ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN

ASSESSMENT OF THE EFFECT OF THIRD PARTY LOGISTICS SERVICE PROVIDERS OPERATION ON THEIR PERFORMANCE USING LOGISTICS PERFORMANCE INDEX

BY

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ADDIS ABABA, ETHIOPIA

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DECLARATION

I declare that the project titled assessment of the effect of third party logistics service providers operation on their performance using logistics performance index is my original work and has not been presented for a degree in any other university and that all sources of material used for the project have been duly acknowledged.

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CONFIRMATION

This is to certify that Fetiha Sergaga has carried out this research work on the topic assessment of the effect of third party logistics service providers operation on their performance using logistics performance index under my supervision. This work is original in nature and has not been presented for a degree in any University and it can be submitted for the partial fulfilment of the requirements for the award of the degree of Masters of Art in Logistics and Supply Chain Management.

Assit. Prof . FESSEHA AFEWORK

Signature_____

Date _____

Table of Contents

APPROVED BY BOARD OF EXAMINERS ..... **i**

DECLARATION ..... **ii**

CONFIRMATION ..... **iii**

ACKNOWLEDGMENT ..... **iv**

LIST OF FIGURES ..... **v**

LIST OF TABLES ..... **vi**

LIST OF ABBREVIATIONS ..... **vii**

ABSTRACT ..... **viii**

CHAPTER ONE ; INTRODUCTION **1**

1.1 BACKGROUND OF THE STUDY 1

1.2 STATEMENT OF THE PROBLEM 3

1.3 RESEARCH OBJECTIVE 4

1.3.1. GENERAL OBJECTIVE 4

1.3.2. SPECIFIC OBJECTIVE 4

1.4 RESEARCH QUESTION 5

1.5 SIGNIFICANCE OF THE STUDY 5

1.6 SCOPE/ DELAMINATION OF THE STUDY 5

1.7 ORGANIZATION OF THESIS 5

CHAPTER TWO LITERATURE REVIEW **7**

2.1 THEORETICAL STUDY 7

2.1.1. DEFINITION OF THIRD PARTY LOGISTICS 7

2.1.2. FUNCTIONS PERFORMED BY THIRD PARTY LOGISTICS SERVICE PROVIDERS 7

2.1.3. LOGISTICS OPERATION AND THEIR PERFORMANCE ATTRIBUTE 9

2.1.4. ROLE OF FRIGHT FORWARDING AND LOGISTICS COMPANIES IN SUPPLY CHAIN 11

2.1.5. IMPACT OF 3PLON LOGISTICS PERFORMANCE OF OUTSOURCING FIRM 12

2.1.6. WORLD BANK LOGISTICS PERFORMANCE INDEX 14

2.1.6.1. THE EFFECT OF CUSTOMS AND THEIR BORDER AGENCIES 14

2.1.6.2. THE QUALITY OF TRADE AND TRANSPORT INFRASTRUCTURE 15

2.1.6.3. EASE OF ARRANGING COMPETITIVELY PRICED SHIPMENT 16

2.1.6.4. COMPETENCE AND QUALITY OF LOGISTICS SERVICE 16

2.1.6.5. ABILITY TO TRACK AND TRACE CONSIGNMENT 16

2.1.6.6. TIMELINESS OF CONSIGNMENT REACHING DESTINATION 17
2.2. EMPIRICAL STUDY 17
2.2.1. CUSTOMS PROCESS , WAREHOUSING AND TRANSPORTATION IN ETHIOPIA 18
CHAPTER THREE; RESEARCH AND METHODOLOGY 21
3.1. RESEARCH DESIGN 21
3.2. STUDY POPULATION 21
3.3. SAMPLE AND SAMPLE TECHNIQUE 21
3.4. SOURCE AND TYPE OF DATA 22
3.5. DESCRIPTION OF VARIABLES 22
3.6. INSTRUMENTS OF DATA COLLECTION 22
3.7. MEASUREMENTS OF VARIABLES 22
3.8. METHOD OF ANALYSIS 22
3.9. ETHICAL CONSIDERATION 23
CHAPTER FOUR; DATA ANALYSIS AND INTERPRETATION 25
4.1. INTRODUCTION 25
4.2. VALIDITY AND RELIABILITY 25
4.2.1. VALIDITY 25
4.2.2. RELIABILITY 25
4.3. PROFILE OF RESPONDENTS 27
4.3.1. EDUCATION OF RESPONDENTS 27
4.3.2. PROFESSIONAL POSITION OF RESPONDENTS 27
4.3.3. YEAR OF PROFESSIONAL EXPERIENCE 28
4.4. DESCRIPTIVE STATICS DATA ALOYSIUS 28
4.4.1. DESCRIPTIVE STATICS FOR 3PL OPERATION AND PERFORMANCE 28
4.4.4.1. CUSTOMS OPERATION OF 3PL 29
4.4.4.2. WAREHOUSE OPERATION OF 3PL 29
4.4.4.3. TRANSPORTATION OPERATION OF 3PL 30
4.4.4.4. DESCRIPTIVE STATICS FOR PERFORMANCE 31
4.5. PERSONS CORRELATION 32
4.5.1. PEARSON'S CORRELATION BETWEEN CUSTOMS OPERATION AND CUSTOMS CLEARANCE 33

4.5.2. PEARSON'S CORRELATION BETWEEN WAREHOUSE OPERATION AND TRACKING AND TRACING 35
4.5.3. PEARSON'S CORRELATION BETWEEN TRANSPORTATION AND TIMELINESS 36
4.6. MULTIPLE LINEAR REGRESSION ANALYSIS RESULT 37
4.6.1. MULTIPLE LINEAR REGRESSION ANALYSIS FOR CUSTOMS OPERATION AND CUSTOMS CLEARANCE. 37
4.6.1.1. CUSTOMS CLEARANCE PREDICTABILITY 37
4.6.1.2. CUSTOMS CLEARANCE SPEED 38
4.6.1.3. CUSTOMS CLEARANCE SIMPLICITY 40
4.6.2. MULTIPLE LINEAR REGRESSION ANALYSIS FOR WAREHOUSE OPERATION AND TRACKING AND TRACING 41
4.6.3. MULTIPLE LINEAR REGRESSION ANALYSIS FOR TRANSPORTATION AND TIMELINESS 42
4.7. SUMMARY OF FINDINGS 44
4.7.1. EFFECT OF CUSTOMS OPERATION ON CUSTOMS CLEARANCE 44
4.7.2. EFFECT OF WAREHOUSE OPERATION ON TRACKING AND TRACING 44
4.7.3. EFFECT OF TRANSPORTATION OPERATION ON TIMELINESS..... 44
CHAPTER FIVE; CONCLUSION AND RECOMMENDATION 45
5.1. CONCLUSION..... 45
5.2. RECOMMENDATION 55
REFERENCE ix
QUESTIONNAIRE x

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LIST OF FIGURES

Figure 1: Conceptual frame work of the study

LIST OF TABLE

Table 1: Reliability Statistics of the Instrument
Table 2; Education level of respondents
Table 3; Professional Position of respondents
Table 4; Year of professional experience
Table 5; Descriptive Statistics for customs operation
Table 6; Descriptive Statistics Warehouse operation
Table 7; Descriptive Statistics for transportation operation
Table 8; Descriptive Statistics for 3PL performance
Table 9; Pearson's Correlations between customs operation and performance
Table 10; Correlations between warehouse operation and tracking and tracing
Table 11; Correlations between transportation and timeliness
Table 12; Regression Model Summary for Predictability
Table 13; ANOVA[a]
Table 14; Coefficients[a]
Table 15; Regression Model Summary for Speed
Table 16; ANOVA[a]
Table 17; Coefficients[a]
Table18; Model Summary for customs clearance speed
Table 19; ANOVA[a]
Table 20; Coefficients[a]
Table 21; Model Summary for tracking and tracing
Table 22; ANOVA[a]
Table 23; Coefficients[a]
Table 24; Model Summary
Table 25; ANOVA[a]
Table 26; Coefficients[a]

LIST OF ABBREVIATIONS

3PL	Third party logistics Service providers
ASYCUDA ++	Automated System for Customs Data
EMAA	The Ethiopian Maritime Affairs Authority
EODB	Ease of Doing Business Report
ESLSE	Ethiopian Shipping and Logistics Service Enterprise
LPI	Logistics Performance Index
MOTI	Ministry of Trade and Information
OE	Order Entry
OP	Order Processing
SMEs	Small and Medium-Sized Enterprises
UNDP	United nation Development program
WEF	World Economic Forum

ABSTRACT

This study was conducted to assess the 3rd party logistics service providers operation on the logistics performance of the service provider using the World Bank logistics performance measurement dimensions. The World Bank uses six dimensions but only three were adopted for this study. These are customs clearance, tracking and tracing; and timeliness. 36 freight forwarders and customs clearing agents were contacted for the study. The primary data from the freight forwarders was collected using questionnaire and secondary data was conducted by referencing relevant literature, publications and other researches. Data obtained through questionnaire has been analyses using descriptive statics supported by SPSS 20.0software version. Lack of modernized logistics operation has been observed as the major hindrance for logistics performance. Accordingly, it has been recommended in the study for 3PL service providers to take measure to solve and improve logistics activities.

Keywords; 3rd party logistics (3PL),customs operation, warehouse , customs clearance. Transportation, tracking and tracing, timeliness

CHAPTER ONE

INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Ethiopia is a landlocked country in east Africa with strong, broad-based economic growth averaging 10.5% a year from 2005/06 to 2015/16, compared to a regional average of 5.4%, according to the World Bank. The Market overview for Ethiopia published in June 21, 2017 by The International Trade Administration managed by the U.S.A. Department of Commerce states that the economic growth has resulted in total import that is steadily increasing on average by 12.5% per year between 2004/05 and 2015/16. While the economy is growing rapidly, presenting many opportunities, there are identified hurdles to doing business in Ethiopia. The 2017 World Bank's Ease of Doing Business report (EODB) ranked Ethiopia at 161, the 2nd lowest in east Africa, followed by Eritrea. The World Economic Forum (WEF) identified burdensome customs administrative procedures, the high cost of logistics, and access to credit and foreign exchange as major challenges to small and medium-sized enterprises (SMEs) in Ethiopia. In the 2016 World Bank report on overall logistics performance, Ethiopia was ranked 126 out of 160 countries on logistics performance index (LPI). The LPI is the weighted average of the country scores on the six dimensions: efficiency of clearance process; quality of trade and transportation related infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignment; timeliness of shipments in reaching destination within scheduled or expected delivery time.

The Government of Ethiopia has identified the logistics system as a priority and strategic issue to address and to improve the competitiveness of the international trade. In Ethiopian, the importance of consolidating the maritime sector of the country has been given due emphasis in ensuring international trade (import /export) competitiveness of the country (Esnermu, 2015). The Ethiopian maritime affairs authority(EMAA) was established with maritime establishment proclamation 549/2007 as the government agency that is responsible for national level coordination efforts to streamline the logistics services of Ethiopia to underpin import/export activities of the country, to reduce the transit time of import/export of goods and coordinate the concerned government bodies to care for goods at port ; ensure that the transport operation and movement of goods in import/export of the country are economical; plan, coordinate and enforce such operation.

Furthermore, by the decision of the federal democratic republic of Ethiopia and council of ministers regulation number 255/2004 E.C dated as Nov 21, 2011 a new company, Ethiopian Shipping and Logistics Service Enterprise (ESLSE) was established to provide efficient and cost effective shipping, logistics and port related services. The company is established by merging of Ethiopian Shipping Line S.C., Maritime and transit service enterprise; and dry port service enterprise. Logistics coordination effort is also made by Ethiopia on the import and export trade

via the transit corridors. More than 90% of the country's cargo is handled by the port of Djibouti and agreement is made on the port utilization between Ethiopia and Djibouti. Ethiopia has also signed bilateral port utilization agreements with Djibouti and Sudan and signed memorandum of understanding between Somaliland and Kenya to use port Djibouti, Sudan, Barbara and Mombasa respectively.

To address the bottlenecks specific to trade logistics, The Ethiopian government commissioned UNDP to commission a study for the development of National Logistics Strategy with the goal of designing a comprehensive logistics strategy with due emphasis on planning and implementing an efficient transportation and storage of goods, including services, and related information from the point of origin to the point of consumption for an effective trading system and improvement in the nation's trade balance.

The study suggested that critical success factors for the strategy are; adequate and reliable communication systems to advance in transport and logistics. Electronic exchange of data will also be essential. Hence, Ethiopia should acquire internationally compatible systems to enable frequent updating of information and specific services as well as connectivity worldwide. The technological and legal requirements should be addressed and solutions put in place to facilitate doing business. Equally important is strengthening internal capacity of government institutions with leading role in trade logistics, to bear fruitful results. The on-going infrastructure developments should be continued in terms of expansion in road networks, passenger and cargo air services, as well as fast, reliable, and cost-effective railway operations. The system should be according to the study backed by vibrant, private logistics providers with good logistics knowledge.

In relation to the last point, Logistics service providers are firms that provide outsourced or "third party" logistics services to companies for some portion or all of their supply chain management functions. Third party logistics service providers (3PL) typically specialize in integrated warehousing and transportation services that can be scaled and customized to customer needs based on market conditions and the demand and delivery service requirements for their products and materials (Skjoett-Larson, 2007). Organizations use service providers to reduce the cost needed for logistics related capital investment (Wang et al. 2006). There are a lot of benefits of outsourcing logistics activities to 3PL companies, some of the advantages offered by outsourcing are: companies can reduce their costs, become more competitive and improve their customer service activities (Sinkovics & Roath, 2004). Moreover, according to Ansari and Modarress (2010), apart from cost reduction, cargo security is also an important reason to outsource logistics activities to 3PL providers. Furthermore, market knowledge, data access, improved expertise and flexibility are some other benefits (Aghazadeh, 2003).

Debela (2013) states cargo operation is one of the weakest links in the freight transport and logistics system of the country. According to the MOTI data at the time of his publication, there are about 53 licensed freight forwarding firms and 21 Goods-Transit and shipping agents that are

members of the Association of Ethiopian Forwarding Businesses, which basically serve the international trade traffic. These companies are small in size and capacity. These need to be strengthened. The biggest forwarding company is publicly owned Maritime and Transit Services Enterprise (MTSE) which provides the bulk of freight forwarding, shipping agency and stevedoring service in the port of Djibouti. On the other hand there are many local forwarding or booking service providers including associations of truck operators and unlicensed individuals. The unlicensed individuals operating in trading center throughout the country particularly in Mercato area of Addis Ababa have no office but work using mobile phones and roving on foot, by taxi or car (Afro Consult & Trading PLC, 2010).

While the Ethiopian government is working to better the issues with regulatory bodies and state owned logistics service providers, the need for private logistics providers with good logistics knowledge, financial capacity, and up to date system and quality service is apparent. The service providers have a crucial role in connecting the stake holders in the supply chain and their performance is a determinant factor in improving the logistics industry in Ethiopia. Considering the importance of the role third party logistics service provider's play in the logistics performance of the country, the purpose of this study is to assess the effect of 3PL operations on their performance using the World Bank logistics performance index dimensions.

Accordingly, the study considers policy implications, and evaluates the needs and requirements to strengthen the ecosystem of private logistics providers. Additionally it evaluates the positive or negative effect that private logistics providers have as a separate group on the Ethiopian logistics performance. The study will also provide analytical report of the evaluation.

1.2. STATEMENT OF THE PROBLEM

As per Freight Forwarding and ship Agency License Issuance Council of Ministers Regulations No. 37/1998, that came to force as of the 19th day of June, 1998, Signed by the late P.M. MelesZenawi, "Freight Forwarding" means the representation of a consignor or consignee locally or internationally in fulfilling customs, port and other formalities for import and export cargo at port and includes the transportation and delivery of same; and "Freight Forwarder" means a person who is licensed under these regulations to carry out freight forwarding. It defines "Customs Clearance" as a process of fulfilling customs' formalities for import and export cargo on behalf of consignor or consignee within customs station; "Customs formalities" means any customs operations carried out in connection with importation, exportation or transit of goods from the time of arrival at the customs port until released from the customs control.

The regulation further states the functions of the freight forwarder include the following; Port clearance; Customs clearance; Group age/consolidation; Warehousing and delivery services; Cargo handling equipment services; transport services, where the freight forwarder provides such services himself; Transport the cargo using other transporters, where himself or cargo owner do not have transport services; Fumigation services; Packing services; Preparation and issuance of

relevant documents; Compliance with foreign trade regulation and letter of credit instructions; Choice of the most suitable carrier and conclusion of the contract of carriage; Follow up movement of cargo; and Consultancy services in freight forwarding. Per the 108/2004 Customs Clearing Agents Regulation, customs clearing agents are only allowed to work in customs issues inside the country and cannot be involved in international transportation activity.

The above definitions and functions stated by the proclamation clearly outline how freight forwarders and customs clearance and clearing agents operation play a crucial role in customs processing, transporting and warehousing among other areas.

While the Ethiopian government, as stated earlier, pushes for improving the sector as a whole, many bottle necks still remain. These bottle necks have together resulted in Ethiopia's ranking on World Bank LPI to fall 22 ranking in 2016 from its position in 2014. Most researches and studies in the area concentrate on government policies and government agencies, as the majority of logistics is handled by the latter. Though the incidence of private sector providers may be small on the overall national logistics performance, it is none the less, in the researchers' opinion, important to assess the correlation between their operation and performance. Such investigation, not at present available, can shed light on common issues that both face and therefore require immediate action to improve by both government and private sector. However, the investigation can also shed light on best practices and measures that the private sector has enacted that may have a positive incidence on performance, and thus should be singled out for support. Evaluating the major positive and negative incidence of 3PL on the logistics performance can effectively create an avenue for stronger support of the sector, targeted policy interventions, and measure weaknesses and strengths of 3PLs as a whole, thus providing them with means to better own operations and contribute to the improvement of the logistics sector and the ranking on the index.

This research, academically, is to fill in the gap in the current Ethiopian logistics research arena by assessing the effect of logistics operation on logistics performance by focusing on 3PL providers using selected dimension applied by World Bank to measure LPI.

1.3. RESEARCH OBJECTIVE

1.3.1. GENERAL OBJECTIVE

- The objective of this study is to analyze the effect of 3PL providers operation on their logistics performance.

1.3.2. SPECIFIC OBJECTIVE

- To determine the effect of the current customs clearance operation of 3PL providers on their customs clearance efficiency.
- To determine the effect of the current warehousing operation of 3PL providers on their ability to track and trace shipments.

- To determine the effect of transportation operation of 3PL providers on their Timeliness.

1.4. RESEARCH QUESTIONS

- How is the current customs clearance operation of 3PL provider affecting their customs clearance efficiency?
- How is the current Warehousing operation of 3PL providers affecting their ability to track and trace shipments?
- How is the current Transportation operation of 3PL providers affecting their timeliness?

1.5. SIGNIFICANCE OF THE STUDY

The study is expected to have practical significance. For the researcher the study is used for the fulfilment of the requirement for the degree of M.A. in logistics and supply chain management. The 3PL providers that are used for the study are able to use the result to self asses their operation and identify areas of weakness and strength. The research is also expected to have significance for practitioner and academicians who wish to replicate the study in other sectors or those who wants to fill the gaps that will be seen in this research.

1.6. SCOPE / DELIMITATION OF THE STUDY

The geographical location of the study is delimited to Addis Ababa, Ethiopia. This study will be conducted on selected 3PL providers and doesn't include all the Freight Forwarders and Shipping Agents in Ethiopia due to resource constraints such as money and time. The World Bank issues the logistics performance index of country's using six dimensions. But this study uses three dimensions, which are, customs clearance process, tracking and tracing; and timeliness due to time and financial constraints.

1.7. ORGANIZATION OF THE THESIS

This study is organized as follows:

- **Chapter One: Introduction**
  This chapter contains the background of the study, statement of the problem, basic research questions, objective of the study, significance of the study, Research design and methodology, Scope of the study, as well as organization of the study.

- **Chapter Two: Literature review**
  This chapter focuses on extensive literature review from published books, journals and other internet sources.

- **Chapter Three: Research methodology**
  This chapter deals with type and design of research; conceptual framework adapted from previous studies, the participants of the research; Source of data; the data collection instrument employed; the procedure of data collection; and the methods of data analysis used.

- **Chapter Four: Analysis and Discussion**
  This chapter will summaries the findings of the study and interprets the findings with extensive literature review.
- **Chapter Five: Summary, Conclusions and Recommendations**
  This chapter compromises four sections, which include summery of findings, the conclusion, limitation of the study and recommendation

CHAPTER TWO

LITERATURE REVIEW

2.1. THEORETICAL STUDY

2.1.1. DEFINITION OF THIRD PARTY LOGISTICS

Rushton & Walker, (2007) third-party logistics can be defined as the management of outsourced logistics, transportation and distribution activities. 3PL is commonly used as the term to describe an external provider who manages outsourced activities on behalf of the shippers or customers whose business processes they support. 3PL services typically include: outbound transportation, warehousing, inbound transportation, freight bill auditing/payment, customs brokerage, freight forwarding and customs clearance.

Soodyall (2013) conducted a theoretical review on outsourcing the logistics function articulate that third-party logistics (3PL) are supplied by outsourced service providers (OSPs), which can be defined as organisations that provide multiple logistics services that were previously provided in-house for use by customers.

These services are usually integrated or bundled together by the service provider. Among the services 3PLs provide are transportation, warehousing, cross-docking, inventory management, packaging, and freight forwarding (Langley, Albright, Wereldsma, 2009).Third party logistics involves the use of external companies to perform some or all of the firm's logistics activities. A key rationale for such outsourcing is that with intensified global competition, firms are concentrating their energies on core activities that are critical to survival, and leaving the rest to specialist firms (Bhatnagar et al, 1999).

2.1.2. FUNCTIONS PERFORMED BY THIRD PARTY LOGISTICS SERVICE PROVIDERS

In chapter one we have defines functions that are comprised by freight forwarders and customs clearing agents. Basically, forwarders move cargo from one point to another. Third-party logistics providers move, store, and process inventory, and in doing so, may provide traditional forwarder services.

According to Lieb (1992), the function performed by the third party can encompass the entire logistics process or selected activities within that process. Zailani, Shaharudin, Razmi & Iranmanesh (2014) stated that transportation, packaging, warehousing, inventory management, information system and custom formalities as among the logistics outsourcing practices. On the other hand, Razzaque & Sheng (1998) listed transportation, distribution, warehousing, inventory management, order processing and material handling as logistics outsourcing functions in their investigation. Some of the functions of 3PLproviders are reviewed from various literatures here under:

2.1.2.1. Freight Forwarding:- According to Rushton and Walker, 2007 freight forwarding may be defined as the secure and efficient movement of goods on behalf of an exporter or importer, commonly known as the shipper. It might use the services of shipping lines, airlines or road and rail freight providers, or in some cases the freight forwarding company itself provides the service.

2.1.2.2. Inventory Planning & Management:- the objective is to determine and maintain the lowest inventory levels possible that will meet the customer service policy requirements stipulated in the customer service policy. It includes forecasting; order quantity engineering, service level optimization, replenishment planning and inventory deployment (Ensermu, (2015).

2.1.2.3. Warehousing Service:- Brat & Raghu, (2012) state that warehousing service contains basic service like storage, facilities management and specific value added services like Pool distribution, packing, inventory control, labelling and delivery of catalogue orders (Chopra and Meindl, 2010).

2.1.2.4. Customer Response:- The logistics of customer response includes the activities of: developing and maintaining a customer satisfaction, order entry (OE), Order Processing (OP) and invoicing. Therefore, it goes with the way the service provider responds to customer order to full fill per the required quantity, quality and time. Customers get dissatisfied when they don't receive response within the expected time. Besides, customer responsiveness is a source of competitive advantage in today's market. Non responsive logistics or delayed response may result in customer loss and loss of relationship for renewed transaction with customers (Ensermu, (2015).

2.1.2.5. Transportation service or freight transport service:- As per Rushton and Walker, 2007, it is defined as the physical movement of goods, both inbound and outbound, including the collection of product and its delivery to the end user. Transportation can be executed across a variety of modes including air, sea, rail and road. (Ensermu, 2015) also states logistics of transportation includes: network design and optimization, shipment management, fleet and container management, carrier management and freight management.

2.1.2.6. Product assembly/Packing/labelling:- Often 3PL providers take on the responsibility of performing these activities as it is easier to consolidate all the required information and ship it to the customers. This process connects the information flow from 3PL providers, manufacturer and customer. Packing and labelling is usually performed as a single activity and also for environment sustainability (Brat & Raghu 2012).

2.1.2.7. Customs clearance:- This covers required customs clearance services that the company provides their customer to enable them move their goods across international borders. These services comprise customs document preparation and delivery, management of actual clearance process, import document preparation, and so on.

2.1.3. LOGISTICS OPERATIONS AND THEIR PERFORMANCE ATTRIBUTE

Success of several industries are attributed to the performance of logistics operations (Knemeyer and Murphy, 2004); which would be defined as individual or integrated services in transportation, warehousing, materials management, order management, customer services and procurement (Robeson and Copacino, 1994; Skjoett-Larsen, 2000). Reduction of costs while providing the quality and schedule to satisfy the customers are considered to be the major objectives of operational performance (Lynch, 2000). Studies on supplier selection analyse these criteria in general (Bevilacqua and Petroni, 2002; Chang et al., 2006; Demirtas and Üstün, 2008) or detail as an inter-operation mix classified by business (Lai et al., 2004), by processes (Robertson et al., 2002; Tyan et al., 2003) or by decision variables (Liu and Ma, 2005; Jharkharia and Shankar, 2007).

Principal components of cost reduction in transportation are ascribed by vehicle allocation and routing (Ross et al., 2007). The three measures which are independent of the industry are the size of fleet capacity (Tarantilis and Kiranoudis, 2001; Tarantilis et al., 2004; Hsieh and Tien, 2004), distance (Di Benedetto, 1999; Chen et al., 2005) and the driver force (Zhao and Stank, 2003; Di Benedetto, 1999). The quality in transportation is helping to realise the delivery commitments in quality and time by avoiding the loss of goods (Bowersox et al., 1999; Panazzo et al., 1999) and relocation (Leung et al., 2002; Powell and Topaloglu, 2003).

Warehouse performance involves physical infrastructure and monitoring receipt, storage and movements of goods between the distribution stations. Service quality for these activities relies on forecast success (Van der Vorst et al., 1998) and layout flexibility (Barad and Sapir, 2003); however, cost and timing is influenced by regularity of receiving the goods (Hameri and Paatela, 1995; Wegelius-Lehtonen, 2001; Lutz et al., 2003; Singh et al., 2005), distribution rates (Mason et al., 2003; Chen et al., 2005) and return rate of goods (Lu, 2000; Mahadeven et al., 2003).

Order rate and order cycle are indispensable measures in logistics service sales (Boyson et al.,1999; Dong and Chen, 2005). These two measures ensure the success of transportation and warehouse management success as well as customer services (Chen et al., 2005). Improvements in sales cost reduction is realised by balancing the demand rates and order rates (Van Norden and Van de Velde, 2005). Customer relations management also contributed with new measures like changes in customer portfolio and complaint rates (Collins et al., 2001; Wouters and Sportel, 2005).

The implementation of successful logistics information systems can contribute efficiently to monitoring and managing logistics and supply chain networks (Wong et al., 2009). A logistics information system generally includes electronic data interchange (EDI) providing for direct data exchange through electronic transmission, article-numbering system and bar-coding for the required identification and addressing of transported items, and data-bases to store, manage, and analyse the collected information in an efficient manner (Wang and Potter, 2007). This system

provides a common basis for the information needs in the logistics chain and it comprises complete transport information from sender to final addressee. The information needs to be represented in tracking and tracing at the item level in the supply chain and to product life cycle management and communication between different logistics providers (Meyer et al., 2009). The benefits of related logistics information are two-fold: firstly, the tracking system is the link between the information systems and the material flow; and secondly, it offers administrative benefits by reducing paper-based systems, leading to improved information accuracy (Johansson and Pålsson, 2009). Efficient logistics tracking and tracing rely on having up-to-date information about the goods in shipment, inventory locations, etc. (Kim et al., 2006).

Performance measurement systems appear to be instrumental for assessing the extent of 3PL success and identifying corrective action in case of service failures (van Hoek, 2001; Wilding and Juriado, 2004). The establishment and continuous monitoring of key performance indicators (KPIs) related to logistics services allows users to compare achieved with expected service levels. Performance metrics can also be used by LSPs for benchmarking purposes (Stank et al., 1994; Sum and Teo, 1999). Additional practices for management and control of 3PL relations include carrying out customer satisfaction surveys, gaining access to LSP information systems, jointly planning and implementing performance improvement projects and organising 3PL forums where the client organisation shares information with regard to logistics strategy objectives (Boyson et al., 1999; Wilding and Juriado, 2004). The role of IT systems as safeguarding mechanisms in the shipper-3PL provider relationship has been stressed by Bourlakis and Bourlakis (2005).

Having competent customs broker for customs clearance process in 3PL companies ensures that the goods are imported in compliance with the relevant government regulations and that the correct amount of duty and tax is calculated and paid on importation. Per the 2016 article of Mgaya, a competent customs broker will:

- Advise of any import restrictions or regulatory requirements that must be met prior to the importation of the goods – import permits, labeling requirements, certificates of origin, etc.
- Ensure that all of the relevant import documents are provided by suppliers prior to the arrival of the goods. They will also asses the documents for completeness / compliance before submitting the documents with the customs entry to enable the customs clearance of the goods
- Minimize the amount of duty that is paid on importation – a customs broker will ensure that the correct value is used as the basis for calculating duty. They will also ensure the goods are properly classified in accordance with the Harmonized Tariff Schedule and that the proper rate of duty is applied. An incorrect classification can result in too much duty being paid but can also result in not enough duty being paid. While it is possible to obtain

a refund if too much duty is paid, paying too little duty can result in a fine and possible legal action by Customs Authority due to duty avoidance

- Reduce the time and the costs associated with the importation process. Creating and lodging a customs entry can be complex and time consuming experience for the uninitiated. The goods cannot be removed from the port and subsequently used for their intended purpose (to sell or as an input for manufacturing) until the formal customs clearance process is completed. Delays can not only impact the time it takes for the goods to be available to use but can also result in storage charges being incurred.
- Continue to provide advice in relation to any changes to regulatory requirements or legislation that may impact on the future importation of the goods.

2.1.4. ROLE OF FREIGHT FORWARDING & LOGISTICS COMPANIES IN SUPPLY CHAIN

As Written by Prachi Juneja, Most of the logistics players have been traditionally freight forwarders dealing with cargo bookings coupled with origin and destination services. However, as the global business practices changed, and supply chain managements started gaining ground, these companies realized the potential of being able to offer multiple services including ground transportation, warehousing, and contract logistics under one umbrella as the future trend and quickly turned themselves to acquire the required capabilities and have managed to become single window service providers on global scale.

The role of the third party logistics services provider was limited in the 80s because at that time third party logistics was still an infant industry. From that period onwards, its growth became rapid, and contributes to the effectiveness of the supply chain (Maloni & Carter, 2006). There have been changes in its role in accordance with the growth in logistics services. For instance, it evolved from offering only traditional services (e.g. transportation and warehousing) to include other services such as inventory management, cross docking, technology management, and a host of other services. Presently, the role has evolved into a leadership role of orchestrator in order to facilitate supply chain best practices (Maloni & Carter, 2006).

Third party logistics providers are getting more involved when we talk of managing, coordinating and controlling of the firms in supply chains in order to be able to take care of the needs of their clients (Zacharia, et al., 2011). Furthermore, the authors likened the third party logistics providers to glue that ties the individual supply chain actors together, and managers who eliminate uncertainty in the supply chain. They claim that because the third party logistics providers are working with many supply chain partners, it is possible for them to standardize data and processes across firms that belong to the supply chain and make visibility along the chain to be possible (Zacharia, et al., 2011). Third party logistics service providers are actors who provide integrated services or solutions for their clients, integrate vertically with them, and horizontally with other logistics service providers (Makukha & Gray, 2004). They help their

customers to cut down on transaction costs through the efficient use of assets; integrating clients supply chains; and consolidation of overhead costs (Zacharia, et al., 2011; Banomyong, 2010).

The third party logistics providers manage the supply chain in ways that tangible materials can be moved to respective destinations, and on time, as requested by their clients (Banomyong, 2010; Waters, 2003).

2.1.5. IMPACT OF 3PL SERVICE ON LOGISTIC PERFORMANCE OF OUTSOURCING FIRM

Undoubtedly, the ultimate goal of logistic outsourcing by firms is improving logistic performance. This therefore calls for logistic outsourcing firms to keep track of their logistic performance starting with whether 3PLs deliver up to, below, or above the expected level and whether a firm experiences any significant progress from its outsourcing strategy. How to determine the extent that this goal is reached and whether using 3PL providers is an appropriate strategy is therefore an important challenge to be addressed. Different authors have the viewpoint that it is the fact that Logistics Service Providers can improve quality, speed, service level, cost, performance and contribute to savings and benefits in the supply chains (Fabbe-Costes et al, 2009).

Customers rely on third party logistics providers because they have indirect relationship with the suppliers. So third party logistics providers handle all the activities which complete the whole logistic flow and control and deal with performance of different suppliers. The performance of these multiple suppliers has direct effect on the efficiency of complete supply Chain (Xiao et al, 2009).

McMullan (1996) provides some important performance measurements that can be used as both, input for quantitative measurements and parameters for qualitative opinion by logistic executives. These are: Inventory accuracy, number of on-time shipments, Number of incidences of customer complaints, Number of incidences of backorders, Warehouse cycle time, Number of kilos/unit shipped; and Number of dollars shipped.

According to Berglund et al. (1999), 3PL industry has increased importance for companies being supply chain management more efficient. Logistics Service Providers can enhance the performance partly because they are possessed with an ability to cooperate both up and down with supply chain partners as well as parallel with other Logistics Service Providers (Ha°kansson & Persson, 2004; Mason et al., 2007; Persona et al, 2007).

Since the 1980s, along with the trend to outsource non-core activities (Sink and Langley, 1997), companies have increasingly turned to third-party logistics providers (3PL) both in the USA (Lieb and Randall, 1996) and in Europe (Van Laarhoven et al., 2000). 3PL services help to achieve the strategic objectives by concentrating more on core competency of the main business.

The study by Sahay and Mohan, (2006), has cited substantial growth in various financial indicators using services of 3PL, for instance, various improvements in sales revenue by 13.5%, working capital by 12.3%, returns on assets by 10%, capital assets reduction by 10%, production cost reduction by 10.5%, labour cost reduction by 10.0%, and logistics cost reduction by 15%. 3PL users depend on service providers to secure capacity and gain agility (Hannon, 2005) who not only provide core services like supplying right quality product.

In a semi-annual survey of third party logistics practices Lieb et al. (1993) and Randall (1996) stated that service offered by third party have incorporated services in their range of service portfolio are final congregation, then packaging and management of inventory. Establishing Cross docking facilities help logistics services providers to erase excess of unwanted inventories and higher customer service quality level can be achieved by redesigned distribution network (Berglund et al, 1999).Progressed Inventory return/turnover rate and reduction in unnecessary inventory through outsourcing is done by an improving coordination between production and shipping schedules (Richardson, 1990; 1995) which produces results of fast transit time, reduced damage and fewer paper work .

According to Razzaque & Sheng (1998) in a Purchasing Magazine Survey, it is cited that there are 50 percent or more contract logistics are cutting cost associated with distribution network and internal administration, decreasing staff volume while keeping focus on core business activities, which make third party logistics more reasonable to use. Many other reasons cited include getting outside, external expertise, combining services, raising customer satisfaction and service quality, elucidating whole logistics process, saving expense on capital, usage of logistics information systems, gaining output and decline in service providers.

Results and findings of the 20th annual 3PL study (2016) shows continued collaborative and positive relationships between shippers and third-party logistics providers, which have been developing since the study began 20 years ago. This year's survey suggests 3PLs and their customers are becoming more proficient at what they do, individually as well as together, which is improving the quality of their relationships. Both parties 93% of 3PL users and 94% of 3PL providers reported that their relationships are successful and that their work is yielding positive results. The study also state that 70% of those who use logistics services (shippers) and 85% of 3PL providers said the use of 3PL services has contributed to overall logistics cost reductions, and 83% of shippers and 94% of 3PL providers said the use of 3PLs has contributed to improved customer service. Moreover, the majority of both groups 75% of shippers and 88% of 3PL providers said 3PLs offer new and innovative ways to improve logistics effectiveness.

2.1.6. THE WORLD BANK LOGISTICS PERFORMANCE INDEX

A multi-dimensional assessment of logistics performance, the LPI of the World Bank, is an international benchmarking tool focusing specifically on measuring the trade and transport facilitation friendliness of a particular country, and in so doing, helping them to identify key barriers to, and opportunities for, improvement. The LPI summarizes the performance of countries through six dimensions that capture the most important aspects of the logistics environment:

- Customs; efficiency of the customs clearance process.
- Infrastructure; quality of trade and transport-related infrastructure.
- International Shipments; ease of arranging competitively priced shipments.
- Logistics Quality; competence and quality of logistics services.
- Tracking and Tracing; ability to track and trace consignments.
- Timeliness; frequency with which shipments reach the consignee within the scheduled or expected time (Arvis,et al.2014).

The LPI provides not only a comprehensive assessment of logistics performance worldwide, but also an analysis of performance trends which makes it possible to understand trends over time. Performance is evaluated using a 5-point scale and the overall LPI is aggregated as a weighted average of the six areas of logistics performance. The LPI also includes a set of domestic performance indicators which is not included in the overall country score. It is also complemented with quantitative information on particular aspects of international supply chains in respondents' countries of work, including import/export, lead time, supply chain costs, customs clearance, and the percentage of shipments subjected to physical inspection (Arvis,et al.2012). The overall index is calculated by analysing the six main sub-dimensions listed above. None of these independently guarantee a good level of logistics performance, and their inclusion is conditioned to empirical studies and extensive interviews carried out with specialists in international freight transport. Each component is discussed in detail in following sections.

2.1.6.1. THE EFFICIENCY OF CUSTOMS AND OTHER BORDER AGENCIES

The customs clearance component of the LPI measures the efficiency and effectiveness of customs dispatch procedures in terms of speed, simplicity and predictability. Improvements in customs clearance performance are tied to overall trade policy environment. Even though the objectives, implementation capacities and resource availability differ greatly across countries, policies targeting customs performance basically cover:

- Efficient risk management
- Optimal use of information and communications technology
- Effective partnership with the private sector, including programs to improve compliance
- Increased cooperation with other border control agencies

- Transparency through information on laws, regulations, and administrative guidelines.

Simple, transparent, and harmonized trade policies reduce administrative complexities, increase predictability, and reduce the incentives for market-distorting behaviour and corruption (Arvis, et al., 2014).

2.1.6.2. THE QUALITY OF TRADE AND TRANSPORT INFRASTRUCTURE

This sub-dimension measures the quality of a country's transport and telecommunications infrastructure. Infrastructure development is essential for assuring basic connectivity and access to gateways. A low overall LPI performance often results from poor scores for infrastructure. Poor transport and telecommunications infrastructure isolates countries and thus inhibits their participation in global production networks.

Remoteness is an important determinant of the real costs of trade and a country's ability to participate fully in the world economy. The average landlocked country has transport costs 50% higher than the average coastal economy. However, improving the infrastructure of the landlocked economy to the top quintile reduces this disadvantage by 12%; and improving the infrastructure of the transit economy reduces the disadvantage by a further 7% (Limao&Venables, 2001).

Improvements in customs administration, tracking and tracing, and logistics competence tend to enhance trade for countries at all levels of development. In the case of infrastructure, however, the impact on trade appears to be the highest in middle-income countries.

Korinek and Sourdin (2011) argue that improvements in port infrastructure do not seem to affect trade in lower-income countries at all. This is possibly due to the existence of strong barriers in other LPI dimensions. Another factor at play may be asymmetric trading patterns that favour imports over exports; empirical evidence shows that improvements in infrastructure are particularly trade-enhancing for exporters (Martí, et al., 2014). High income countries also benefit somewhat less than middle income countries from improvements in infrastructure, possibly because they have already undertaken the most necessary investments. This finding may suggest that some countries experience diminishing returns from further infrastructure improvements.

The infrastructure dimension of the LPI covers both physical and telecommunications infrastructure. However, perceived differences in the quality of infrastructure are strongly linked to the quality of the roads and maritime facilities, which are the two major modes of freight transport. There exists a strong positive relation between at country's LPI score and the quality of their freight transport related infrastructure, particularly their port and road quality (Celebi, et al., 2014).

2.1.6.3. EASE OF ARRANGING COMPETITIVELY PRICED SHIPMENTS

This dimension gives an estimate of the country's performance in arranging shipments at competitive prices. Availability of competitively arranged shipments is a significant factor in sourcing decisions and in turn has an impact on national competitiveness. Hausman et al. (2013) estimate that a 1% reduction in the 'distance' measure, which can be interpreted as shipping costs, increases trade by 1.4%. Similarly, a 1% reduction in the total trade-related processing cost would be associated with a 0.5% increase in bilateral trade (Hausman, et al., 2013).

Shipping costs – i.e. the LPI's indicator relating to the ease of arranging competitively priced shipments – is often the weakest LPI component of top performers and tends to lower overall LPI scores in high income countries. This may be related to macroeconomic factors, which generally make services more expensive and can make it hard to arrange low-priced shipments (Arvis, et al., 2014). In the last decade, this component of the LPI has gained more importance due to competition between freight carriers and shipping agents in response to stronger export dynamics, providing charters and services at increasingly competitive prices (Martí, et al., 2014).

2.1.6.4. COMPETENCE AND QUALITY OF LOGISTICS SERVICES

The LPI's indicator relating to competence and quality of logistics services measures the overall competence of the logistics services provided by parties within the logistics system. Achieving logistics excellence requires continuous improvement in reliability, responsiveness and well-functioning support services. The dedicated investments in logistics operations and adoption of continuous monitoring and recognized quality standards are mainly done by the private sector.

Quality of logistics services plays an important role in facilitating the transport of international trade in goods. The LPI results reveal that the quality of services indicator drives logistics performance in both emerging and developed economies (Arvis, et al., 2014). Analysis of the impacts of trade logistics in a given country's trade by income category indicates that competence seems to impact trade flows by a similar magnitude regardless of the country's level of development. Improving logistics services (like third-party logistics, trucking, and freight forwarding) is typically a complex task for policy-making, with few success stories so far (Korinek & Sourdin, 2011). However, it can be seen that in "logistics friendly" countries, manufacturers and traders outsource logistics to third party providers (who arguably benefit from economies of scale and are generally technically better at delivering these services), thus allowing companies to focus on their core business.

2.1.6.5. ABILITY TO TRACK AND TRACE CONSIGNMENTS

Traceability is a product of the logistics sector as a whole, since all parties in the supply chain contribute to this component. Since most stakeholders benefit significantly from improved tracking and tracing, it can be regarded as one of the priority areas for future investments in trade logistics (Korinek & Sourdin, 2011). However, adequate traceability of shipments is still a major

problem in most developing countries. This is partially due to a lack of understanding of how to manage new technology and adjust logistics procedures. Though it is clear that information sharing creates benefits to the supply chain as a whole, many companies start by optimizing their internal processes before paying attention to their external relations.

2.1.6.6. TIMELINESS OF CONSIGNMENT REACHING DESTINATION

The timeliness of shipments in reaching destination measures the reliability of shipment delivery times. Delivery times depend on the nature of the product, planning and supply chain management, logistics services, and distance to customers and suppliers. Long lead time is not a problem if delivery is predictable and demand is stable. However, if there is uncertainty about future demand, long lead time is costly, even if the customer knows exactly when the merchandise will arrive. It has been estimated that a 1% reduction in exporter's processing time could increase bilateral trade by 0.4%, while a 1% reduction in the variability of shipping times could be associated with a 0.2% increase in bilateral trade (Hummels, 2001). In addition, the impact of an extra day spent getting across borders has a significantly greater negative impact on trade flows compared with an extra day spent at sea delivering a container of goods (Korinek&Sourdin, 2009). These results indicate that the time spent at the border and the cost of getting containers across borders has a strong impact on trade.

While the length of the lead time affects trade volumes, time variability mainly affects the efficiency of logistics systems. The more variable the delivery time, the more buffer stocks are needed. Thus, even if average lead times are low, a high rate of variability can render a supplier uncompetitive and can be more damaging than having long, but predictable, lead times (ITF/OECD, 2010). This impact is even higher in large and complex supply chains, due to the phenomenon known as the "bullwhip effect", which is the amplified variability of demand on upstream levels of the supply chain.

There is ample evidence that appropriately designed liberalization and introduction of competition in these sectors can improve efficiency (including timeliness), reduce costs and expand service access to users (OECD, 2006).

2.2. EMPIRICAL STUDY

The study by Fekadu (2013) on the logistics practices of Ethiopia found that the density and quality of transport infrastructure is very low, the main freight transport companies lack capacity in terms of skilled human resource, management skills and number of fleets of vehicles, the main/big companies are government owned that will result in inefficiency, the efficiency of customs authority is very low and this causes a lot of delays at check points, and the number of days required to get foreign currency from national bank is also very long.

According to Tilahun (2014), in Ethiopia, problems in the maritime transport sector have become one of bottlenecks to international trade. Similarly, Fasika, Klaus and Marcus (2014) in their

research on the 12 types of industries found that long delays in customs and port handling as well as complex tariff for imported items are becoming the challenge for logistics and supply chain processes. They also found unavailability of local suppliers for imported items and long processing and delivery time due to lengthy bureaucratic procedure involved in the purchase of the imported raw material. Their study also indicated that the major transportation challenges are Ethiopia having no access to sea (Land-locked country) and back ward transport infrastructure. Due to this the delivery process was expensive and challenging.

2.2.1. CUSTOMS PROCESS , WAREHOUSING AND TRANSPORTATION IN ETHIOPIA

As per Debla (2013), the customs process, warehousing and Transportation issues are identified as below;

2.2.1.1. CUSTOMS PROCESS IN ETHIOPIA

At customs check points for export goods due to the network problem, the software ASYCUDA ++ the authority uses is not working properly and trucks wait up to 8 hours until the checking is finished by manual system communicating head office staffs through telephone. By improving the network system and minimizing the check points, it is possible to lower the cost due to unnecessary delays.

The scanner device in Mille check point has a limited capacity of only 130containers per day, while traffic flows on the Djibouti-Addis Ababa corridor is 300-350 trucks per day on average, a number that can increase in high traffic periods. Accordingly, traffic congestion and long lines of trucks at this check point occur frequently (Wubshet, 2011).

2.2.1.2. WAREHOUSING IN ETHIOPIA

One of the major obstacles for efficient freight transport and logistics system of the country in rural, regional and international freight movement and distribution system is lack of storage facilities, adequate loading and unloading equipment and efficient management of the system. At present, there are a total of about 0.8million metric ton capacity warehouses all over the country. Most of these are owned by public institutions such as Coffee Marketing, Ethiopian Grain Trade Enterprise, and World Food Program etc. Most warehouses particularly the private ones are not designed to handle heavy truck trailers and semi-trailers. Adequate doors and turning areas are not provided. In short, there is no standard set for commercial warehouse building. There is a serious lack of cargo handling equipment all over the country which normally is part of warehousing businesses. Cranes, forklifts and other equipment's are rented as and when cargo is already waiting to be loaded and unloaded at the warehouses (Afro Consult & Trading PLC, 2010).

2.2.1.3. TRANSPORTATION IN ETHIOPIA

The development of road system in the country has been generally progressing on the basis of highway and road sector development programs. Apart from urban roads and rural trails and footpaths, the present road system could be generally divided into three hierarchical functional classifications: the Federal, Regional and Rural roads. The length of Federal and Regional road network is about 46,812 of which 6,938 is asphalt/concrete surfaced (Afro Consult & Trading PLC, 2010). This is road network density of 0.57 km per 1000 of population or 41.4 km per square km of area. These values for the weighted mean of road density in all of Africa are 2.6 km per 1000 persons and density of 58km per 1000 square km (Asnake, 2006). The trunk road network radiates from Addis Ababa to the regional cities with minimal of gridding.

Often areas close by through air distance are hundreds of kilometers by road because one should pass through Addis Ababa. This makes agricultural freight transport within country from areas with excess produce to deficient areas often expensive (Wubshet, 2011). The federal road network gives good connectivity to all regional headquarters, main cities, ports and main international entry points. However, only about 30% of the rural areas are presently connected with all-weather road and many of these roads are in poor condition (Asnake, 2006).

Availability and Utilization of vehicles are the key characteristics of efficient and effective management of the transport system. Vehicles are very costly and ideally should be available for 95% of the time and used for paid work over 80% of this available time. But due to many factors such as delays through bad roads, border delays, weighbridge checks, customs delays at roadside and at destination, poor scheduling for loading and unloading, road accidents, single driver operation and congestion all reduce utilization (Elias W., 2011).

The load factor of trucks with 2 axles was 58%, with 3 axles was 50%, and trucks with 4 axles and above was 51% (Afro Consult & Trading PLC, 2010). Although the tariff was growing steadily based on the rise in the annual operating costs, there were seasonal surges with bulk imports and harvest seasons. Moreover, the different rates for different road standards reflect the relative size of vehicle, availability of return cargo, the severity of facilitation problems in routes and terminals and variation in the quality of the road network.

According to the operators the profitability of their operation is not attractive due to mainly the imbalance and seasonality of traffic along th eroutes. The total road freight traffic increased continuously but without satisfying all the demand. Actually the supply by all these transports companies' and others is only 50% of the demand (Asnake, 2006). Transport rates are determined on the basis of tender (Wubshet, 2011). But due to shortage of transport supply, much benefit could not be gained from competition (Afro Consult & Trading PLC, 2010).

2.3. CONCEPTUAL FRAMEWORK

As indicated on the below diagram of the conceptual frame work, the study is focused on the operation of the 3PL providers on three areas represented under the Independent variable and their respective effect on the performance under the dependent variable. The operation dimensions are adopted using three of the dimensions from World Bank performance index measure.

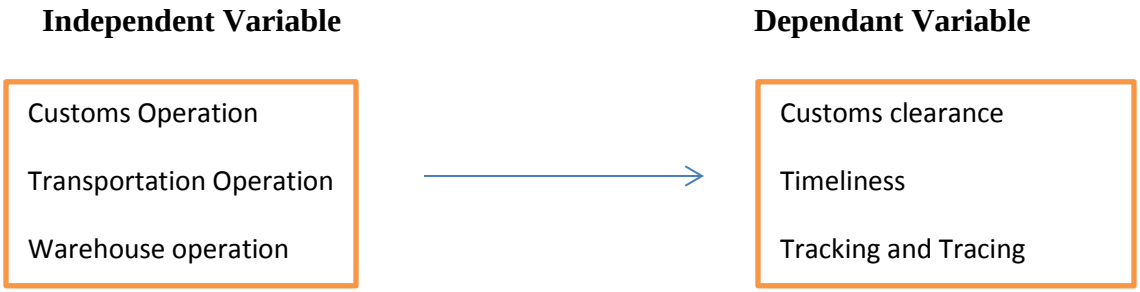

Fig 1: Conceptual frame work of the study: developed by researcher (2018).

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1. RESEARCH DESIGN

Saunders et al. (2003) divide enquiries into three groups: exploratory, descriptive and explanatory designs. Ghauri and Grønhaug (2005) describe exploratory research as the most appropriate for situations when a research problem is insufficiently understood and of an unstructured nature. Saunders et al. (2003) add that this type of study helps to get new insights and is flexible enough to allow changes of direction when new data appears. In short, it is used to explore previously unexplored areas. In descriptive research, the problem is structured and well understood. The key characteristics of descriptive research are structure, precise rules and procedures. To sum up, the descriptive study is an accurate description of situations or objects investigated. Explanatory study (causal research) involves explaining causal relationships between variables (Saunders et al., 2003). The problems under explanatory research are also structured but instead of merely describing a situation, the researcher needs to deal with "cause-and-effect" problems as well (Ghauri & Grønhaug, 2005).

In this study, all three designs i.e. exploratory, descriptive and explanatory designs have been applied. The exploratory design enabled researcher to gather information pertaining to current problem under study. The descriptive design is used to acquire information to assess the extent of logistics operation and logistic performance of 3PL providers and define the independent and dependant variables using the World Bank LPI dimensions. Explanatory or analytical research was used to understand phenomena by discovering and measuring casual relations among the independent and dependent variable.

3.2. STUDY POPULATION

According to Hair et al. (2010), target population is said to be a specific group of people or objects for which questions can be asked and observation are made to develop the required data structures and information. Therefore, for this study, the target population of the study are 3PL providers in Ethiopia.

3.3. SAMPLE AND SAMPLE TECHNIQUES

At the moment there are 36 freight forwarders and customs clearing agents under the directory of Ethiopian freight forwarders association based on researchers finding. All 36 companies have been contacted for this study. The warehouse, customs clearing and transportation department's supervisors and managers are contacted from 3PL service provider companies to enables the researcher to get the information from the appropriate person.

3.4. SOURCE AND TYPE OF DATA

In this study, both primary and secondary data's were used. Primary data is information that was collected through direct observation and questionnaires. The primary data is specifically tailored to research needs. Secondary data was obtained through document analysis, records, research papers, journals, books and online resources.

3.5. DESCRIPTION OF VARIABLES

As it was described on the research conceptual frame work in chapter two, the independent variables are customs operation, warehouse operation and transportation operation. On the other hand, the dependent variables are customs clearance performance, tracking and tracing, and timeliness respectively.

3.6. INSTRUMENTS OF DATA COLLECTION

Questionnaire techniques were used to collect primary data with close ended questionnaire. The questionnaires were filled by warehouse, customs processing and transportation managers and supervisors of the 3PL providers. The questionnaire where prepared with covering letter that explains purpose of the study and give general instruction. Besides, different sources of document were used to collect secondary data.

3.7. MEASUREMENT OF VARIABLES

The measurement instrument for the customs, transportation and warehouse operation and; the customs clearance, timeliness and tracking and tracing are adopted from the World Bank Logistics Performance Index. To analyse the extent of the logistics operation and performance, five point liker rating scale ranging from strongly agree (1) to strongly disagree (5) have been used in the questionnaire.

The designed questionnaire on logistics practices and challenges are tested for validity and reliability. The questionnaire has two parts and is prepared in English. The first part of the questionnaire is about the respondents' personal and professional information. The second part focuses on analysing the level of operation in customs, transport and warehouse. The final part focuses on analysing the performance of the 3PL service provider.

3.8. METHOD OF ANALYSIS

In order to answer the research questions, the researcher used both descriptive and inferential statistics to analyse the collected date. Descriptive statistics in terms of frequency percentage, mean and standard deviation were used to analyze the extent of relation of 3PL operation and performance. Inferential statics such as Pearson's correlation coefficient and simple linear

regressions were used to analyse the relationship between the independent variables (customs operation, warehousing and transportation) and dependent (customs clearance, tracking and tracing, timeliness). Accordingly with the intention of undertaking the above stated statically analysis, a program called SPPSS (statistical packaging for social sciences) version 20 was employed by the researcher.

In statics, linear regression is an approach for modelling the relationship between a dependent variable Y and one more explanatory variable (independent variable) denoted X. The case of one explanatory variable is called simple linear regression. For more than one explanatory variable, the process called multi linear regression.

On this research paper each independent variable (customs operation, warehousing and transportation) has direct dependant variable (customs clearance, tracking and tracing, timeliness). Therefore in line with the research objective, by conducting simple linear regression analysis, the research one by one analyzed the relationship between each independent variable (operation dimension) with its respective dependent variable (performance dimension)

The organization of the variables is as follows;

Customs clearance predictability as $\mathbf{Y_1}$ and **customs operation** as $\mathbf{X_1}$

$\mathbf{Y_1=B\pm C_1X_1}$

Customs clearance Speedy as $\mathbf{Y_2}$ and **customs operation** as $\mathbf{X_1}$

$\mathbf{Y_2=B\pm C_1X_1}$

Customs clearance Simplicity as **Y3** and **customs operation** as $\mathbf{X_1}$

$\mathbf{Y_3=B\pm C_1X_1}$

Warehouse operation as $\mathbf{Y_2}$ and **Tracking and Tracing** as $\mathbf{X_2}$

$\mathbf{Y_2=B\pm C_2X_2}$

Transportation operation as $\mathbf{Y_3}$ and **Timeliness** $\mathbf{X_3}$

$\mathbf{Y_3=B\pm C_3X_3}$

3.9. ETHICAL CONSIDERATION

To undertake the research, necessary approval and permit was obtained from the Addis Ababa University School of Commerce Graduate Studies and a covering letter was attached to the questionnaire ensuring participant's anonymity and confidentiality that information obtained from them will not be disclosed to any third party. Consent, confidentiality, and anonymity were addressed individually. Respondent's name and other identifying information were not used in

the study. Finally, the appropriate acknowledgement has been be made for the use of numerous works of others.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1.INTRODUCTION

As discussed in previous chapter, the aim of this study is to assess the effect of 3PL providers operation on 3PL provider's performance using the World Bank logistics performance dimensions.

Therefore, the findings of the study are presented and discussed in this chapter. To measure the operation and performance of the 3PL service provider, questionnaires were developed in five scale ranging from five to one ; Where 1 represents " Strongly Agree" , 2 " Agree" , 3 "Neutral" , 4 " Disagree" and 5 " Strongly disagree". In order to assess the extent of 3PL service providers operation and corresponding performance descriptive statics was conducted. In addition to assess the relationship between 3PL service providers operation and performance, correlation and regression analysis were conducted. A total of 108 questionnaires were distributed valid and used for analysis. The collected data were presented and analysed using SPSS (version 20) statistics software.

4.2.VALIDITY AND RELIABILITY

4.2.1. Validity

Validity is the accuracy of a measure or the extent to which a score truthfully represents a concept. It refers to the extent to which an instrument measures what it is supposed to measure. Good measures should be both consistent and accurate. If a measurement is valid, it is also reliable (Joppe, 2000). The validity of the data collection instrument was determined through review of literature and adapting instruments of the World Bank logistics performance index measurement dimensions.

4.2.2. Reliability

Reliability refers to the consistency or dependability of a measurement technique, and it is concerned with the consistency or stability of the score obtained from a measure or assessment over time and across settings or conditions. If the measurement is reliable, then there is less chance that the obtained score is due to random factors and measurement error (Geoffrey et al, 2005). To measure the reliability of the data collection instruments, an internal consistency technique using Cronbach's alpha was used in this study. Cronbach's alpha is a coefficient of reliability that gives an unbiased estimate of data generalization (Zinbarg 2005). Coefficient alpha ranges in value from 0, meaning no consistency, to 1, meaning complete consistency (all items yield corresponding values). Generally speaking, scales with a coefficient $\boldsymbol{\alpha}$ between 0.80 and 0.95 are considered to have very good reliability. Scales with a coefficient $\boldsymbol{\alpha}$ between 0.70 and 0.80 are considered to have good reliability, and an $\boldsymbol{\alpha}$ value between 0.60 and 0.70 indicates

fair reliability. When the coefficient is below 0.6, the scale has poor reliability. Most statistical software packages, such as SPSS, will easily compute coefficient (Zikmund *et al*, 2011). The below table shows the summary of reliabilities of all constructs.

Table 1: Reliability Statistics of the Instrument

VARIABLE	RELIABILITY
Customs clearance	
The software ASYCUDA ++ used for clearance process is optimally employed	
Clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process	
Customs clearance team receives regular training to stay up to date with current rules and regulation of the country	
The clearance team or department or functional unit is independently organized to allow the customers to get efficient services	
The clearance functional unit is adequately staffed with skilled personnel to deliver fast and quality services	α =.815
Shipments clearance lead time meets industry standard	
Efficient risk management system that resulted in seizures avoidance	
Effective partnership programs with customers to improve compliance	
Increased cooperation with other border control agencies	
Efficient risk management system that resulted in avoidance of monetary penalties	
Customs clearance process is predictable	
Customs clearance process is speedy	
Customs clearance process is Simple	
Tracking and tracing	
Warehouse is supported by technological warehouse management system	
Warehouse assigns unique lot numbers to inbound and outbound products as they enter and exit the facility	
Warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies	
Warehouse tracking and tracking information integrated with customer and other stakeholders in the supply chain	
Shipments are stored in warehouse in a systematic manner that allows easy tracing	α =0.919
Customer uses the tracking info to get on time update on shipment status	
3PL is able to track and trace consignments at any moment while they are in the supply chain	
Timeliness	
Transportation department is supported by modern technology	
Transport reacts quickly to delivery address change	
Transport reacts quickly to delivery time and date request change	
Adequate number of vehicles available to support the transport operation	

Transportation meets delivery schedule	α=0.916
Transportation delivers shipments to their destination correctly	
Proof of Delivery provided within 24hrs of delivery	
Shipments are delivered at expected time to the expected place	

4.3. PROFILE OF RESPONDENTS

Under this section, the research analysis is focused on the examination of the targeted sample members/ respondents personal and professional profiles. Analysing the respondents profile will provide and insight on whether or not the collected data is gathered from group of people who have an adequate knowledge on the subject.

4.3.1. EDUCATION OF RESPONDENTS

Table 2; Education level of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	42	38.9	38.9	38.9
	BA	66	61.1	61.1	100.0
	Total	108	100.0	100.0	

As it can be seen from Table 2: 38.9 % of the respondents are first diploma holders and the remaining 61.1% of the respondents are BA degree holders. Hence, this can help to understand that the research primary data is collected from a group of people who has good educational background to have the required knowledge on logistics operation and performance.

4.3.2. PROFESSIONAL POSITION OF RESPONDENTS

Table 3; Professional Position of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Senior Officer	31	28.7	28.7	28.7
	Supervisor	70	64.8	64.8	93.5
	Manager	7	6.5	6.5	100.0
	Total	108	100.0	100.0	

As it can be seen from Table 2, 28.7 % respondents are senior officers. The data gathered from these groups of people will help have the right information which reflects the actual operations in customs, transportation and warehouse on day to day activities followed by the 3PL. In addition, 64.8 % are supervisors and 6.5 % of the respondents are managers. The data gathered from these two groups will have right information which reflects sectional, departmental and operations and performance.

4.3.3. YEAR OF PROFESSIONAL EXPERIENCE

Table 4; Year of professional experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 to 5 years	24	22.2	22.2	22.2
	5 to 10 years	66	61.1	61.1	83.3
	10 to 15 years	12	11.1	11.1	94.4
	15 to 20 years	6	5.6	5.6	100.0
	Total	108	100.0	100.0	

As it can be seen from Table 4, 22.2 % of the respondents have 1 to 5 years of working experience, 61.1. % of the respondents have 5 to 10 years of working experience, 11.1 % of the respondents have 10 to 15 years of working experience and 5.6 % of the respondents have 15 to 20 years of working experience. Hence, around 77.8% of the respondents have more than 5 years of work experience. Therefore, out of the 108 questionnaires which are used for the research analysis, 84 of them are distributed to a group of people who have at least 5 years of work experience. Hence this can imply that most of the respondents have the required working experience to describe the 3PL service providers operation and performance.

4.4.DESCRIPTIVE STATISTICS DATA ANALYSIS

Descriptive data analysis is used to determine the extent of 3PL service providers operation (customs operation, warehouse and transportation) and the extent of 3PL service provider's performance (customs clearance, tracking and tracing; timeliness).

4.4.1. DESCRIPTIVE STATISTICS FOR 3PL OPERATION AND PERFORMANCE

Under this sub section, descriptive data analysis is used to determine the extent of 3PL operation. Accordingly the respondents were asked to select one of the alternatives, which represents their organization operation in view of customs , warehouse, transportation, from the questionnaires arranged in five point likert scale method where 1 represents " Strongly Agree" , 2 " Agree" , 3 "Neutral" , 4 " Disagree" and 5 " Strongly disagree".

4.4.1.1.CUSTOMS OPERATION OF 3PL

The respondents were asked to describe the customs operation in terms of technology, man power and risk management. As it can be seen from the below Table 5, the mean of 3PL customs operation ranges from 1.9 to 3.9 with the majority falling b/n 3 and 4 on the liker scale , which is either neutral or disagree to the questions relating to the operation attributes to customs.

Table 5 ; Descriptive Statistics for customs operation

	N	Mini.	Max.	Mean	Std. Deviation
The software ASYCUDA ++ used for clearance process is optimally employed	36	2.00	5.00	3.5833	.80623
Clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process	36	1.00	3.00	1.9444	.53154
Customs clearance team receives regular training to stay up to date with current rules and regulation of the country	36	1.00	5.00	3.0833	1.10518
The clearance team or department or functional unit is independently organized to allow the customers to get efficient services	36	1.00	4.00	2.1667	.91026
The clearance functional unit is adequately staffed with skilled personnel to deliver fast and quality services	36	1.00	5.00	3.2222	1.41646
Shipments clearance lead time meets industry standard	36	3.00	5.00	3.9722	.73625
Efficient risk management system that resulted in seizures avoidance	36	2.00	4.00	3.0000	.82808
Effective partnership programs with customers to improve compliance	36	2.00	4.00	2.8333	.91026
Increased cooperation with other border control agencies	36	2.00	5.00	3.3333	1.12122
Efficient risk management system that resulted in avoidance of monetary penalties	36	1.00	4.00	2.6667	1.12122
Valid N (listwise)	36				

4.4.1.2.WAREHOUSE OPERATION OF 3PL

The respondents were asked to describe the warehouse operation in terms of tracking and tracing technology and man power. As it can be seen from the below Table 5, the mean of 3PL warehouse operation ranges from 2.4 to 3.47 with majority falling on neutral to the questions relating to the tracking and attributes to warehousing.

Table 6; Descriptive Statistics Warehouse operation

	N	Minimum	Maximum	Mean	Std. Deviation
Warehouse is supported by technological warehouse management system	36	2.00	4.00	3.0000	1.01419
Warehouse assigns unique lot numbers to inbound and outbound products as they enter and exit the facility	36	2.00	4.00	3.0000	1.01419
Warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies	36	2.00	4.00	3.4722	.73625
Warehouse tracking and tracking information integrated with customer and other stakeholders in the supply chain	36	2.00	4.00	3.0000	1.01419
Shipments are stored in warehouse in a systematic manner that allows easy tracing	36	1.00	3.00	2.4444	.60684
Customer uses the tracking information to get on time update on shipment status	36	2.00	4.00	3.0000	1.01419
Valid N (listwise)	36				

4.4.1.3. TRANSPORTATION OPERATION OF 3PL

The respondents were asked to describe the transportation operation in terms of timeliness. As it can be seen from the below Table 6, the mean of 3PL transportation operation ranges from 2.3 to 3.94 with majority falling on disagree to the questions relating to the tracking and attributes to warehousing.

Table 7; Descriptive Statistics for transportation operation

	N	Minimum	Maximum	Mean	Std. Deviation
Transportation department is supported by modern technology	36	1.00	5.00	3.4444	1.44310
Transport reacts quickly to delivery address change	36	1.00	5.00	3.8611	1.49576
Transport reacts quickly to delivery time and date request change	36	1.00	5.00	3.9167	1.46141
Adequate number of vehicles available to support the transport operation	36	2.00	5.00	3.9444	1.06756
Transportation meets delivery schedule	36	1.00	5.00	3.8611	1.37639
Transportation delivers shipments to their destination correctly	36	2.00	4.00	2.3333	.75593
Proof of Delivery provided within 24hrs of delivery	36	1.00	5.00	3.0556	1.26366
Shipments are delivered at expected time to the expected place	36	1.00	5.00	3.8611	1.37639
Valid N (listwise)	36				

4.4.1.4.DESCRIPTIVE STATISTICS FOR PERFORMANCE

As described in the literature review World Bank uses 6 dimensions to measure LPI. In this research out of this the 6 dimensions, 3 have been used to measure the performance of 3PL service providers. These are customs clearance, tracking and tracing and timeliness.

The customs clearance component of the LPI measures the efficiency and effectiveness of customs dispatch procedures in terms of speed, simplicity and predictability. The respondents where requested to customs clearance performance using this measures in the questionnaire. On the below Table 7, the mean for each dimension is provided, with predictability at 2.2, speedy at

3.7 and simplicity at 3.2.This shows the respondents agree to clearance process predictability , disagree with speedy and are neutral on simplicity.

The tracking and tracing component of the LPI measures ability to track and trace the shipemtn while within the supply chain and the 3PL service providers where asked if they are able to do this and the mean is at 3 which is neutral .

The 3rd component from the LPI used was timeliness. The timeliness of shipments in reaching destination measures the reliability of shipment delivery times. For this from the replies received the mean is 3.86, which can be rounded to disagreeing to timeliness

Table 8; Descriptive Statistics for 3PL performance

	N	Minimum	Maximum	Mean	Std. Deviation
Customs clearance process is predictable	36	2.00	3.00	2.1667	.37796
Customs clearance process is speedy	36	3.00	4.00	3.6667	.47809
Customs clearance process is Simple	36	2.00	5.00	3.1667	1.23056
3PL is able to track and trace consignments at any moment while they are in the supply chain	36	2.00	4.00	3.0000	1.01419
Shipments are delivered at expected time to the expected place	36	1.00	5.00	3.8611	1.37639
Valid N (listwise)	0				

4.5. PEARSON CORRELATION

Correlations are the measure of the linear relationship between two variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables being correlated whereas values closer to 0 indicates that there is little or no linear relationship. Therefore on this research, Pearson Correlation analysis is conducted to determine the relationship between the Independent variable, Strategic Sourcing Practice, and the Dependent variable, Supply Chain Efficiency. In order to determine the level of relationship between variables, the researcher followed Evans (1996), suggestion for the absolute value of "r" which is; 0.00-0.19 "very weak", 0.20-0.39 "weak", 0.40-0.59 "moderate", 0.60-0.79 "strong" and 0.80-1.0 "very strong.

4.5.1. PEARSON'S CORRELATION BETWEEN CUSTOMS OPERATION AND CUSTOMS CLEARANCE

Table 9 ; Pearson's Correlations between customs operation and performance

		Predictability	speedy	Simplicity
The software ASYCUDA ++ used for clearance process is optimally employed	Pearson Correlation	-.047	.519**	.389*
	Sig. (2-tailed)	.786	.001	.019
	N	36	36	36
Clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process	Pearson Correlation	-.806**	-.300	.364*
	Sig. (2-tailed)	.000	.076	.029
	N	36	36	36
Customs clearance team receives regular training to stay up to date with current rules and regulation of the country	Pearson Correlation	-.171	-.054	-.032
	Sig. (2-tailed)	.319	.754	.855
	N	36	36	36
The clearance team or department or functional unit is independently organized to allow the customers to get efficient services	Pearson Correlation	-.083	.525**	.434**
	Sig. (2-tailed)	.630	.001	.008
	N	36	36	36
The clearance functional unit is adequately staffed with skilled personnel to deliver fast and quality services	Pearson Correlation	-.071	-.098	-.104
	Sig. (2-tailed)	.680	.568	.547
	N	36	36	36
Shipments clearance lead time meets industry standard	Pearson Correlation	-.599**	.135	.573**
	Sig. (2-tailed)	.000	.431	.000
	N	36	36	36
Efficient risk management system that resulted in seizures avoidance	Pearson Correlation	-.548**	.000	.336*
	Sig. (2-tailed)	.001	1.000	.045
	N	36	36	36
Effective partnership programs with customers to improve compliance	Pearson Correlation	-.415*	.657**	.944**
	Sig. (2-tailed)	.012	.000	.000
	N	36	36	36
Increased cooperation with other border control agencies	Pearson Correlation	-.539**	-.107	.456**
	Sig. (2-tailed)	.001	.536	.005
	N	36	36	36
Efficient risk management system that resulted in avoidance of monetary penalties	Pearson Correlation	-.674**	-.213	.290
	Sig. (2-tailed)	.000	.212	.086
	N	36	36	36

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

As it can be seen at the above table, The Pearson's correlation value for predictability with clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process is 0.806. This is a very strong correlation between having clearly articulated guidelines and predictability of customs clearance. The Pearson's correlation value for predictability with Shipments clearance lead time meets industry standard at 0.599, which is strong correlation between predictability of customs clearance and ability to meet industry lead time. The Person's correlation value for predictability with efficient risk management system that resulted in seizures avoidance is 0.548, which is moderate correlation. The Persons correlation for predictability with Effective partnership programs with customers to improve compliance is 0.415 which is moderate correlation. The Persons correlation with increased cooperation with other border control agencies is 0.539, which is moderate correlation. Person's correlation with efficient risk management system that resulted in avoidance of monetary penalties is 0.674 which is strong correlation between predictability of customs clearance and avoidance of customs violation.

The Pearson's correlation value for speedy customs clearance process with the software ASYCUDA ++ used for clearance process is optimally employed is 0.519, which is moderate correlation between speedy customs clearance support and technology support. The Pearson's correlation value for speedy customs clearance process With The clearance team or department or functional unit is independently organized to allow the customers to get efficient services is 0.525, which is also moderate between speedy customs clearance process and independently set up team. The Pearson's correlation value for speedy customs clearance process With Effective partnership programs with customers to improve compliance is 0.657, which is strong correlation between compliance by customer and speedy customs clearance process.

The Pearson's correlation value for simple customs clearance process with the software ASYCUDA ++ used for clearance process is optimally employed is 0.389 which is weak. The Pearson's correlation value for simple customs clearance process with clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process is 0.364, which is weak. The Pearson's correlation value for simple customs clearance process with the clearance team or department or functional unit is independently organized to allow the customers to get efficient services is 0.434 which is moderate. The Pearson's correlation value for simple customs clearance process with Shipments clearance lead time meets industry standard is 0.573 which is moderate. The Pearson's correlation value for simple customs clearance process with efficient risk management system that resulted in seizures avoidance is 0.336, which is weak. The Pearson's correlation value for simple customs clearance process with Effective partnership programs with customers to improve compliance is 0.944, which is very strong. The Pearson's correlation value for simple customs clearance process with increased cooperation with other border control agencies is 0. 456, which is moderate.

4.5.2. PEARSON'S CORRELATION BETWEEN WAREHOUSE OPERATION AND TRACKING AND TRACING

Table 10; Correlations between warehouse operation and tracking and tracing

		Tracking and Tracing
Warehouse is supported by technological warehouse management system	Pearson Correlation	1.000**
	Sig. (2-tailed)	.000
	N	36
Warehouse assigns unique lot numbers to inbound and outbound products as they enter and exit the facility	Pearson Correlation	1.000**
	Sig. (2-tailed)	.000
	N	36
Warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies	Pearson Correlation	.574**
	Sig. (2-tailed)	.000
	N	36
Warehouse tracking and tracking information integrated with customer and other stakeholders in the supply chain	Pearson Correlation	1.000**
	Sig. (2-tailed)	.000
	N	36
Shipments are stored in warehouse in a systematic manner that allows easy tracing	Pearson Correlation	-.371*
	Sig. (2-tailed)	.026
	N	36
Customer uses the tracking information to get on time update on shipment status	Pearson Correlation	1.000**
	Sig. (2-tailed)	.000
	N	36

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The Pearson's correlation value for tracking and tracing consignments with warehouse supported by technological warehouse management system, Warehouse assigns unique lot numbers to inbound and outbound products as they enter and exit the facility, warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies, warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies, warehouse tracking and tracking information integrated with customer and other stakeholders in the supply chain, Shipments are stored in warehouse in a systematic manner that allows easy tracing, Customer uses the tracking information to get on time update on shipment status is all 1.00 which is very strong correlation.

4.5.3. PEARSON'S CORRELATION BETWEEN TRANSPORTATION OPERATION AND TIMELINESS

Table 11; Correlations between transportation and timeliness

		Timeliness
Transportation department is supported by modern technology	Pearson Correlation	.780**
	Sig. (2-tailed)	.000
	N	36
Transport reacts quickly to delivery address change	Pearson Correlation	.879**
	Sig. (2-tailed)	.000
	N	36
Transport reacts quickly to delivery time and date request change	Pearson Correlation	.917**
	Sig. (2-tailed)	.000
	N	36
Adequate number of vehicles available to support the transport operation	Pearson Correlation	.714**
	Sig. (2-tailed)	.000
	N	36
Transportation meets delivery schedule	Pearson Correlation	1.000**
	Sig. (2-tailed)	.000
	N	36
Transportation delivers shipments to their destination correctly	Pearson Correlation	.211
	Sig. (2-tailed)	.218
	N	36
Proof of Delivery provided within 24hrs of delivery	Pearson Correlation	.399*
	Sig. (2-tailed)	.016
	N	36

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The Pearson's correlation value for Timeliness with transportation department is supported by modern technology is 0.780, which is strong. This means technological supported transportation operation and ability to deliver a shipment at expected time have strong connection. The Pearson's correlation value for Timeliness with transport reacts quickly to delivery address change is 0.879, which is very strong. This means ability to deliver to a new address when delivery address is changed is strongly connected with timeliness. The Pearson's correlation value for timeliness with transport reacts quickly to delivery time and date request change is 0.917, which is very strong. This means ability to deliver at required time and place is strongly

connected with timeliness. The Pearson's correlation value timeliness with adequate number of vehicles available to support the transport operation is 0.714, which is strong. This means availability of adequate number of vehicles has strong correlation with timeliness. The Pearson's correlation value for timeliness with Transportation meets delivery schedule is 1.00, which is very strong. The Pearson's correlation value for timeliness with Proof of Delivery provided within 24hrs of delivery is 0.399, which is moderate.

4.6. MULTIPLE LINEAR REGRESSION ANALYSIS RESULT

4.6.1. MULTIPLE LINEAR REGRESSION ANALYSIS FOR CUSTOMS OPERATION AND CUSTOMS CLEARANCE PERFORMANCE

4.6.1.1. CUSTOMS CLEARANCE PREDICTABILITY

Table 12 ; Regression Model Summary for Predictability

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.516[a]	.267	.245	.32839

a. Predictors: (Constant), Customs operation

Table 12 shows the results of model summary of the multiple linear regression analysis. Multiple linear regression analysis has been used to identify the effect of 3PL customs operation on customs clearance predictability. As can be seen from table 12, the value of R-square is 0.267, this indicates that the relative contribution of customs operation on predictability of the customs clearance. In other word, about 26.7% of the variation in customs clearance predictability can be explained by the customs operation.

Table 13; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.333	1	1.333	12.364	.001[b]
	Residual	3.667	34	.108		
	Total	5.000	35			

a. Dependent Variable: Predictability

b. Predictors: (Constant), Customs operation

Table 13 shows the **ANOVA** results of the multiple regression analysis. The p value denoted as "Sig." in the **ANOVA** table tests whether the independent variables are statistically significant to

predict the dependent variable. If p value is > 0.05 the model is statistically insignificant, but if p value is < 0.05 the model is statistically significant.

Hence the above **ANOVA** table shows the regression model is a good fit of the data. (p=0.001, which is < 0.05).

Table 14; Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.167	.290		10.934	.000
	Customs operation	-.333	.095	-.516	-3.516	.001

a. Dependent Variable: Predictability

b. Predictors: (Constant), Customs operation

Table 14 shows the results of coefficients of multiple linear regression analysis for the effect of customs operation on customs clearance predictability. The customs operation is found to be statically significant because the p value with is denoted as "Sig." is below the statistics limit which is 0.05. This shows that operation of 3PL service providers will have impact on customs process predictability by the indicated B value. The indicated B value is -0.333.

Hence by taking the formula:

$$Y_1 = B \pm C_1 X_1, Y_1 = -0.333X_1$$

According to the above result, a one unite increase or improvement on **X1(customs operation)** will result a 33.3% decrease on customs clearance predictability.

4.6.1.2. CUSTOMS CLEARANCE SPEED

Table 15 ; Regression Model Summary for Speed

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.204[a]	.042	.013	.47486

a. Predictors: (Constant), Customs operation

Table 15 shows the results of model summary of the multiple linear regression analysis. Multiple linear regression analysis has been used to identify the effect of 3PL customs operation on customs clearance speed. As can be seen from table 14, the value of R-square is 0.42, this indicates that the relative contribution of customs operation on speedy customs clearance process

of. In other word, about 4.2 % of the variation in customs clearance speed can be explained by the customs operation.

Table 16; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.333	1	.333	1.478	.232[b]
	Residual	7.667	34	.225		
	Total	8.000	35			

a. Dependent Variable: Speedy

b. Predictors: (Constant), Customs operation

Table 16 shows the **ANOVA** results of the multiple regression analysis. The p value denoted as "Sig." in the **ANOVA** table tests whether the independent variables are statistically significant to predict the dependent variable. If p value is > 0.05 the model is statistically insignificant, but if p value is < 0.05 the model is statistically significant.

Hence the above **ANOVA** table shows the regression model is statistically insignificant. (p=0.232, which is > 0.05).

Table 17; Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.167	.419		7.562	.000
	Customs operation	.167	.137	.204	1.216	.232

a. Dependent Variable: Speedy

Table 17 shows the results of coefficients of multiple linear regression analysis for the effect of customs operation on customs clearance speed. The customs operation is found to be statically insignificant because the p value with is denoted as "Sig." is above the statistics limit which is 0.05. This shows that operation of 3PL service providers will have insignificant impact on customs process speed by the indicated B value.

4.6.1.3. CUSTOMS CLEARANCE SIMPLICITY

Table18; Model Summary for customs clearance speed

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476[a]	.226	.204	1.09813

a. Predictors: (Constant), Customs operation

Table 18 shows the results of model summary of the multiple linear regression analysis. Multiple linear regression analysis has been used to identify the effect of 3PL customs operation on customs clearance simplicity. As can be seen from table 18, the value of R-square is 0.226, this indicates that the relative contribution of customs operation on simplicity of the customs clearance. In other word, about 22.6% of the variation in customs clearance simplicity can be explained by the customs operation.

Table 19; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.000	1	12.000	9.951	.003[b]
	Residual	41.000	34	1.206		
	Total	53.000	35			

a. Dependent Variable: Simple

b. Predictors: (Constant), Customs operation

Table 19 shows the **ANOVA** results of the multiple regression analysis. The p value denoted as "Sig." in the **ANOVA** table tests whether the independent variables are statistically significant to predict the dependent variable. If p value is > 0.05 the model is statistically insignificant, but if p value is < 0.05 the model is statistically significant.

Hence the above **ANOVA** table shows the regression model is a good fit of the data. (p=0.003, which is < 0.05).

Table 20; Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.167	.968		.172	.864
	Customs operation	1.000	.317	.476	3.155	.003

a. Dependent Variable: Simple

Table 20 shows the results of coefficients of multiple linear regression analysis for the effect of customs operation on customs clearance speed. The customs operation is found to be statically significant because the p value with is denoted as "Sig." is below the statistics limit which is 0.03. This shows that operation of 3PL service providers will have impact on customs process speed by the indicated B value.

$$Y_3 = B \pm C_1 X_1$$

$$Y_1 = 1.0\ X_1$$

According to the above result, a one unite increase or improvement on **X_1(customs operation)** will result a 100.00% increase on customs clearance speed.

4.6.2. MULTIPLE LINEAR REGRESSION ANALYSIS FOR WAREHOUSE OPERATION AND TRACKING AND TRACING

Table 21; Model Summary for tracking and tracing

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.939[a]	.881	.877	.35520

a. Predictors: (Constant), Warehouse operation

Table 21 shows the results of model summary of the multiple linear regression analysis. Multiple linear regression analysis has been used to identify the effect of warehouse operation on tracking and tracing of consignment. As can be seen from table 21, the value of R-square is 0.881, this indicates that the relative contribution of customs operation on predictability of the customs clearance. In other word, about 88.1% of the variation in tracking and tracing can be explained by warehouse operation.

Table 22; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.710	1	31.710	251.338	.000[b]
	Residual	4.290	34	.126		
	Total	36.000	35			

a. Dependent Variable: 3PL is able to track and trace consignments at any moment while they are in the supply chain

b. Predictors: (Constant), Warehouse operation

Table 22 shows the **ANOVA** results of the multiple regression analysis. The p value denoted as "Sig." in the **ANOVA** table tests whether the independent variables are statistically significant to predict the dependent variable. If p value is > 0.05 the model is statistically insignificant, but if p value is < 0.05 the model is statistically significant.

Hence the above **ANOVA** table shows the regression model is a good fit of the data. (p=0.000, which is < 0.05).

Table 23; Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.211	.211		-.999	.325
	Warehouse operation	1.000	.065	.939	15.854	.000

a. Dependent Variable: 3PL is able to track and trace consignments at any moment while they are in the supply chain

Table 23 shows the results of coefficients of multiple linear regression analysis for the effect of warehouse operation on tracking and tracing consignment. The warehouse operation is found to be statically significant because the p value with is denoted as "Sig." is below the statistics limit which is 0.05. This shows that operation of 3PL service providers will have impact on customs process predictability by the indicated B value.

$$Y_4 = B \pm C_1 X_2$$

$$Y4 = 1.00\ X_2$$

According to the above result, a one unite increase or improvement on **X1(warehouse operation)** will result a 100.00% increase on tracking and tracing of consignments.

4.6.3. MULTIPLE LINEAR REGRESSION ANALYSIS FOR TRANSPORTATION OPERATION AND TIMELINESS

Table 24; Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.941[a]	.886	.883	.40512

a. Predictors: (Constant), Shipments are delivered at expected time to the expected place

Table 24 shows the results of model summary of the multiple linear regression analysis. Multiple linear regression analysis has been used to identify the effect of transportation operation on timeliness. As can be seen from table 24, the value of R-square is 0.886, this indicates that the relative contribution of transportation operation on timeliness. In other word, about 88.3% of the variation in timeliness can be explained by transportation operation.

Table 25; ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.392	1	43.392	264.385	.000[b]
	Residual	5.580	34	.164		
	Total	48.972	35			

a. Dependent Variable: Transportation operation

b. Predictors: (Constant), Shipments are delivered at expected time to the expected place

Table 25 shows the **ANOVA** results of the multiple regression analysis. The p value denoted as "Sig." in the **ANOVA** table tests whether the independent variables are statistically significant to predict the dependent variable. If p value is > 0.05 the model is statistically insignificant, but if p value is < 0.05 the model is statistically significant.

Hence the above **ANOVA** table shows the regression model is a good fit of the data. (p=0.000, which is < 0.05).

Table 26; Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.404	.204		1.985	.055
	Shipments are delivered at expected time to the expected place	.809	.050	.941	16.260	.000

a. Dependent Variable: Transportation operation

Table 26 shows the results of coefficients of multiple linear regression analysis for the effect of customs operation on customs clearance predictability. The customs operation is found to be statically significant because the p value with is denoted as "Sig." is below the statistics limit which is 0.05. This shows that operation of 3PL service providers will have impact on customs process predictability by the indicated B value.

$Y_5 = B \pm C_1 X_3$

$Y_5 = 80.9\ X_3$

According to the above result, a one unite increase or improvement on **X3 (transport operation)** will result in 80.9% increase on timeliness.

4.7. SUMMARY OF FINDINGS

As it is discussed on the pervious chapter in order to assess the effect of 3PL operation on their performance, the researcher analysed the customs, transportation and warehouse operation to assess the performance of customs clearance, tracking and tracing and timeliness.

4.7.1. EFFECT OF CUSTOMS OPERATION ON CUSTOMS CLEARANCE PERFORMANCE

Based on the LPI for World Bank, customs clearance performance is measured by speed, predictability and simplicity. The above results do not show a strong relation shipment between the performance variables and operation. The strongest link shown is with speed at 42% variance in speed being attributed by operation.

4.7.2. EFFECT OF WAREHOUSE CUSTOMS OPERATION ON TRACKING AND TRACING

The study shows there is a strong link between tracking and tracing of consignments and warehouse operation. 88.1% of the variation in tracking and tracing can be explained by warehouse operation. The coefficient shows increase or improvement on warehouse operation can result in 100% improvement on tracking and tracing of consignment

4.7.3. EFFECT OF TRANSPORTATION OPERATION ON TIMELINESS

The study shows there is a strong link between transportation operation and timeliness of delivery. 88.3% of the variation in timeliness explained by transportation operation. The coefficient shows increase or improvement on warehouse operation can result in 80.9% improvement on tracking and tracing of consignment

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1. CONCLUSION

As discussed in the previous chapters this study was conducted to assess the effect of 3PL service provides operation on its performance using three of the World Bank LPI dimensions. The three dimensions used are customs clearance, tracking and tracing; and timeliness. The operations attributed to these performances are customs operation, warehouse operation and transportation respectively. From the previous chapter, based on the statics analysis, it has been shown warehouse and transportation operation has significant influence on tracking and tracing and timeliness, respectively. However, customs operation and customs clearance have a weak relationship.

As described by the World Banks LIP, the customs clearance performance is measured by predictability, speed and simplicity. From the above analysis we have seen that the customs operation of 3PL service providers has insignificant effect on the customs clearance performance in regards to predictability, speed and simplicity.

5.2. RECOMMENDATION

Based on the results of the study, the following recommendations are suggested for consideration

- As discussed in chapter 1 and 2 there is lack of modernized customs process in the country along with the increase of import and export per annum. For the 3PL service provider to perform in customs clearance in predicable, speedy and simplified manner, they need the support of a modernized system from the customs authority. Otherwise, even if they push to modernize their system and have a skilled man power, they will still face issues without a national system to support the operation.
- There are many forms of tracking and tracing technologies in the current world market. The devises go as far as updating warehouse team on temperature, expiration date, and vibration of trucks to keep the consignment safe up to deliver in addition to providing an update on physical location of the shipments. Hence, it’s the researcher’s strong recommendation for 3PL service providers to equip themselves with modernized warehouses. Ability to track and trace shipments for physical location and state of consignment can save a lot of money in regards to claim for lost and damaged shipments and make the logistics efficient as a whole.
- With Timeliness of delivery of shipments, while the transportation infrastructure is still developing we have seen a positive change in the past few years. 3PL service providers need to equip themselves with modern transportation vehicles in order to ensure timely delivery of shipemtn to designated destination.

- Integrating the warehouse system with the transport system will have a strong advantage of 3PL service provider to track shipments from dispatch to delivery or from pick up until arrival at warehouse. This will allow for avoidance of delivery to wrong address, shipment getting lost in transit, following up on the state of the shipemtn while in the hands of the 3PL service provider.
- In conclusion, modernizing the logistics process of 3PL service providers is crucial factor in improving their performance and to provide a timely, speedy and simplified logistics service.

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Appendix; Questionnaire

Dear Respondents,
My name is Fetiha Sergaga, a prospective graduate of this academic year from Logistics andSupply Chain Management department. Currently, I am conducting research on ***"assessing the effect of third party logistics providers operation on logistics performance using logistics performance index"*** as a partial fulfilment for Masters of Arts Degree in Logistics and Supply Chain Management Program. The main objective of the study is to identify the challenges and prospects of the 3PL provider's operation in the area of customs clearance, warehousing and Transportation; and to determine the effect of operation on performance using dimensions World Logistics performance index. For the purpose of successful accomplishment of this study, your sincere cooperation in filling the questionnaire is extremely valuable.

Therefore, you are cordially asked to deliver your support in objectively filling the questionnaires provided. The researcher also wants to assure you that the data to be collected from you will be used for this academic research purpose only; and its confidentiality will strictly be kept. For any additional information, explanation and comment, you can leave your message through this phone number: +251 115 17 81 66, email: fetihasergaga@gmail.com.

Thank you in advance!

Part I.

General Information

1. Gender: _____
2. Age: _____
3. Work experience
    - Customs Clearance_____
    - Warehousing _____
    - Transportation _____
4. Current job Position_____

Part II. Please rate your level of agreement with a tick mark (√) **using the following 5 point Scales of:**

1. Strongly Agree 2. Agree 3. Neutral 4. Disagree 5. Strongly disagree

- **CUSTOMS CLEARANCE OPERATION**

No	Item	1	2	3	4	5
1	The software ASYCUDA ++ used for clearance process is optimally employed					
2	Clearly articulated guideline is in place to secure all necessary documents from customer before starting clearance process					
3	Customs clearance team receives regular training to stay up to date with current rules and regulation of the country					
4	The clearance team or department or functional unit is independently organized to allow the customers to get efficient services					
5	The clearance functional unit is adequately staffed with skilled personnel to deliver fast and quality services					
6	Shipments clearance lead time meets industry standard					
7	Efficient risk management system that resulted in seizures avoidance					
8	Effective partnership programs with customers to improve compliance					
9	Increased cooperation with other border control agencies					
10	Efficient risk management system that resulted in avoidance of monetary penalties					

- **WAREHOUSE OPERATION**

No	Item	1	2	3	4	5
1	Warehouse is supported by technological warehouse management system					
2	Warehouse assigns unique lot numbers to inbound and outbound products as they enter and exit the facility					
3	Warehouse operation is conducted by skilled manpower that receives regular training on tracking and tracing technologies					
4	Warehouse tracking and tracking information integrated with customer and other stakeholders in the supply chain					
5	Shipments are stored in warehouse in a systematic manner that allows easy tracing					
6	Customer uses the tracking information to get on time update on shipment status					

- **TRANSPORT OPERATION**

No	Item	1	2	3	4	5
1	Transportation department is supported by modern technology					
2	Transport reacts quickly to delivery address change					
3	Transport reacts quickly to delivery time and date request change					
4	Adequate number of vehicles available to support the transport operation					
5	Transportation meets delivery schedule					
6	Transportation delivers shipments to their destination correctly					
7	Proof of Delivery provided within 24hrs of delivery					

- **CUSTOMS CLEARANCE PERFORMANCE**

No	Item	1	2	3	4	5
1	Customs clearance process is predictable					
2	Customs clearance process is speedy					
3	Customs clearance process is Simple					

- **TRACKING AND TRACING**

No	Item	1	2	3	4	5
1	3PL is able to track and trace consignments at any moment while they are in the supply chain					

- **TIMELINESS**

No	Item	1	2	3	4	5
1	Shipments are delivered at expected time to the expected place					