed at improving accessibility to where they are best needed according to the individuals. Evaluation of perceived accessibility provides a strong ground to complement theory on accessibility with subjective experiences of travellers to provide realistic basics in actual accessibility indicators.

Rahul Raoniar et al (2016) Performance Evaluation of Public Transport system is very much essential to understand the effectiveness of the plans in vogue as well as to devise plans for its improvement. Most of the major metropolitan cities of the world are presently witnessing rapid growth in industry, infrastructure, economic activities and population over the past few decades which makes them more attractive to job seekers, causing major increase in personalized modes. As a result, the cities are subjected to increase in traffic congestion resulting in huge delays and environmental pollution. To tackle the huge transportation demand and to provide a sustainable environment there is a need for the provision of better public transportation facilities. To fulfill the high demand for better public

transport system, there is a need to establish attractive, safe and highly sophisticated public transport systems.

R. Ruchitha Sree et al (2017) developed an electronic system to provide real-time information for the passengers to display the arrival and departure timings of the buses. This will let the passengers when their bus will arrive and plan their journey accordingly, for planning a journey the public transport system provides the user to find the suggested journey's to commute between the source and the destination. The application should list the bus route number, fare details, distance and also allow the user to view the same in a map-view. Alternatively, the user can also key-in the bus route number to find relevant details of the source and destination.

Jackiva Yatskiv et al., (2017) Service access and urban public transport accessibility have always been a major service issue in urban public transport. In network design of transit services, researchers are often more focused on minimizing the user and operator cost rather than incorporating the issues of equity and access Availability of infrastructure, ease of information, reduced time and cost are imperative factors in providing an attractive public transport with door-to-door access as well as the long-distance travel.

Muhammad Atiullah Saif et al (2018) Public transport can be more attractive by providing "Door to door mobility" and development of transportation services is an important factor of social quality. Public transport accessibility has gained vital importance in designing and evaluating the transit system in terms of mobility and sustainability. Apart from the transport system itself, public transport accessibility has the considerable impact on life satisfaction in the form of perceived accessibility. Moreover, researchers have revealed several impact and correlation of provision of public transport accessibility to the environment and daily life which would have a noticeable impact on public health and other aspects of public daily life. Furthermore, the correlation between public transport accessibility and job opportunities has attracted the researchers' attention in the literature.

Dilip K. Shinde et al (2019) developed an innovative concept for smart roads of future smart cities. It is a program of innovation that links a different way of looking at things with innovative idea that apply the opportunities offers by new technologies in smart ways. Nowadays safety on road has become an important factor in our life because there is an increasing amount of accidents on the road and there are some places where accident occurs frequently such as crossings, turns. Also there is a big problem of traffic jams on road. Due to heavy rain fall, there is a possibility of water overflow on the bridges and accident may occur.

Kavi raj et al (2020) made a study on data collected by automated fare collection (AFC) systems provide opportunities for studying both personal traveling behaviors and collective mobility patterns in urban areas. Existing studies on AFC data have primarily focused on

identifying passengers' movement patterns. However, we creatively leveraged such data for identifying pickpocket suspects. Stopping pickpockets in the public transit system has been crucial for improving passenger satisfaction and public safety. Nonetheless, in practice, it is challenging to discern thieves from regular passengers. In this paper, we developed a suspect detection and surveillance system, which can identify pickpocket suspects based on their daily transit records. Specifically, we first extracted a number of useful features from each passenger's daily activities in the transit system.

Dimple Behal (2020) refers to the distribution of the cost and benefit of a certain resource, project, plan or policy over a different group of people. It is the justice of whether the distribution of the cost of the project impact is appropriate. The decisions often taken in the transportation planning process have significant impacts. These decisions lack the equity considerations which has a diverse impact over different people especially the group which is disadvantaged. Public transit not being a predominant mode of transport still offers basic mobility to all the group of people and providing access to those who can't afford or lack sufficient economic resources. It is the key to reduce traffic congestion with greater environmental benefits and helps in making communities sustainable. Equity in Public transit plays a wider role as the decisions made on public transit may affect the disadvantaged group more with those having lesser opportunities and lesser ability to adapt to the impacts rather than the people who can adapt to the change.

CHAPTER 3

RESEARCH METHODOLOGY

Research methodology is the scientific and systematic research for the pertinent information on the specific topic. It includes testing, verification, classification, organization and orientation, which included prediction and application. Here we also present our study approach, sampling and data collection methods. We also discuss what approach we used in our thesis and how we chose to collect our primary and secondary data.

3.1 SOURCES OF DATA COLLECTION

The Quantitative data collection method is being used so that the produced results are easy to summarize, compare, and generalize. Data collection has been done using Primary and Secondary methods.

3.1.1 Primary Data

For the purpose of this study, Primary Data was collected from respondents by using Questionnaire consisting of Questions that are relevant to the Objective of project Work.

3.1.2 Secondary Data

This Data is pre-collected Data and passed through the Statistical Process. The Secondary Data has been collected from source available viz. Books, Magazines, company website, search engines, etc.

3.2 RESEARCH DESIGN:

The Research Design used for this study is Descriptive type. Descriptive research studies are those studies which are concerned with describing the characteristics of a particular individual or a group.

3.3 SAMPLE DESIGN:

3.3.1 SAMPLING PLAN

Convenient sampling techniques was adopted. The sampling method used in this is a non-probability sampling because specific samples have been selected as per convenience of the researcher due to huge size of target population.

3.3.2 SAMPLING AREA

Lorry drivers in Kanyakumari.

3.3.3 SAMPLING SIZE

The sample size of 100 is undertaken for the study.

3.3.4 POPULATION

Population is Infinite

3.4 STATISTICAL TOOLS OF ANALYSIS

The collected data is analysed with appropriate statistical tools. The statistical tools were selected on the basis of nature of data included for the analysis.

The details of statistical tools are given below:

- Frequency Analysis
- Chi-Square Test
- Correlation Analysis

3.4.1 FREQUENCY ANALYSIS:

Frequency analysis is a descriptive statistics method that shows the number of occurrences of each response chosen by the respondents. It help users to analyze the results and draw conclusions. Pie and bar charts were used in the statistical analysis of data, since they help in clear understanding & provide facts which are easy to compare.

3.4.2 CHI-SQUARE TEST (χ^2)

Chi-square test is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance. It can be applied only if the sample is reasonably large. Chi square method is chosen in order to decide the importance of correlation between two elements. The statistics from Chi Square are commonly used for the assessment of relations between categorical variables. The zero hypothesis of the Chi-Square test is that the categorical variables of a population do not have a relation; they are autonomous.

$$\chi^2 = \sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where O_i - Observed value E_i - Expected value

3.4.3 CORRELATION ANALYSIS:

Correlation analysis in research is a statistical method used to measure the strength of the linear relationship between two variables and compute their association. Simply correlation analysis calculates the level of change in one variable due to the change in the other. A high correlation points to a strong relationship between the two variables, while a low correlation means that the variables are weakly related.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

Table 4.1.1: Gender Of The Respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	100	100.0	100.0	100.0

Source: Primary data:

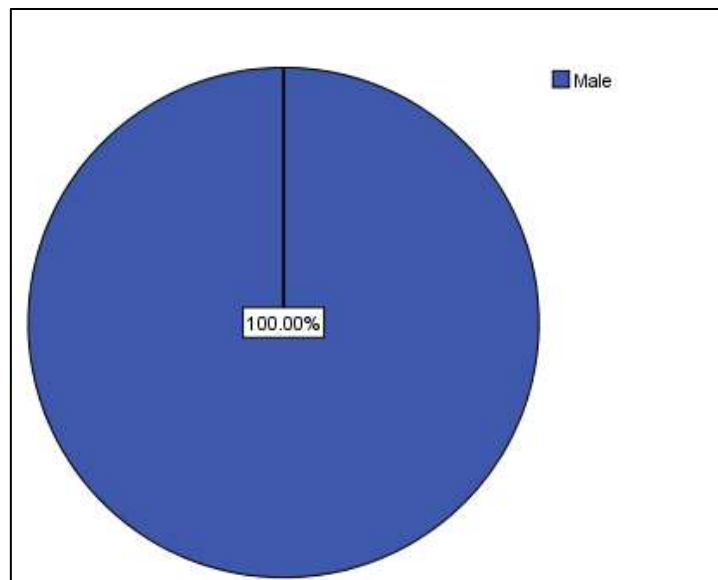


Chart 4.1.1: Gender of the respondents

Interpretation :

From the above table it is interpreted that the number of male respondents is 100% and female respondent is 0%.

Inference:

Majority (100%), the collected respondents are male.

4.1.2 AGE OF THE RESPONDENTS

Table 4.1.2: Age of the Respondents

Age	Frequency	Percent	Valid Percent	Cumulative Percent
21-30	16	16.0	16.0	16.0
31-40	21	21.0	21.0	37.0
41-50	30	30.0	30.0	67.0
above 50	33	33.0	33.0	100.0
Total	100	100.0	100.0	

Source: Primary data

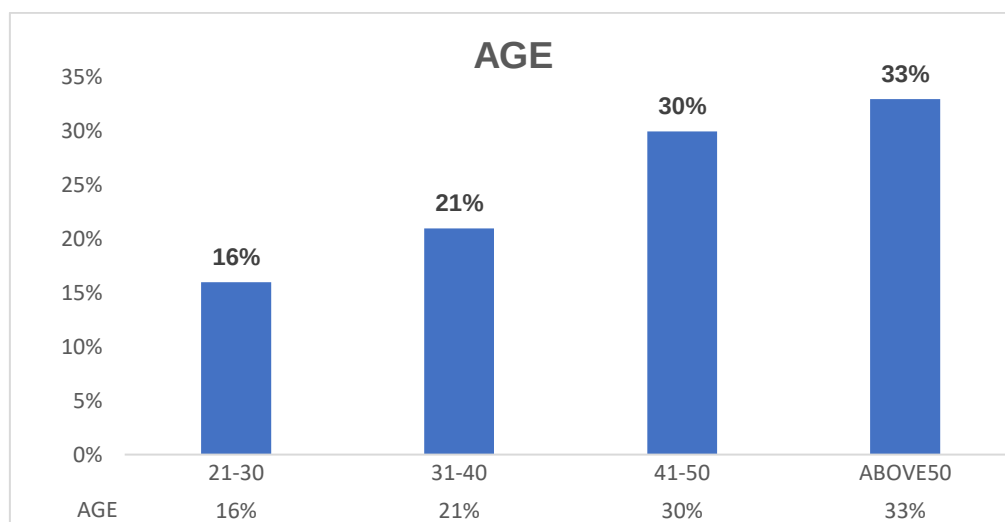


Chart 4.1.2: Age Of Respondents

Interpretation:

From the above table it is interpreted that the number of respondents between 21-30 age of respondents are 16%, between 31-40 age of respondents are 37%, between 41-50 age of respondents 67%, above 50 ages of respondents are 33%.

Inference:

Majority (33%) of the respondents are age above 50 years.

4.1.3 Qualification of the respondents

Table 4.1.3 Qualification of the Respondents

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
SSLC	33	33.0	33.0	33.0
HSC	20	20.0	20.0	53.0
Graduate	26	26.0	26.0	79.0
PG	9	9.0	9.0	88.0
Others	12	12.0	12.0	100.0
Total	100	100.0	100.0	

Source: Primary Data.

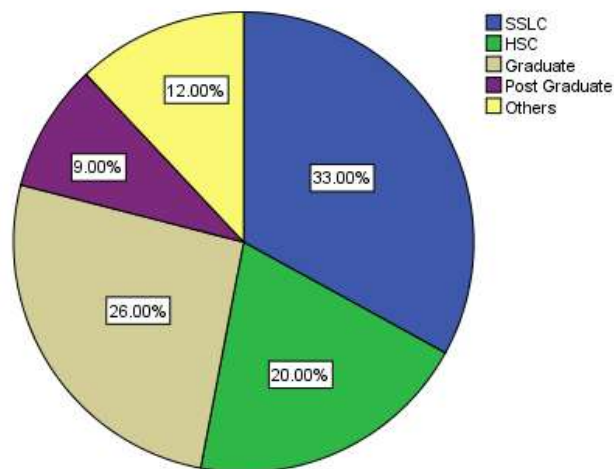


Chart 4.1.3 Qualification Of The Respondents

Interpretation:

from the above table graph it is interpreted that the number of respondents sslc 33%, number of respondents hsc 20%, number of respondents graduate 26%, number of respondents post graduate 9% and others 12%.

Inference:

Majority (33%) of the respondents are sslc.

4.2 STATISTICAL ANALYSIS

CHI-SQUARE TEST:

Credit days compared with Fuel Consumption

Null Hypothesis (H0): There is no significance difference between cost and Fuel Consumption.

Alternative Hypothesis (H1): There is significance difference between cost and Fuel Consumption.

Table 4.2.1 Credit days compared with Fuel Consumption

Cross Tabulation

	Satisfied	Dissatisfied	Highly Dissatisfied	Total
7 Days	2	10	0	12
5 Days	0	3	3	6
3 Days	8	7	5	20
Others	21	35	6	62
Total	31	55	14	100

Chi- Square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.390 ^a	6	.012
Likelihood Ratio	17.555	6	.007
Linear-by-Linear Association	1.629	1	.202
N of Valid Cases	100		

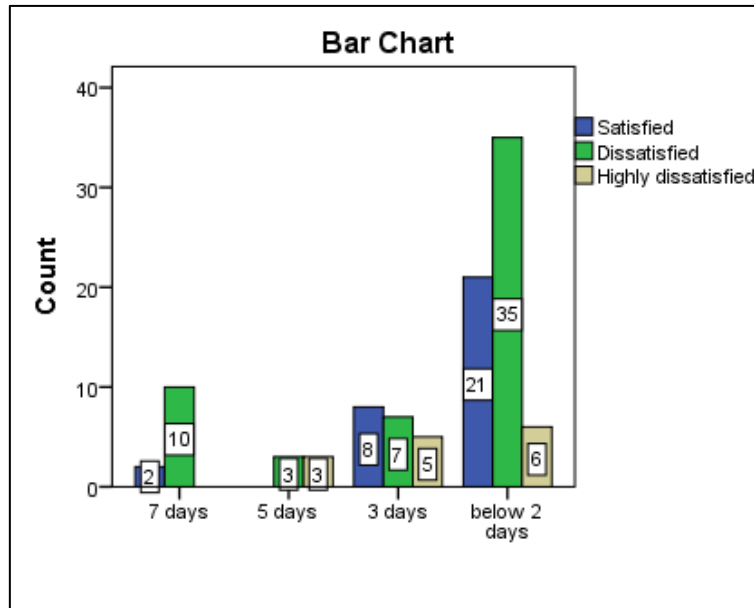


Chart 4.2.1: Credit days compared with Fuel Consumption

Inference:

From the above table, the p- value is 0.012 which is >0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between cost and fuel consumption.

Security Deposit Compared with Fuel Consumption

Null Hypothesis (H_0): There is no significance difference between cost deposit and Fuel Consumption.

Alternative Hypothesis (H_1): There is significance difference between cost deposit and Fuel Consumption.

Table 4.2.2: Security Deposit Compared with Fuel Consumption

	Satisfied	Dissatisfied	Highly Dissatisfied	Total
Strongly Agree	2	9	0	11
Agree	15	14	8	37
Neutral	0	22	2	24
Disagree	9	10	4	23

Strongly Disagree	5	0	0	5
Total	31	55	14	100

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.385 ^a	8	.000
Likelihood Ratio	42.885	8	.000
Linear-by-Linear Association	1.422	1	.233
N of Valid Cases	100		

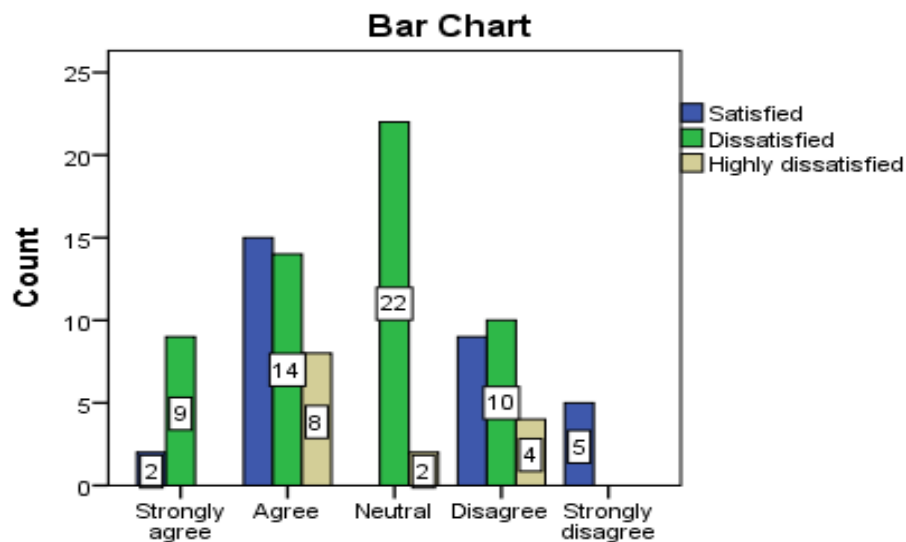


Chart 4.2.2 Security Deposit Compared with Fuel Consumption

Inference:

From the above table, the p-value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is a significance difference between security and fuel consumption.

Cost Optimization Compared with Fuel Consumption

Null Hypothesis (H0): There is no significance difference between cost optimization and Fuel Consumption.

Alternative Hypothesis (H1): There is significance difference between cost optimization and Fuel Consumption.

Table 4.2.3

	Satisfied	Dissatisfied	Highly Dissatisfied	Total
Fuel	6	25	5	36
Routing	11	12	0	23
Driver	0	8	0	8
Maintenance	14	10	9	33
Total	31	55	14	100

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	24.853 ^a	6	.000
Likelihood Ratio	30.837	6	.000
Linear-by-Linear Association	.094	1	.759
N of Valid Cases	100		

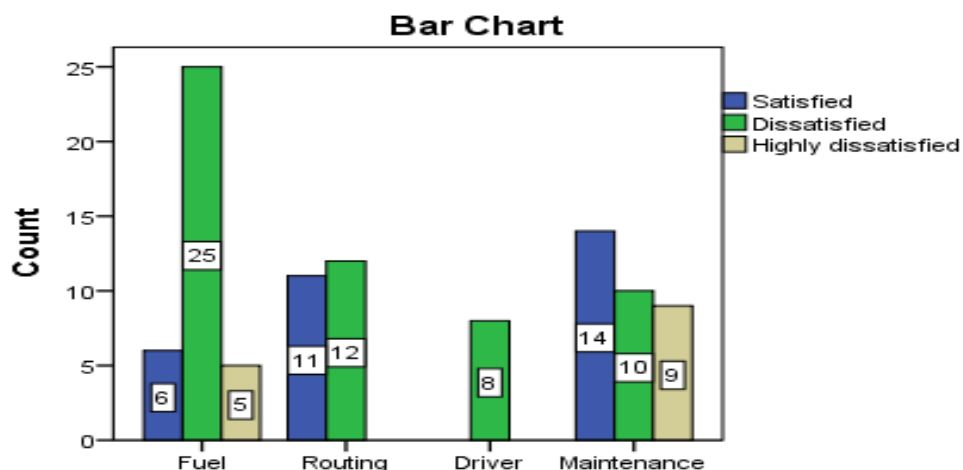


Chart 4.2.3: Cost Optimization Compared with Fuel Consumption

Inference:

From the above table, the p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is a significance difference between cost optimization and fuel consumption.

Time Saving Compared with Vehicle

Null Hypothesis (H_0): There is no significance difference between time saving and number of vehicles.

Alternative Hypothesis (H_1): There is significance difference between time saving and number of vehicles.

Table 4.2.4: Time Saving Compared with Vehicle

	Vehicle	Total
Strongly Agree	39	39
Agree	31	31
Neutral	14	14
Disagree	12	12
Strongly Disagree	4	4
Total	100	100

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.572 ^a	12	.166
Likelihood Ratio	16.810	12	.157
Linear-by-Linear Association	1.692	1	.193
N of Valid Cases	100		

Inference:

From the above table, the p- value is 0.166 which is > 0.05 at 5% level of significant. Hence, we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between time saving and number of vehicles.

Problems faced compared with vehicle

Null Hypothesis (H_0): There is no significance difference between problems faced and no. of vehicles

Alternative Hypothesis (H_1): There is significance difference between problems faced and no. of vehicles.

Table 4.2.5: Problems faced compared with vehicle

	vehicle	Total
Lack Of Information	47	47
Non Co-operation	19	19
Delay	18	18
Damage	16	16
Total	100	100

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.936 ^a	9	.356
Likelihood Ratio	10.573	9	.306
Linear-by-Linear Association	.018	1	.893
N of Valid Cases	100		

Inference:

From the above table, the p- value is 0.356 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H₀) and reject alternative hypothesis (H₁), there is no significance difference between problems faced and number of vehicles.

On time delivery compared with Vehicle

Null Hypothesis (H₀): There is no significance difference between on time delivery and vehicle.

Alternative Hypothesis (H₁): There is significance difference between on time delivery and vehicle.

Table 4.2.6

	vehicle	Total
Okay	21	21
Satisfied	58	58
Highly Satisfied	21	21
Total	100	100

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	4.205 ^a	6	.649
Likelihood Ratio	5.673	6	.461
Linear-by-Linear Association	.454	1	.501
N of Valid Cases	100		

Inference:

From the above table, the p- value is 0.649 which is > 0.05 at 5% level of significant. Hence, we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between on time delivery and number of vehicles.

Customer Satisfied compared with Vehicle

Null Hypothesis (H_0): There is no significance difference between customers satisfied with number of vehicles.

Alternative Hypothesis (H_1): There is significance difference between customers satisfied with number of vehicles.

Table 4.2.7: Customer Satisfied compared with Vehicle

	Vehicle	Total
Okay	35	35
Satisfied	47	47
Highly Satisfied	18	18
Total	100	100

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.797 ^a	6	.340
Likelihood Ratio	8.692	6	.192
Linear-by-Linear Association	2.609	1	.106
N of Valid Cases	100		

Inference:

From the above table, the p- value is 0.340 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between customer satisfaction and number of vehicles.

Penalty paid for damaging goods compared with Size of Goods

Null Hypothesis (H_0): There is no significance difference between number of defectives and goods.

Alternative Hypothesis (H_1): There is significance difference between number of defectives and goods.

Table 4.2.8: *Penalty paid for damaging goods compared with Size of Goods*

	Sometimes	Rarely	No	Total
Textiles	15	9	6	30
Food	10	7	8	25
Home Appliances	17	14	14	45
Total	42	30	28	100

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.982 ^a	4	.137
Likelihood Ratio	7.898	4	.095
Linear-by-Linear Association	.068	1	.794
N of Valid Cases	40		

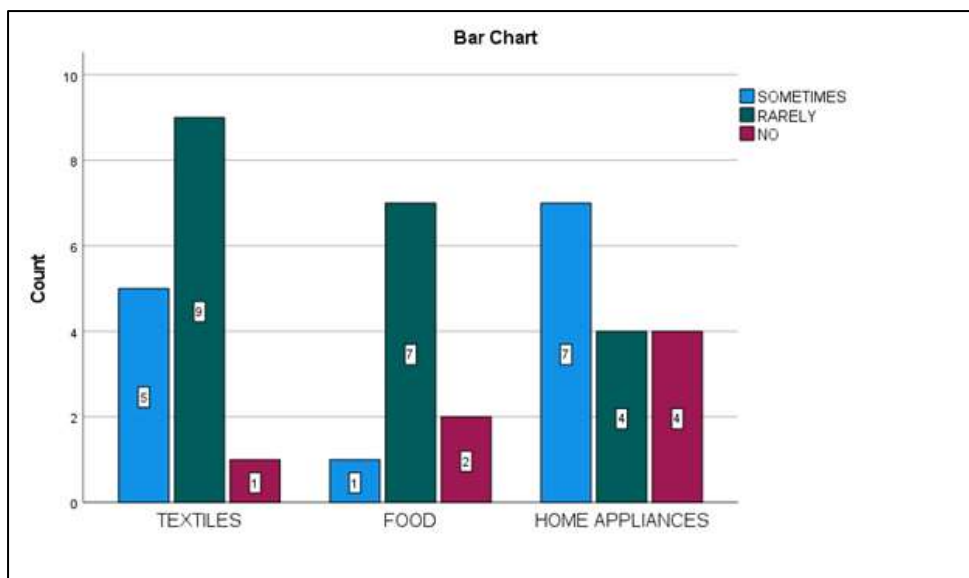


Chart 4.2.4: Penalty paid for damaging goods compared with Size of Goods

Inference:

From the above table, the p-value is 0.137 which is >0.05 at 5% level of significant. Hence, we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between number of defectives and goods.

4.3 CORRELATION ANALYSIS

Null Hypothesis (H_0): There is no relationship between booking status and infectious rate.

Alternative Hypothesis (H_1): There is relationship between booking status and infectious rate.

Correlations

		Booking Status	Infectious
Booking Status	Pearson Correlation	1	.417
	Sig. (2-tailed)		.228
	N	100	100
Infectious	Pearson Correlation	.417	1
	Sig. (2-tailed)	.228	
	N	100	100

Correlations				
			Booking Status	Infectious
Spearman's rho	Booking Status	Correlation Coefficient	1.000	.330
		Sig. (2-tailed)	.	.122
		N	100	100
	Infectious	Correlation Coefficient	.330	1.000
		Sig. (2-tailed)	.122	.
		N	100	100

Inference:

Since the Pearson correlation value is 0.417 a positive value. So there is a positive relationship between booking status and infectious rate.

CHAPTER 5

FINDINGS, SUGGESTIONS AND CONCLUSIONS

5.1 FINDINGS:

- The p- value is 0.012 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is no significance difference between cost and fuel consumption.
- The p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is a significance difference between customer satisfaction and number of vehicles.
- The p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is a significance difference between number of defectives and goods.
- The p- value is 0.166 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between number of defectives and goods.
- The p- value is 0.356 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between number of defectives and goods.
- The p- value is 0.649 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between problems faced and number of vehicles.
- The Pearson correlation value is 0.417 a positive value. So there is a positive relationship between booking status and infectious rate.

5.2 SUGGESTIONS

- By using Experienced drivers we can save fuels and time efficiency
- The utilizing of cost can be reduced by handling the goods carefully.
- By delivering the goods on correct time can increase the sales.
- By maintaining the lorry it saves the time of travel.
- By using Fast tag it is easy to pay in tollgates so more time is saved in travelling.

5.3 LIMITATION OF THE STUDY:

- It is not assured that the responses from all the respondents are true as some

of them may like to tell the incorrect information

- The research is made only in Kanyakumari district.
- Some respondents hesitate to fill the questionnaire.

5.4 CONCLUSIONS

To conclude, the study explores the public transits and about the cost efficiency of lorry drivers, on time efficiency disturbance occurred in fast tag etc. Also the fuel consumption of the vehicle also analyzed in this study. During the pandemic situation logistics plays a vital role to send the goods to every place all over India. Also from this study we could conclude that the infectious rate of covid-19 in Kanyakumari district didn't affects the performance and sales of goods in Kanyakumari.

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A STUDY ON PERFORMANCE OF PUBLIC CARRIER'S TRANSIT SYSTEM IN KANYAKUMARI DISTRICT

1. Gender
 - a) Male
 - b) Female
2. Age:
 - a) Up to 20
 - b) 21-30
 - c) 31-40
 - d) 41-50
 - e) Above 50
3. Educational qualification
 - a) SSLC
 - b) HSC
 - c) Graduate
 - d) Post Graduate
 - d) Others
4. Which factor influences you the most to transport department manage with particular brand?
 - a) Profit
 - b) Quality
 - c) Customer Demand
 - d) Company policy
5. Which size of goods does you transit most?
 - a) Textiles
 - b) food
 - c) Home appliances
 - d) construction
6. How much sale commission transit department do you expect from the firm?
 - a) High
 - b) Low
 - c) Normal
 - d) Medium
7. How much transit credit days do you expect from the firm?
 - a) 7 days
 - b) 5 days
 - c) 3 days
 - d) below 2 days
8. Opinion about security deposit get transport department expect from firm?
 - a) Strongly agree
 - b) Agree
 - c) Neutral
 - d) Disagree
 - e) Strongly disagree
9. Which feature do you concentrate in particular carriers?

- a) Service
 - b) Driver
 - c) Less Erosion
 - d) Fuel
10. Do you believe that higher price of e-bay bill in the firm?
- a) Yes
 - b) No
11. How is your satisfaction about e-way bill?
- a) Highly satisfied
 - b) Satisfied
 - c) Dissatisfied
 - d) highly dissatisfied
12. How does e-way bill play role for goods safety?
- a) Very Important
 - b) Important
 - c) Not important
 - d) No idea
13. Is e-way bill system helped to reduce the time spending in check posts?
- a) Yes
 - b) No
14. How many people are affected with covid in Kanyakumari?
- (a) 5-10 (b) 50 -100 (c) 100 – 200 (d) 300 - 500
15. What is your opinion about FAS Tag in carrier transit system?
- a) Very Important
 - b) Important
 - c) Not important
 - d) No idea
16. How does fastag help in scheduling system?
- a) High
 - b) Somewhat
 - c) Low
 - d) Not helping
17. I am satisfied with the fastag that saving our fuel and time?
- a) Strongly agree
 - b) Agree
 - c) Neither agree nor disagree
 - d) Disagree
 - e) Strongly disagree
18. How often fastag has charged extra amount unknowingly from your account?
- a) Many times
 - b) sometimes
 - c) Rarely
 - d) No
19. What problems faced by the carrier to transit the goods?
- a) Lack of information's
 - b) Non co-operations of customers
 - c) Delay
 - d) Damage

20. How often have you paid penalty for damaging goods?
- a) Many times b) sometimes
c) Rarely d) No
21. How often have your vehicle met with accident?
- a) Many times b) sometimes
c) Rarely d) No
22. What should be in the main logistic activity that a third party logistic should be improved
- a) Inventory management b) Transportation and delivery c)
Quality of parts d) Overall logistic process
- How do you feel about fuel consumption of carrier service?
- a) Highly satisfied b) Satisfied
c) Dissatisfied d) Highly Dissatisfied
24. What are the marketing tools that you generally use to carrier transits service?
- a) New technology b) Durability
c) Fuel efficiency d) Pay load capacity
e) Low maintenance f) others
25. Which factors do you concentrate more for cost optimization?
- a) Fuel b) Routing
c) Driver d). Maintenance
26. Statement of agree level of carrier transits service following functions

Particular/ agree level	Strongly agree	agree	Disagree	Strongly Disagree
Planning				
Transport service marketing				
Order Management				
Transport Operation Monitoring				

Statistics and management information administration				
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27. Rank the following statement to your preference in the Transits Regulator Functions?

FUNCTIONS	RANK
Hazardous Goods Management	
Taxes and Customs Management	
Statistics	

28. What kind of vehicles do you use most often?

29. How satisfied is the customer on delivery (on time delivery)?

- a) Poor [] b) Okay []
 c) Satisfied [] d) Highly satisfied []

30. How satisfied is the customer on your service basis?

- b) Poor [] b) Okay []
 d) Satisfied [] d) Highly satisfied []

APPENDIX – 2 (Article)

A STUDY ON PERFORMANCE OF PUBLIC CARRIER'S TRANSIT SYSTEM IN KANYAKUMARI DISTRICT

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ABSTRACT:

India's growing economy has witnessed a rise in demand for transport infrastructure and services. India is the second most populated country in the world, and a quick developing economic system, is seeing horrible road congestion troubles in its towns. Due to population growth and the emergence of economies in developing countries, and the high economic growth in developed countries, the rapid development of technology makes cities more attractive and thereby increases the growth of urbanization. The study is to find how the products are delivered to the customers and study about the disturbance occurred while travelling through lorry in the roads, handling the costs and profits gained in the transport service. Convenient sampling techniques were adopted. The collected data is analyzed with appropriate statistical tools. The statistical tools were selected on the basis of nature of data included for the analysis. Frequency Analysis, Chi-Square Test, Correlation Analysis were used. The study explores the public transits and about the cost efficiency of lorry drivers, on time efficiency disturbance occurred in fast tag etc. Also the fuel consumption of the vehicle also analyzed in this study.

I.INTRODUCTION:

It's no secret that the supply chain of most companies remains an area of untapped value. Executives are broadly aware of opportunities to reduce supply chain costs/assets and improve processes, but they need to put a few basic principles to work to capture more value from the improvement initiatives. These days, an executive doesn't make it to the top without being aware of some fundamental supply chain issues.

Armed with this basic knowledge, each year's list of supply chain initiatives is typically designed to keep supply chain cost and service within an "acceptable" range. These kinds of initiatives make sense at a managerial level and satisfy the need for purposeful direction, but most companies, if they follow a few basic principles, can obtain greater value from supply chain initiatives. Information technology has had a substantial impact on supply chains. Scanners collect sales data at the point-of-sale and electronic data interchange (EDI) allows these data to be shared immediately with all stages of the supply chain.

II.LITERATURE REVIEW

Cinzia Cirillo et al (2009) investigated the heterogeneity of transit users in perceiving service quality. Users' perceptions of transit services are heterogeneous for many reasons: the qualitative nature of some service aspects, the different users' socioeconomic characteristics, the diversity in tastes and attitudes towards transit. In this research, heterogeneity is treated through a mixed logit model with a non-parametric distribution of the coefficients, allowing the asymmetry in user perception heterogeneity to be considered.

ChunqinZhang (2014) evaluate the performance of public transit systems based on a combined evaluation method (CEM) consisting of information entropy theory and super efficiency data envelopment analysis (SE-DEA). Taking 13 transit operators in Yangtze Delta Region of China as the research object, we integrate the public transit industry regulations, transit operation and passenger requirements to construct an evaluation indicator system based on satisfaction and efficiency.

R. Ruchitha Sree et al (2017) developed an electronic system to provide real-time information for the passengers to display the arrival and departure timings of the buses. This will let the passengers when their bus will arrive and plan their journey accordingly, for planning a journey the public transport system provides the user to find the suggested journey's to commute between the source and the destination. The application should list the bus route number, fare details, distance and also allow the user to view the same in a map-view. Alternatively, the user can also key-in the bus route number to find relevant details of the source and destination.

Dilip K. Shinde et al (2019) developed an innovative concept for smart roads of future smart cities. It is a program of innovation that links a different way of looking at things with innovative idea that apply the opportunities offers by new technologies in smart ways. Nowadays safety on road has become an important factor in our life because there is an increasing amount of accidents on the road and there are some places where accident occurs frequently such as crossings, turns. Also there is a big problem of traffic jams on road. Due to heavy rain fall, there is a possibility of water overflow on the bridges and accident may occur.

Kavi raj et al (2020) made a study on data collected by automated fare collection (AFC) systems provide opportunities for studying both personal traveling behaviors and collective mobility patterns in urban areas. Existing studies on AFC data have primarily focused on identifying passengers' movement patterns. However, we creatively leveraged such data for identifying pickpocket suspects. Stopping pickpockets in the public transit system has been crucial for improving passenger satisfaction and public safety. Nonetheless, in practice, it is challenging to discern thieves from regular passengers. In this paper, we developed a suspect detection and surveillance system, which can identify pickpocket suspects based on their daily transit records. Specifically, we first extracted a number of useful features from each passenger's daily activities in the transit system.

Dimple Behal (2020) refers to the distribution of the cost and benefit of a certain resource, project, plan or policy over a different group of people. It is the justice of whether the distribution of the cost of the project impact is appropriate. The decisions often taken in the transportation planning process have significant impacts. These decisions lack the equity considerations which has a diverse impact over different people especially the group which is disadvantaged. Public transit not being a predominant mode of transport still offers basic mobility to all the group of people and providing access to those who can't afford or lack sufficient economic resources. It is the key to reduce traffic congestion with greater environmental benefits and helps in making communities sustainable. Equity in Public transit plays a wider role as the decisions made on public transit may affect the disadvantaged group more with those having lesser opportunities and lesser ability to adapt to the impacts rather than the people who can adapt to the change.

III.OBJECTIVES OF THE STUDY:

- To analyze the cost optimization of Fuel in the transit system.
- To study about the on-time performance of the transit system.
- To investigate the event disturbance occurred while travelling.
- To study the delivery handling process of the respondents.

IV.RESEARCH METHODOLOGY

Research methodology is the scientific and systematic research for the pertinent information on the specific topic. It includes testing, verification, classification, organization and orientation, which included prediction and application. Here we also present our study approach, sampling and data collection methods. We also discuss what approach we used in our thesis and how we chose to collect our primary and secondary data.

V.SAMPLE DESIGN:

SAMPLING PLAN

Convenient sampling techniques was adopted. The sampling method used in this is a non-probability sampling because specific samples have been selected as per convenience of the researcher due to huge size of target population.

SAMPLING AREA

Lorry drivers in Kanyakumari.

SAMPLING SIZE

The sample size of 100 is undertaken for the study.

POPULATION

Population is Infinite

STATISTICAL TOOLS OF ANALYSIS

The collected data is analyzed with appropriate statistical tools. The statistical tools were selected on the basis of nature of data included for the analysis.

The details of statistical tools are given below:

- Frequency Analysis
- Chi-Square Test
- Correlation Analysis

LIMITATION OF THE STUDY:

- It is not assured that the responses from all the respondents are true as some of them may like to tell the incorrect information
- The research is made only in Kanyakumari district.
- Some respondents hesitate to fill the questionnaire.

VI.DATA ANALYSIS

PERCENTAGE ANALYSIS

Table 1: Gender Of The Respondents

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	100	100.0	100.0	100.0

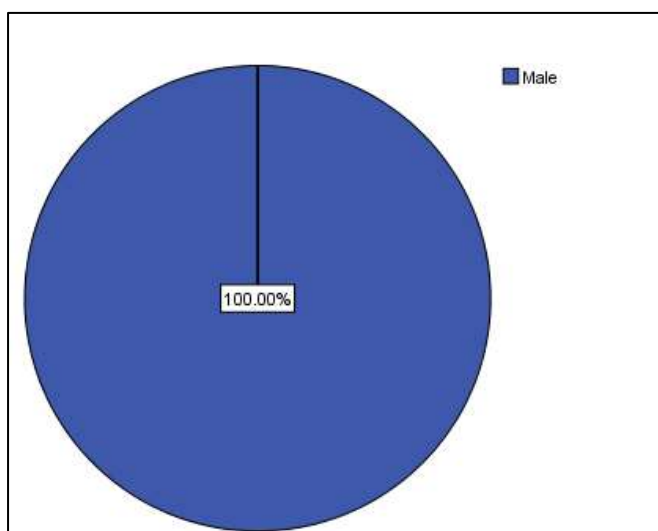


Chart 1: Gender of the respondents

Table 2: Qualification of the Respondents

Qualification	Frequency	Percent	Valid Percent	Cumulative Percent
SSLC	33	33.0	33.0	33.0
HSC	20	20.0	20.0	53.0
Graduate	26	26.0	26.0	79.0
PG	9	9.0	9.0	88.0
Others	12	12.0	12.0	100.0
Total	100	100.0	100.0	

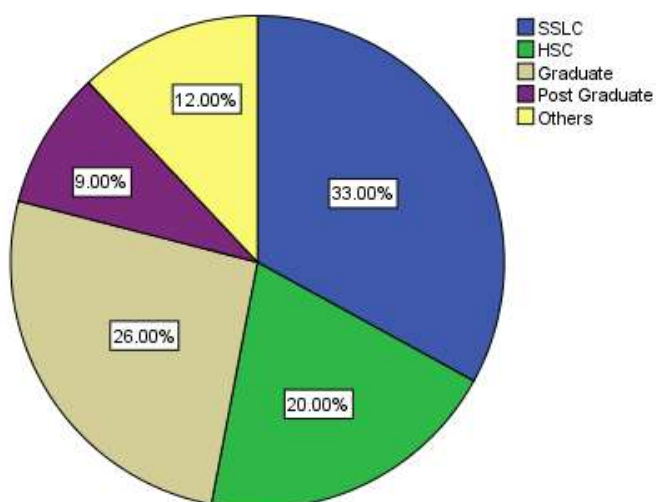


Chart 2: Qualification Of The Respondents

CHI-SQUARE TEST:

Credit days compared with Fuel Consumption

Null Hypothesis (H0): There is no significance difference between cost and Fuel Consumption.

Alternative Hypothesis (H1): There is significance difference between cost and Fuel Consumption.

Table 3: Credit days compared with Fuel Consumption

	Satisfied	Dissatisfied	Highly Dissatisfied	Total
7 Days	2	10	0	12
5 Days	0	3	3	6
3 Days	8	7	5	20
Others	21	35	6	62
Total	31	55	14	100

Chi- Square test

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	16.390 ^a	6	.012
Likelihood Ratio	17.555	6	.007
Linear-by-Linear Association	1.629	1	.202
N of Valid Cases	100		

From the above table, the p- value is 0.012 which is >0.05 at 5% level of significant. Hence we accept null hypothesis (H0) and reject alternative hypothesis (H1), there is no significance difference between cost and fuel consumption.

Cost Optimization Compared with Fuel Consumption

Null Hypothesis (H0): There is no significance difference between cost optimization and Fuel Consumption.

Alternative Hypothesis (H1): There is significance difference between cost optimization and Fuel Consumption.

Table 4: Cost Optimization Compared with Fuel Consumption

	Satisfied	Dissatisfied	Highly Dissatisfied	Total
Fuel	6	25	5	36
Routing	11	12	0	23
Driver	0	8	0	8
Maintenance	14	10	9	33
Total	31	55	14	100

Chi- Square test

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.853 ^a	6	.000
Likelihood Ratio	30.837	6	.000
Linear-by-Linear Association	.094	1	.759
N of Valid Cases	100		

From the above table, the p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H0) and reject alternative hypothesis (H1), there is a significance difference between cost optimization and fuel consumption.

CORRELATION ANALYSIS

Null Hypothesis (H0): There is no relationship between booking status and infectious rate.

Alternative Hypothesis (H1): There is relationship between booking status and infectious rate.

Correlations			
		Booking Status	Infectious
Booking Status	Pearson Correlation	1	.417
	Sig. (2-tailed)		.228
	N	100	100
Infectious	Pearson Correlation	.417	1
	Sig. (2-tailed)	.228	
	N	100	100

Correlations				
			Booking Status	Infectious
Spearman's rho	Booking Status	Correlation Coefficient	1.000	.330
		Sig. (2-tailed)	.	.122
		N	100	100
	Infectious	Correlation Coefficient	.330	1.000
		Sig. (2-tailed)	.122	.
		N	100	100

Inference:

Since the Pearson correlation value is 0.417 a positive value. So there is a positive relationship between booking status and infectious rate.

VII.FINDINGS:

- The p- value is 0.012 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is no significance difference between cost and fuel consumption.
- The p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is a significance difference between customer satisfaction and number of vehicles.
- The p- value is 0.00 which is < 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), so there is a significance difference between number of defectives and goods.
- The p- value is 0.166 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between number of defectives and goods.
- The p- value is 0.356 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between number of defectives and goods.
- The p- value is 0.649 which is > 0.05 at 5% level of significant. Hence we accept null hypothesis (H_0) and reject alternative hypothesis (H_1), there is no significance difference between problems faced and number of vehicles.
- The Pearson correlation value is 0.417 a positive value. So there is a positive relationship between booking status and infectious rate.

VII.CONCLUSIONS

To conclude, the study explores the public transits and about the cost efficiency of lorry drivers, on time efficiency disturbance occurred in fast tag etc. Also the fuel consumption of the vehicle also analyzed in this study. During the pandemic situation logistics plays a vital role to send the goods to every place all over India. Also from this study we could conclude that the infectious rate of covid-19 in Kanyakumari district didn't affects the performance and sales of goods in Kanyakumari.

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