

## **A Study on Effectiveness of Multimodal Transportation**

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### **ABSTRACT:**

This study explores the export potential and performance of coconut and its by-products, with a focus on global demand, trade dynamics, and value addition processes. Coconut, often referred to as the "tree of life," offers a wide range of by-products such as coconut oil, desiccated coconut, coir, copra, activated carbon, and coconut water, all of which have seen rising demand in international markets. The research analyzes historical export data, major importing countries, key players in the global market, and government policies that influence trade. Challenges such as price volatility, supply chain inefficiencies, and competition from synthetic alternatives are also examined. The study concludes by suggesting strategies to enhance export competitiveness, including technology adoption, value-added product innovation, and stronger market linkages. This research aims to provide insights for stakeholders to harness the full potential of coconut exports and contribute to sustainable agricultural and economic development.

### **INTRODUCTION :**

Logistics is science of planning and carrying out the movement and maintenance of force those aspects of operations that deal with the design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and hospitalization of personal; acquisition of construction, maintenance, operation and disposition of facilities; and acquisition of furnishing of services. The negotiation, planning and implementation of supporting logistic arrangements between nations, their forces and agencies. It includes furnishing Logistics support (major end items, materials, and / or services) to, or receiving Logistics support from one or more friendly foreign governments, international organization or military force. It also includes planning and action related to the intermeshing of a significant element, activity, or component of the military Logistics system or procedures of the United States with those of one or more foreign governments, international organization or military force on a temporary or permanent basis. Global logistics is a full services customer broker, freight forwarder and international trade consulting firm specialize in helping small and mid –sized business manager their all aspects of international trade ,ensuring goods reach their destination on time and in good condition. Multi-modal transportation is a cargo delivery door to door provided under the strict guidance and of our company. Every customer is unique and we provide you with the most effective logistical transportation, including a cargo consolidation, trucking, rail and ocean transportation. All this in the sake of efficient cargo delivery with reduced expanses. According to Woxenius (1998), the concept of using freight containers dates from Roman times but container transport by rail was introduced by the Liverpool & Manchester Railway that used Roll-on/Roll-off containers for the hauling of coal back in 1830. The Birmingham & Derby Railway introduced an early form of multimodal transport with the transfer of containers between rail wagons and horse carriage in 1839. New York Central Railway developed and inaugurated the first dedicated container service from Cleveland and Chicago on March 19, 1921. Containerisation grew further as a means of „door-to-door“ transport, spurred on by the development of the Piggy Back System where trailers themselves were carried aboard specialised „Flat cars“ (ESCAP, 1983)

## II. LITERATURE REVIEW:

**March (1963)**, “The role of Third Party Logistics Service Providers and their Impact on Transportation”. In this approach, it is suggested that a company has a number of different goals undertaken by different members of the organisation so that organisational buyer behaviour is considered as a decision making process undertaken by one or more individuals in buying organisations. In this case, the size of the buying center in the sample of the study was added to the questionnaire in order to understand the main decision making parties in freight forwarding organizations. The sample size of the study is 500. As Burdige and Daley (1985) mentioned, current understanding of the mode choice process is mainly based on the comprehensive consumer-buyer behaviour theory and organisational buyer behaviour was introduced as one aspect of this theory.

**Steven R. Clinton, Roger J. Calantone (1987)**, “Impact of Transport facility to Provide logistics Industry”. This Study emerged as a subject of considerable interest – particularly in terms of strategic advantage and that, as a result, logistics strategy has received increased emphasis. One popular conceptualization of logistics strategy is the Werox et al. (1987) typology (process/market/channel), and that empirical evidence supports this typology in North America states that as firms increase their international operations and involvement, logistics strategy becomes even more important. The sample size of the study is 150. Factor analysis to test the typology in Germany, Japan, Australia and UK. Reports results indicating that conceptual equivalence is difficult to maintain across these different cultures and that use of the typology may not be appropriate outside the North American sector

**J. Samuel Paulson (1987)**, “A Study on Freight forward mechanism in Logistics industry”. The importance of logistics in agriculture and service industries in India manufacturing accounts for 26.25% of GDP, about USD 125 billion and provides employment for 16% of the population. 200 samples have been used for the survey and data analysis. In other developing economies it is generally 40% of GDP. Recently there is a debate, following the success of IT companies in the global markets, whether India should jettison manufacturing and concentrate on IT and other service sectors. We strongly believe, however, that this is based on wrong premises and that on the other hand a ten-fold growth in manufacturing will be very important for India.

**Lambert and Stock (1993)**, “Effects on Transport of Trends in Logistics and Supply Chains Management”. In this study he added that freight forwarders offer shippers lower rates than the shippers could obtain directly from the carrier, because small shipments generally cost more to transport than large shipments. Deste and Meyrick (1992) argued that forwarders attached a much greater importance to the cargo handling technology and to the availability of flexible contracts. The sample size of the study is 200. Also they have significant investment in cargo handling technology than shippers. In decision-making regarding multimodal transport, freight forwarders' role may depend on the industry size, the level of complexity in the transport operations and the perceptions of the shippers about their roles and capabilities. Studies of the buying decision-making of organisations such as air freight forwarders are comparatively rare, despite the importance such intermediaries have in the marketplace.

## III. OBJECTIVES:

- To study about the mode of transportation services provided by multimodal transporter.
- To know about freight rate charged in different mode of transportation”.
- To know the satisfaction level of multimodal transportation.
- To offer suggestions for the betterment of “transportation”.

#### **IV. RESEACH METHODOLOGY**

This study adopts a descriptive research methodology to evaluate the effectiveness of multimodal transportation systems in terms of operational efficiency, cost-effectiveness, and customer satisfaction. Both primary and secondary data have been utilized to gain a comprehensive understanding of the topic. Primary data was collected through structured questionnaires and interviews with logistics professionals, transport service providers, and end-users involved in multimodal transportation. Secondary data was sourced from research articles, government reports, company case studies, and academic journals. A purposive and convenience sampling method was used to select a sample of 50–100 respondents, ensuring relevance and accessibility. The questionnaire included a mix of close-ended and Likert scale- based questions to measure perceptions and performance indicators. Data collected was analyzed using descriptive statistical tools such as percentages and averages, and where applicable, inferential tools like chi-square tests using MS Excel and SPSS. This methodological approach helps provide a balanced and data-driven perspective on the current challenges and advantages of multimodal transport systems. Limitations of the study include a restricted sample size and possible respondent bias, which may affect the generalizability of the findings.

#### **V.SCOPE OF THE STUDY**

- The main purpose of this study is to find out the services needed by the customers.
- This study is conducted to find out the service performance of logistics process.
- Logistics operations in Chennai and the services to cargo partner Logistics will help them in a great aspect.
- Further the scope entails better growth in field of research or by helping them to do future research in these grounds

#### **Vi. METHOD OF DATA COLLECTION**

The data for this study are of two types: -

- Primary data
- Secondary data

##### **PRIMARY DATA**

Primary data is the data is collected from the respondent for the first time, it is original in nature. For the purpose of collection of primary data, a well structured questionnaire was framed and filled by the respondents. The questionnaire comprises of close ended as well as open ended questions. In close ended questions, checklist questions and multiple choice questions are used

##### **SECONDARY DATA**

Secondary data are collected from books, magazines, web sites etc, and both open ended & close-ended questions are incorporated in the questionnaire for the collection of data.

#### **STATISTICAL TOOLS**

The following statistical tools are used in the study

- Percentage Analysis
- Chi – square test

Percentage refers to a special kind of ratio in making comparison between two or more data and to describe relationships. Percentage can also be used to compare the relative terms in the distribution of two or more sources of data.

The chi square test is an important test among the several tests of significance developed by satisfaction. Chi-square, symbolically written  $\chi^2$  is a statistical measure used in the contexts of sampling analysis for comparing a variance to a theoretical variance. It can also be used to make comparison between theoretical population and actual data when categories are used. By comparing a calculated value with the table value of  $\chi^2$  for degrees of freedom at given level of significance. We may either accept or reject the null hypothesis. If the calculated value of  $\chi^2$  is less than the value, the null hypothesis is accepted, but if the calculated value is equal or greater than table value, the hypothesis is rejected.

## Vii. LIMITATIONS OF THE STUDY

- The study is restricted to Chennai only. The findings of the study are entirely dependent on the sample and hence cannot be generalized.
- Findings and conclusion are based on the data collected through these 50 samples, Since it is a time bound the researcher did not cover all requirements.
- The sample size taken in this study does not ensure representativeness and conclusive findings and finally, detailed study is needed to be taken at larger scale to reach a strong conclusion
- A study is only about transportation process and it not covered the financial aspects of the company.
- The time period is also a main constrain.

## Viii. FINDINGS

- Majority of respondents are under 5-10 years of experience
- The majority of the respondents have 5-10 years of exporting in the organization
- Majority of the respondents are both merchant and manufacturing exporter.
- The majority of the respondents are exporting textile commodities.
- Majority of the respondents export is mostly restrained to USA country.
- Majority of the respondents are used air transportation for export products from other countries Air transport is the second fastest method of transport, after space travel.
  - Majority 36 (72%) of the respondents are said that 1000-5000 USD of freight rate

## IX. SUGGESTION

- The multimodal operating sector may adopt proper investment appraisal method, so that it can invest money, which will give maximum return.
- To minimize the time and for effectiveness of the company, it can maintain computerized system in all aspects.
  - Quick document clearance in customs and freight forwarders.
- Improve the loading and unloading activities access in rail transportation to ports. □ Diverse transportation network which provided greater opportunities for alternative access.
- New technology can be used to speed up the process of the services rendered by the company.
  - Transparent Policy to initiate the minimized cost Policy.

## **X.CONCLUSION**

A performance of logistics sector becomes inevitable at this liberalized, privatized and globalize system, with a view to sustain its performance and profits than to compete with private sectors. In this study such an effort has been taken to analyze the maximum aspect of the operating and Multi model operation performance further it is understood that the present performance of companies is good enough to meet its future requirement in all aspects. If this sector implements the suggestions given in this study, the performance will be better in future also. Several combination modes may be used depending upon the trade routes, trans- shipment points and the availability, of different modes of transport. New infrastructural development is being proposed the world over to create a seamless flow of traffic e.g. the channel tunnel linking