



**FACTORS AFFECTING LOGISTICS PERFORMANCE: *THE
CASE OF ETHIOPIAN LOGISTICS SERVICE PROVIDERS***

BY

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Abbreviations and Acronyms

EDI:	Electronic data interchange
EIC:	Ethiopian investment commission
ERCA:	Ethiopian Revenues and Customs Authority
EFFSAA:	Ethiopia Freight Forwarders and Shipping Agents Association
ESL:	Ethiopian Shipping Line
ESLSE:	Ethiopian Shipping and Logistics Services Enterprise
EMAA:	Ethiopian Maritime Affairs Authority
FIATA:	International Federation of Freight Forwarders Associations
GDP:	Gross Domestic Product
LSP:	Logistics Service Providers
LPI:	Logistics Performance Indices
SPSS:	Statistical program for social science
UNCTAD:	United Nations Conference on Trade and Development

Abstract

The international trade is growing very rapidly with the emergence of globalization and at the same time the demand for effective and efficient international freight logistics services and the need for its performance is ever changing to win the competition in the market place. However, based on subsequent the World Bank's and other relevant agencies report the logistics performance of Ethiopia have been very low, does not show significant progress year after years and it is hampering growth of trade and manufacturing industries. The Ethiopian logistics sector is reserved for the citizens or local companies by the proclamation number 549/2007. The main objectives of this study was to identify the factors that affects logistics performance, specifically in the case of Ethiopian logistics service providers'. The study have empirically assessed the key areas which are sought to affect logistics performances. Relevant and related studies have been reviewed and it was made possible to understand the level performance and developments in the subject area. Therefore, suitable conceptual framework was taken out. A mixed type of research approach was followed to exploit the advantages of qualitative and quantitative methods. Using Cochran sample size determination technique used to draw the sample size was determined to be 151 while only 113 were able to be collected and used for the data analysis. Closed ended questionnaire was distributed to freight forwarding logistics service providers' employees who are at the top level of their respected companies. The findings of the study indicated that the overall performance level of Ethiopian logistics companies was found to be low and determined that social, technological, legal, infrastructure, social and political factors are determinant factor for logistics performance effectiveness while operational factors are a determinant factor for efficiency. In the meantime product, image organizational and positioning factors are a key determinant factors for logistics service differentiation. Therefore, it is recommended that concerned stakeholders can use the identified logistics performance factors to measure the level of the logistics sector performance and it can be used also for future research foundation in the Ethiopian logistics sector development.

Key Words

Logistics, performance, efficiency, effectiveness and differentiation.

CHAPTER ONE

INTRODUCTION

This chapter is going to deal with the background of the study covering the very reason why this study was undertaken, the problem statement, the research question, objective of the study and study design will also be addressed.

1.1. Background of the study

Dynamic market and environmental changes greatly affect operating of logistics systems. Logistics systems have to realize their activities and processes in an efficient way (Milan M Andrejić, 2012). In this regard, Ethiopia is currently attracting many multi-national companies to open their manufacturing base in the country and manufacture their goods with an advantage of cheap labour, considerable government incentive packages, developing infrastructure facilities, among others, to the incoming investors. In addition, there are also a remarkable achievement that has been made so far as evidenced by our naked eyes, that the number of foreign companies operating in the country- more of Chinese though, is increasing from time to time and it is also expected to grow fast within the coming five to ten years based on the second government's growth and transformation plan (GTP II). Furthermore, the trends registered, despite the poor performance in export against the sought, there is a trend that shows foreign companies are coming to the country to invest across various possible and potential industrial sectors permitted and prioritized by the government of Ethiopia.

Therefore, using the already constructed/built industry shades, the investors can secure their investment licence from EIC (Ethiopian Investment Commission) and import the machineries, equipment and raw materials required for business in relatively short period of time and then commissioning of the intended production.

As a return, more of the investors coming to invest in the country, they are expected to bring a number of benefits amongst others to mention some; employment opportunity, technology transfer, expertise, foreign currencies, export potential and support the GDP of the country, at large.

Supply chain reliability is the key determinant of logistics performance. It is more important than the speed of delivery. Many shippers are willing to pay a premium for a high degree of certainty on when and how deliverables will take place. Furthermore, improving logistics performance is where developing countries have the most potential to reduce trade costs and strong logistics makes supply chain reliable and predictable (The World Bank , 2016).

Ethiopia moved from its rank where it had been 104th in the World Bank logistics performance indicator report of 2014 to 126th in the 2016 report losing 18 positions just within two years. The ability of countries to deliver goods and services on time and at the lowest possible cost is a key determinant of integration into the world economy today (Jayanta Roy, 2004). “The minimization of the use of resources is a common motivation in logistics for import and export” (Sun, 2014).

Very high trade costs due to poor trade logistics and burdensome official requirements (Preville, 2010) Logistics firms have a strong incentive to provide predictable deliveries in both the developed and the developing world. Supply chain reliability continues to be a major concern among traders and logistics providers. In a global environment, consignees require a high degree of certainty on when and how deliveries will take place. This is much more important than the speed of the delivery. Predictability also carries a premium, which many shippers are willing to pay. In other words, supply chain predictability is a matter not merely of time and cost, but also of shipment quality (The World Bank , 2016).

Efficient clearance procedures at the border are critical to eliminating avoidable delays and to improving supply chain predictability. To achieve this, governments need to facilitate trade, while safeguarding the public against harmful activities ranging from health hazards to crime and terrorism. Realizing these two objectives facilitating trade and safeguarding the public interest is a challenge for policy makers and authorities, especially in countries with a low performance record, where delays and unexpected costs are more common (The World Bank , 2016).

In logistics-friendly countries, manufacturers and traders already outsource much of their basic transport and logistics operations to third-party providers and focus on their core business, while managing more complex supply chains. The more such advanced services are available at a reasonable price-cost ratio, the more shippers will outsource their logistics (The World Bank , 2016).

Logistics performance depends on the availability to traders of reliable supply chains and predictable service delivery. Global supply chains are becoming more complex, and the safety, social, environmental, and other regulations affecting traders and operators are becoming more demanding. Efficient management and information technology (IT) solutions in both the private and public sectors are vital tools of the trade in high-quality logistics. The ability to manage logistics processes in today's global business environment is a crucial factor in national competitiveness (The World Bank , 2016).

Logistics refers to a series of services and activities, such as transportation, warehousing, and brokerage that help to move goods and establish supply chains across and within borders. Logistics performance varies across economies and is influenced by policies (The World Bank , 2016). Furthermore, logistics can be a sector of development in and of itself, where countries with high global or regional connectivity expect to play the role of a logistics and trade hub, such as the Netherlands in Europe and Dubai or Singapore in Asia (The World Bank , 2016).

In this context, the World Bank's Logistics Performance Index (LPI) provides the most comprehensive international comparison tool to measure the trade and transport facilitation friendliness of countries. Understanding and decomposing the components of trade and logistics performance can help countries improve freight transport efficiency and identify where international cooperation could help overcome barriers (Çelebi, 2015).

Finally, this thesis is expected to contribute a logistics service provider level identification and determination of the major factors that are affecting logistics performance in the case of service providers' of Ethiopia.

Therefore, this research thesis was conducted to identify the determinant factors that are affecting the logistics performance of Ethiopia focusing on logistics companies, how their operating performance look like against the role expected from them. In addition, the study suggested future action that has to be taken to improve the performance of the logistics sector.

1.2. Statement of the problem

Modern product and service markets are very dynamic with a great number of participants. In order to stay in the market, companies constantly have to measure and monitor their performances as well as to define appropriate corrective actions. Depending on industries and types of systems, there are a large number of different performances (Milan M Andrejić, 2012).

According to various researches and the world bank reports, Ethiopia's Logistics performance position is not in the satisfactory level, even it is getting worst from 2014 LPI report to 2016 (The World Bank , 2016). Among other factors one is considered to be the quality of logistics service provision. The Ethiopian logistics service providers are characterized by different performance groups starting from the government owned giant ESLE and very small private companies who focuses only on customs clearing or add some minor value added services like transit service.

Today, companies in the world are looking to outsource their logistical activities to logistics service providers to focus more on their core business activities and the logistics service providers are/should be competent enough to deliver an efficient and reliable services. In the presence of inefficient logistics services, companies cannot win in the global market and the country cannot achieve its strategic objectives. (Fekadu, 2013) Also highlighted this fact in his thesis made back in 2013 as; "Ethiopian logistics system is characterized by poor logistics management system and lack of coordination of goods transport, low level of development of logistics infrastructure and inadequate fleets of freight vehicles in number and age, damage and quality deterioration of goods while handling, transporting and in storage." Furthermore, one of the basic and frequently used performances is efficiency. Efficiency is a very important indicator of the analysis of companies' operations.

For countries concerned with a growth in foreign direct investment and better performance in export, effective and efficient logistics performance plays a pivotal role. However, the service, in this regard, shows excessive delay in clearance, delay in transportation, lack of capacity (Technical, financial, IT, human and material) of the service providers, and other critical aspects needed from the service providers are not as such satisfactory, even if all aspects are not attributed only to the service providers.

1.2.1. Ethiopian LPI for the last five evaluation periods (2007-2016)

The next paragraphs has been composed by using the World Bank LPI periodic reports data bases for the purpose of showing the performance gap of the country.

When we compare Ethiopian against Germany, Germany recorded above 4.2 ranking first in the world for that last five evaluation periods while Ethiopia remain below 2.6 and its rank has been somewhere between 126 to 144 out of 160 countries included in the report. This is just to show

how wide the gap is between the two countries nonetheless the two are not comparable with the current economic status.

When Ethiopia is compared based on World Bank 2016 report against sub-Saharan African countries and low income countries on the performance of Logistics Company the Sub-Saharan and the Low income group scored 2.4 while Ethiopia scored 2.56 just a little bit higher from the group.

Ethiopia's overall LPI score starting from 2007 to 2016 was between 2.4 and 2.6 but in 2016 it was declined to 2.4 and this is one of the key challenges that indicate the logistical performance is not in good share. In addition, the rank in the same time range was swinging between 100th to 150th in the world and 2014 was better than that of 2016 rank. This somehow, indicates the challenges the country is facing in order to become competent in the global economy both for boosting exports and reducing the logistics cost of imports.

Regarding the customs performance Ethiopia scored somewhere between 2.00 to 2.60 over that last 10 years and customs is showing progressive improvement since 2012 this can be attributed to the efforts made by the government to transform customs through adopting best regulatory practices, improving the capacity of the human power and acquiring and implementing IT infrastructure, among others. However, there is still too much gap that has to be improved as evidenced by the World Bank report. Concerning the ranking, in LPI index for customs, Ethiopia stood 80th in 2016 from the world where it has been 139th in 2012 and this is one of the finest ranking out of the measurement indexes to the country for that last 10 years.

The other critical evaluation aspect that has been used for the index was infrastructure, in this regards the country score shows 2.12 in 2016 whereas 1.88 in 2007 when the first score was registered. Even if, the trend from 2007 to 2016 shows a progress, the trend from 2012 to 2016 all the way, there was no much improvement it is just a liner kind maintaining its statuesque. The ranking, in the same way, is not in acceptable performance group. It stood 133rd in 2016 and the best for the country has been in 2012 where it was 124. This is also another burning issue and the country still needs to focus on to improve the overall logistics performance.

Facilitation of international shipment is also the key indicator selected by the World Bank to measure the logistics performance of a given country. In this regard, Ethiopia's latest score has been 2.56 and has some improvement since 2012 which was 2.35. The rank also shows the same

improvement from 2012 to 2016 ranked 130th to be 102nd respectively. However, its ranks in 2007 have been 97th and in 2010 it was 89th.

Logistics competency of the country in 2016 score was 2.37 where it has been only 2.00 in 2007. Here, we can see that the trend was, though sluggish, improving until 2014 (from 2.00 to 2.62) and declined in 2016 to be 2.37. And the country's rank was not improved in the same manner as that of the score until 2012 this shows that, other countries have been working better than Ethiopia is doing to improve its competency. Conversely, it has showed an improvement in 2014 being 96th and started a downward spiral growth in 2016 and became 117th in 2016.

For accurate and reliable service delivery, a logistics service and inventory management is expected to be visible enough and this can be achieved by using technology platforms to assist in tracking and tracing of cargos. Devices like GPS, EDI, and Barcode readers are best known for this. In this aspect Ethiopia's score by the LPI was unstable having intermittent scores starting from 1.83 in 2007 to 2.18 in 2016. The trend was 1.83, 2.89, 2.1, 2.67 and 2.18 for 2007, 2010, 2012, 2014 and 2016, respectively. The ranking was also intermittent where it has been 141 in 2007 and showed improvement in 2010 being 67th and fell down to 144th. In 2012 then showed improvement in 2014 being 97th and in 2016 it fell down again making the country's rank 133rd in the world.

The last indicator used by the World Bank was timeliness of shipment if the cargo arrives on time as per scheduled or not. In this regard, the score is getting worst in consecutive evaluation periods except there was improvement in 2012. The score was 3.67, 2.65, 2.54, 3.17 and 2.37 starting from 2007 to 2016. Timeliness rank for Ethiopia was pretty much better when the evaluation started in 2007 where it registered a best record being 37th in the world but thereafter, started to decline by nearly four folds becoming 144th except some improvement in 2012 (78th). The latest rank in 2016 was 149th.

It has been widely recognized that the Ethiopian international trade has been in trouble for so long despite the growth it has been registering. The time consuming and costly customs clearance process, the weak and poorly coordinated logistics and transport services and the underdeveloped warehouse and inspection mechanism among others have been obstructing the performance of the sector (Berihun Mekonnen, 2015).

Major stakeholders of the sector such as the Ethiopian Revenues and Customs Authority (ERCA) and the Ethiopian Shipping and Logistics Services Enterprise (ESLSE) have been exerting efforts to improve their performance. Especially the newly implemented changes at ERCA and the recent introduction of the Multimodal Transport System (MTS) by ESLSE are some of the new developments.

However, many in the sector couldn't witness tangible improvements in the overall operations of the sector. The changes and introductions of the new systems have been surrounded by controversies and underachievement (Berihun Mekonnen, 2015).

Therefore, this research was conducted to identify the determinant factors that are affecting the logistics performance in the case logistics service providers of Ethiopia.

1.3. Research questions

The following research questions were addressed in the study;

- What are the factors that are affecting the effectiveness of the logistics performance?
- What are the factors that are affecting the efficiency of the logistics performance?
- What are the factors affecting the differentiation strategy of the logistics performance?

1.4. Objective of the study

1.4.1. General objective

The main objective of this thesis was to identify the factors that are affecting the logistics performance from the perspective of Ethiopian logistics service providers in the presence of multitude problems manifested that needs an acute attention for improvement of the import and export performance of Ethiopia.

1.4.2. Specific objectives

The specific objectives of this proposal will be;

- To identify factors affecting the *effectiveness* of the logistics performance.
- To identify factors affecting the *efficiency* of the logistics performance.
- To identify factors affecting the *differentiation* of the logistics performance.

1.5. Significance of the study

The study has a great significance for the stakeholders involved in the import and export activities including; freight forwarders, transportation companies, warehouse service providers and generally the logistics service providers and users of the service at large.

The logistics companies can be benefit from the study outcome since the study will help them to understand the gap on their logistics performance efficiency, effectiveness and differentiation and can take corrective actions that can enhance their capacity to compete in the global market with robust services saving costs. It will also help these firms to identify, evaluate and monitor the key areas which can help them to maintain their pace and speed of the logistics performance success.

Relevant government organs who are policy makers can benefit from the outcome since it will assist them in understanding the current performance challenges to address it by policies towards the logistics service sectors and improve them accordingly.

Finally, it also have significance to the academic and research contribution to be referred and as well as it gives relevant data to potential researches.

1.6. Scope of the study

The study focused on logistics service providing companies which are engaged in the freight forwarding business either in import and/or export activities with regard to some dimension of efficiency, effectiveness and differentiation factors that can determine the logistics performance.

1.7. Limitation of the study

The research was limited to the identification of factors affecting logistics performance from the perspective of logistics companies to pin point critical concern areas for those companies. Therefore, due to the limited available resources like that of time and financial, other relevant parties and concept areas are not addressed. As a result, the thesis focused only in identifying the factors that are affecting the performance of logistics compared to the large stakeholders involved in the subject area.

1.8. Definition of terms and concepts

Logistics: -Council of Logistics management (CSCMP, 2018) defined that logistics is ‘part of the supply chain process that plans, implements and controls the efficient, effective forward and

reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements.

Also (Lowe, 2002) defines logistics as: Total concept covering the planning and organizing of the supply and movement of materials/goods, etc. from original source through stages of production, assembly, packing, storage, handling and distribution to final consumer. Distribution is but one element of whole logistics concept and transport a single element only of physical distribution.

Logistics Performance: According to (Chow, 1994) conceptualized that logistics performance is a subset of a larger organizational performance. According to Fugate (Fugate, 2010) the concept by highlighting that logistics performance positively impacts organizational performance. According to (Green Jr, et al., 2008) logistics performance as the “ability to deliver goods and services in the precise quantity and at the precise times as required by the customers”.

Efficiency:-The ratio of resources utilized against the result derived (Mentzer & Konrad, 1991) the internal functioning of logistics and generally is considered best represented through some ratio of the normal level of inputs to the real level of outputs.

The measure of how well the resources expended are utilized (Fugate, 2010). It is important to view the objectives of strategic operational logistics performance in the context of trade and transport facilitation.

Effectiveness: -The reviewed literature provided many scholarly discourses related to logistics effectiveness. Several of these articles incorporated efficiency measures as well (Griffis et al, 2004);

Differentiation: - Comparing results of logistics activities to competitors (Langley and Holcomb, 1992). Superiority when compared to competitors (Fugate, 2010).

Logistical Efficiency

Refers to how effectively a business conducts its operations. Logistics typically concerns the movement of physical objects and vital information. A business with good logistics can keep track of product shipments and move products or information quickly to the correct locations.

1.9. Organization of the study

This thesis has contained five chapters. The first chapter introduced the nature of the research and background information; the second chapter contained literature review parts that assessed relevant

literatures essential to this study. The third chapter incorporated the methodology part of the study. The fourth chapter constituted data presentation and the detail analysis of the research problem using the specified methodology. The last and fifth chapter contained summary, conclusion and recommendation of the study based on the result obtained.

CHAPTER TWO

RELATED LITERATURE REVIEW

The literature review addressed theoretical, empirical and conceptual frameworks related to the concept of; performance, logistics performances, logistics companies' performance efficiency, effectiveness and differentiation for logistics and organizational success.

2.1. Theoretical Literature Review

2.1.1. Concepts of logistics

Logistics is defined by different authors but the most frequently used definition of logistics is the one that has been defined by the Council of Supply Chain Management Professionals (CSCMP) has defined logistics as The process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements. This definition includes inbound, outbound, internal, and external movements (CSCMP, 2018).

The term logistics is defined by different scholars and institutions. According to (Hesket, 1973) defined Logistics as the management of all activities which facilitate movement and the coordination of supply and demand in the creation of time and place utility. According to (Mangan, 2008), Logistics is service in the right place, at the right cost, at the right quality. According to The Council of Logistics Management (1998) Logistics deals mainly with the planning, implementing and controlling the efficient and the effective flow and storage of goods from point of origin to point of consumption for the purpose of confirming the customer requirement.

On the other hand (Matiwos, 2015) Defined Logistics as the supporting management function which ensures a more efficient use of resources and adequate performance of logistical elements during the life cycle of a product, so that effective control of resource consumption is ensured through timely intervention in the system in the product life cycle from planning, design, development, operation, decommissioning to scrapping. Therefore, logistics has the potential to improve business performance through its processes when supported with advanced technological application, as an effect it brings organizational performance improvements. In the meantime, the

remarkable expansion in external trade has brought higher demand for an efficient and effectiveness of logistics services.

Logistics was initially a military activity concerned with getting soldiers and arms to the battlefield in time for fight, but it is seen as an integral part of the modern production process. The term, logistics, was initially developed in the context of military activities in the late 18th and early 19th. Before the 1950s, logistics was under the dormant condition. Production was the main part of the managers concerned and industry logistics was once regarded as ‘necessary evil’ in this period. Lewis’s study (Cited in Chang, 1998) in 1956 on the role of air transportation in physical distribution was the application of “total cost concept” and it pointed out the notions of trade-off between inventory and transportation.

From the 1970s ahead, more and more applications and researches of logistics appeared. Due to the petroleum price rise in 1973, the effects of logistics activities on enterprises grew (G.Santosh Kumar and P.Shirisha, 2014) . Centuries and it launched from the military logistics of World War II. And now, a number of researches were taken and made logistics applications from military activities to business activities. The further tendency of logistics on the early 21st century is logistics alliance.

Logistics becomes more important and complex today it is because of new requirements of the service-oriented economy, disparate business functions, and the impact of various contemporary IT. Best logistics practices can come through integration of those logistics activities in the firms and create interaction within the organization and can avoid setting up conflicting goals between departments (Rui Mansidão and Luís A. G. Coelho, 2014).

2.1.2. The role of logistics

Logistics is a relevant and essential business activity used by all enterprises throughout the world; it helps in determining if products arrive to customers on time, containing the requested quality requirements and at the lowest possible costs. The significance of logistics has evolved from a more passive and cost minimization-oriented activity to a key success factor for a firm’s competitiveness (Nehemiah, 2017).

Logistics management (right performance) tries to have the “right product”, in the “right quantity”, at the “right place”, at the “right time”, with the “right cost”. However, balancing between total logistics cost and customer service level is essential to successful logistics. It is now also recognized that distribution and logistics can be source of competitive advantage to company by helping to achieve either least cost or by offering value in the form of positioning the product or service exactly where, when and how the customer wants it.

2.1.3. Business Environment

Business Environment According to (A.G. Kefalas., 1981) business environments of an enterprise are events which directly or indirectly affect the operations of enterprise and they are uncontrollable. He said the business environment can be grouped into task environment which is well defined and example is customers, suppliers, bankers etc. and the general external business environment which is ill defined and can be conceptualized as PESTEL.

Factors like socio-economic, geographical location, legal regulation, demographic conditions and other factors create business environment (Litavniece L. and Znotiņa D, 2015). (Litavniece L. and Znotiņa D, 2015) Said business environment is objective and subjective. He argued that it is objective because the external business environment is claimed as a set of surrounding circumstances. It is subjective because external business environment forces are independent from the will of individuals. He therefore, defined the business environment as "an arrangement of goal and subjective elements affecting the business circumstance within a predefined day and age, (Litavniece L. and Znotiņa D, 2015).

According to (Oginni B.O. and Adesanya A.S., 2013) business organization does not operate in vacuum but it operates in business environment where there is production and distribution of goods and services. They argued that the business environment is the summation of all outside and interior conditions and influences that influence the presence, development and advancement of business. Business environment can be divided into internal and external. He said internal business environment is the environment where organization has control over and can be dictated by circumstances such as policy, personnel, capital etc. They also, said external business consist of factors which are outside the control of organization such as technology, politics, government legislations etc.

From the above reviewed literature on the definition of business environment, it can be deduced that the definition of business environment does not lend itself to a single universal accepted definition but it could be in the context of task or general business environment, internal or external business environment. This study adopted classification of business environment by (Johnson Gerry, 2005) which classifies business environment into macro-business environment, industry business environment, competitors and market environment.

2.1.4. Macro Business Environmental Factors

These are broad business environment factors that have bigger or less impact on almost all firms, (Johnson Gerry, 2005). According to (Litavniece L. and Znotiņa D, 2015) macro business environment where a firm finds itself it can influence the performance of that firm and the rate of influence depends on what share of the firm's depending on the overall economy. PESTEL framework which consists of political, economic, socio-cultural, technological, environmental and legal is used to analyse the macro environment. For the purpose of this study, because of time constraints on the side of the researcher, selected political, economic, technological and legal factors to examine the effect of external business environment.

2.1.4.1. Political Environmental Factors

Political environment is any national or international political factors that can affect the performance of LSPs' positively or negatively (Wanjiru, 2013). It includes government subventions for national carriers, security controls, boundaries on migration, etc., (Gerry Johnson, *et al.*, 2008). Political imperatives are spot on logistics service providers through duty modified, the lowest pay permitted by law enactment, contamination approaches and different activities went for securing workers, clients, the overall population and nature. Nevertheless, some political actions are planned to give benefits and protect logistics industry. In Ethiopia, political forces such as legislation, increase in taxation, foreign trade agreement, stability of political system and others affect logistics service providers.

2.1.4.2. Economic Environmental Factors

Economic factors include the general economic climate, trade rates, inflation rate, labour unemployment rate, interest rates, the rate of economic development, per capita domestic product and trade deficit or surplus, Gamble, 2014 cited in (Lienīte Litavniece and Daina Znotina, 2016).

Economic factors help logistics service providers to make strategic decision. It is important for service providers to comprehend monetary elements and indicators and to utilize the information to help marketing decision-making and planning process. For instance, if there is a variation in interest rates, then it is likely that the logistics service providers may be involved in considering increases in cost.

2.1.4.3. Technological Environmental Factors

Technological forces refer to the rate of scientific change and fastest growth of technology that have potential wide-ranging effects on society (Gamble, 2014) cited in (Litavniece L. and Znotiņa D, 2015). In Ethiopia, logistics service providers are in short of gaining access to new technologies which limits performance innovation and the logistics companies' competitiveness. Technological factors have rendered some of the logistics service providers not to be competitive and not able to meet the needs of customers. However, the logistics service providers need to recognize the need for technological change, and the need to go with the flow, to have competitive advantage. Decisions to improve change or implement new technological processes must be made in order to meet customer wants and needs. Information Technology has been identified as a major player in innovation and competitiveness of logistics service providers to utilize full potential of IT will be harnessed if labour force is equipped with right skills and having access to high-tech infrastructure. However, in the case of Ethiopia, most of the logistics service providers' technological infrastructure and high speed internet to compete globally.

2.1.4.4. Legal Environmental Factors

Legal environment forces include, labour law, antitrust laws, regulations, occupational health & safety policies and other laws of a country or pertaining to particular business environment that industry within the business environment must with those rules (Litavniece L. and Znotiņa D, 2015). In Ethiopia, the cumbersome procedures and commencing businesses were issues affecting the business industry at large and the logistics sector particularly.

2.1.5. Industrial forces

Industrial factors are general factors which can be found in task environment which surround a business entity. Theory of economics characterizes an industry as a gathering of firms creating the same product or administrations. From strategic management point of view, managers of the

logistics service providing companies must appreciate the porter's five forces in the industry since the five or competitive forces will have impact on profitability their companies, (Johnson Gerry, 2005).

2.1.6. Logistics performance

Logistics performance is a strong determinant of national income and is the result of actions from a wide array of private and public actors. Understanding and decomposing the components of logistics performance is fundamental to improving the efficiency of transport systems and the quality of regulation of trade and transport LP is defined as 'analysis of both effectiveness and efficiency in accomplishing a given task' (Mentzer & Konrad, 1991). Other scholar refers LP as a metric used to quantify the efficiency and or effectiveness of an action (Neely, 2005). This topic continues and LP has been seen as multi-dimensional and is defined as the degree of efficiency, effectiveness and differentiation associated with the accomplishment of activities (Fugate, et al., 2010) Researchers have always find it difficult to define LP because organization's have multiple and frequently conflicting goals. In the context of this study, efficiency is a measure of how economically the firm's resources are utilized (Mentzer & Konrad, 1991) and (Neely, 2005). Several critical areas in LP effectiveness as described by (Langley and Holcomb, 1992, p. 25) are product guarantee, availability and fulfilment time. They also extended the definition of effectiveness by adding differentiation as the ability to create value for the customer through the uniqueness and distinctiveness of logistics services.

At the logistical level, the importance of analysing performance was first shown in the work of (Bowersox, 1996) as cited in (Rui Mansidão and Luís A. G. Coelho, 2014), who reported that measurement of logistics performance consisted of a methodology for analysing resources of the logistic function, and its main objectives were monitoring and control of the logistics operations. After this initial step, analysis of logistics performance has become an important issue in the area of management science research, but despite this attention from researchers, there is little convergence both in terms of methods and in terms of results for its validity.

As (Robba, *et al.* 2008) cited in (Rui Mansidão and Luís A. G. Coelho, 2014) mention, since logistics deal with physical, informational and cash flow management, it is generally recognized as a major determinant of business performance, but practices particularly in terms of performance analysis, are still at the stage of being studied by professionals and academics.

2.1.7. Performance Measurement

Performance measurement is to accurately assess how well the business is performing; you need to develop some quantifiable measures. Ideally, your measures clearly identify those aspects of your business processes that need improvement and those that are working well. You can also use performance measures to evaluate your company's productivity over a set period of time (Harrington, 1995).

According to (Harrington, 1995) Performance measurement is the first step that leads to control and eventually improvement. If you cannot measure something, you can't understand it. If you can't understand it, you cannot control it. If you cannot control it, you cannot improve it.

According to (Rose 1995) describing performance measurement activities says' it is a process that records measures, display results, subsequent actions. Performance measurement activities and processes is the issue that "performance indicators are to a large extent domain specific" (Lai *et al.*, 2004). Hence, there is no unique subset of indicators that can be selected. Therefore, frequently the choice is company specific and orientation of the company is important. Existing literatures on performance measurement in logistics provides a large number of potential useful indicators.

Literatures on the logistic industry are in abundance in the form of survey-based empirical research and reviews of the existing literatures from user perspectives. However, it is still rare. Noted previously, the importance and complexity of logistics performance measurement has led to the development of numerous performance measurement frameworks and models by scholars (Brewer and Spey 2000; Griffins, Golds, Cooper, and Closs, 2004). One such model developed by (Fugate, et al., 2010), logistics performance is supported by several other scholars who agree logistics performance is a multidimensional function of efficiency, effectiveness, and differentiation (Fugate, 2010) and that all can and should be "pursued simultaneously," (Fugate, et al., 2010). Thus, the model provides a useful lens from which to compare the identified body of literature to the industry data in order to assess the fashion setting role of logistics scholars.

Performance measures play an important role in the management of any organization (Griffis, Goldsby, Cooper, and Closs, 2007) and are of particular value to logistics managers. Performance measurement is seen as an avenue for logistics managers to achieve sustainable competitive advantage (Gunasegaram and Kobu, 2007) by providing timely, reliable indications of both performance successes and shortcomings (Griffis, Cooper, Goldsby, and Closs, 2004). Research

in the area of logistics performance measurement supports this vital role of performance measures, and, furthermore, has concluded that success in the performance of logistics activities and capabilities is linked to improved organizational performance (Fugate, et al., 2010).

2.1.8. Role of logistics performance

As mentioned earlier that LP plays a vital role in achieving the organization's goals. The evaluation is based on how well goal is met (Mentzer & Konrad, 1991) and to what extent the overall productivity and performance would reflect LP (Stabler, 1992). Consequently, LP helps the fulfilment of the organization's objectives and strategy (Braz, Scavarda, & Martins, 2011) as well as satisfying the customers (Kayakutlu & Buyukozkan, 2011). It is important to view the objectives of strategic operational LP in the context of trade and transport facilitation.

2.2. Empirical literature review

The logistics performance issue has been given much attention by various authors and organizations like the World Bank which has compiled logistics performance indices to more than 160 countries for about the last 11 years starting from 2007 to date and it has provided total countries LPI score and ranks by using six key performance measurement variables including the efficiency of customs, infrastructure facilities, international shipment, quality of logistics service, tracking and tracing ability and delivery time accuracy (The World Bank , 2016, p. 6).

A study which was conducted by (Chow *et. al* 1994) is a pioneer and worth mentioning in providing a systematic review on the existing literatures of logistics performance. With the aim of defining and measuring logistics performance, (Chow *et. al* 1994) has provided abridged account on various research works conducted on conceptualizing the notion of logistics performance with respect to their respective data collection methods, sources, and the measures of logistics performance.

As quoted in (Chow *et. al* 1994), (Mentzer & Konrad, 1991) reviewed performance measurement practices from an efficiency and effectiveness perspective. It seems that Mentzer and Konrad have treated the issue of logistics performance as both a matter of achieving logistical objectives and ensuring the optimal utilization of resources for the sake of producing goods or creating a service.

(Byrne and Markham (1991) have tried to treat performance indicators for various dimensions of logistics by focusing on quality. A similar work by (Neven Working Group 1989) has provided a comprehensive review of performance indicators in logistics.

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(Byrne and Markham 1991) have tried to treat performance indicators for various dimensions of logistics by focusing on quality. A similar work by (Neven Working Group 1989) has provided a comprehensive review of performance indicators in logistics.

(Gassenheimer *et al*, 1989) conducted an empirical analysis on data obtained by mail survey from executives to define and further measure performance with respect to logistics that resulted in identifying length of promised order cycle times for base-line/in-stock products, manufacturer's performance in meeting promised delivery dates, fill rate on base-line/in-stock items, advance notice on shipping delays, accuracy of manufacturer in forecasting and committing to estimated shipping dates on contract/project orders, manufacturer's adherence to special shipping instructions, accuracy in filling orders as appropriate measures for logistical performance.

The available literatures focus on effectiveness and efficiency as key dimensions of logistics performance. However, they failed to incorporate a differentiated logistical service that could be cited as part of an array of logistical functions and further considered as a major distinguishing factor for an improved organizational performance (Fugate, et al., 2010).

It seems that the conceptualization and measurement of logistics performance is a complex task.

However, some literature in logistics research has provided a conceptual model for "Logistics Performance" aiming to treat major logistics process and functions accompanied with their measurements in a manufacturing and retail business setting (Fugate, et al., 2010).

2.3. The role of the LPI in promoting trade

Political decisions and implemented policies have both direct and indirect effects on the attractiveness of a region or a country in terms of business location decisions and/or foreign direct

investment (FDI). Here, the FDI stock in a country is a good indicator of its attractiveness. (Çelebi, 2015)

Transport system efficiency and industry profitability are closely related. Inventory reduction through high turnover, ability to respond to volatile demand, short lead times and achieving lowest possible transportation costs are essential aspects of a company's competitiveness. For this reason, transportation systems are considered as a production factor and as one of the key determinants of facility location decisions. (Çelebi, 2015)

Transport infrastructure has a significant impact on the productivity and the cost structure of businesses. For example, better port and hinterland connections may reduce the expenditure required for construction of distribution networks or transport of raw materials. Empirical studies show that FDI is attracted to areas with efficient transportation systems. For this reason, an effective and efficient logistics system is the cornerstone of a prosperous economy in attracting foreign investment. (Çelebi, 2015)

Allowing for comparisons across 160 countries, the LPI is used by companies to identify challenges and opportunities related to the receiving country's transport infrastructure, logistics competence, and availability of efficient supply chains. In this context, the LPI is a useful indicator of the host country's trade logistics performance and also a benchmark when choosing locations for various types of operation. This is one of the main reasons why countries tend to focus on their ranking rather than on improvements in actual indicator values of the LPI. (Çelebi, 2015)

Several countries have announced specific targets of LPI score or LPI rank in their strategic development plans. To increase their attractiveness, countries are embarking on major projects in a number of areas to improve their LPI position. However, the proximity of a country's score to others at any given performance level might be more telling than the exact ranking. (Çelebi, 2015)

Countries at similar performance levels may have substantially different ranks, especially in the middle and lower country income ranges. Particularly, ranking and relative changes in ranks from one LPI edition to another need to be treated with caution. The latest LPI report also provides a country listing with the weighted average of LPI scores and ranks across all four editions in 2007-2014. This listing smooths out the inevitable variation from one year to another in survey-based data, and it thus provides a more balanced overall picture. (Çelebi, 2015)

To account for potential sampling error and the LPI's limited domain of validity, LPI scores are calculated with approximate 80 per cent confidence intervals over the standard error of LPI scores across all respondents. These confidence intervals must be examined carefully to determine whether a change in score or a difference between two scores is statistically significant. Countries with small number of respondents, such as Sweden, Norway, Bahrain, New Zealand, and Ethiopia have larger intervals between upper and lower bounds for scores and ranks, since their estimates are less certain. The average confidence interval translates into an average of 20 rank places, using upper and lower rank bounds. (Çelebi, 2015)

Understanding the trends in the logistics performance requires looking behind the LPI scores and rankings to see the interactions between the logistics performance and policy actions, competitive forces, economic and political environment. Over the case study we present here, we propose implementation of a holistic point of view, which constitutes an analysis of coherent and interlocking sets of processes for identifying the hidden bottlenecks that have a critical impact on sector competitiveness, and taking necessary actions to support the industry in bottleneck areas require a comprehensive analysis of policy impacts on all dimensions. (Çelebi, 2015)

2.4. Conceptual framework of the study

(Fugate, et al., 2010) Analysed the relationship between logistics performance and organizational performance, stating that logistics performance is multidimensional and is a function of the resources used in logistics, according to outlined objectives and outcomes against competitors. In this context, the authors theorized that analysis of logistics performance should be based on evaluation of a set of dimensions of the activities carried out by the logistic function, which are namely, efficiency, effectiveness and differentiation, as shown in the following table:

2.4.1. Logistics Performance Dimensions of Fugate

Table 2. 1 Logistics Performance Dimension

Dimension	Authors
Efficiency	Mentzer and Konrad (1991), Griffis <i>et al.</i> (2004), Bobbitt (2004), Seldin and Olhanger (2007).
Effectiveness	Mentzer and Konrad (1991), Griffis <i>et al.</i> (2004), Bobbitt (2004), Seldin and Olhanger (2007).
Differentiation	Langley and Holcomb (1992), Bobbitt (2004), Flint <i>et al.</i> (2005), Lambert <i>et al.</i> (2005)

Source: (Fugate et al., 2010)

According to these authors, efficiency is a dimension related to the use of resources allocated to the logistic function, effectiveness can be defined as the extent to which objectives are achieved and differentiation is understood as the value that can be generated by the elements of customer service in relation to competitors.

In the opinion of (Fugate, 2010), the better the quality of the joint work of human resource logistics, planning and implementation of solutions to customers' requests, the lower the level of redundancies, conflicts and customer complaints, which increases efficiency levels due to responsiveness (less time), allows lower levels of waste and invested capital, and thus increases logistics efficiency and the likelihood of meeting deadlines.

In this context, (Fugate, 2010), in carrying out empirical research to analyse the interrelationships between the different variables of logistic performance and their impact on organizational dimension, outlined the following conceptual model;

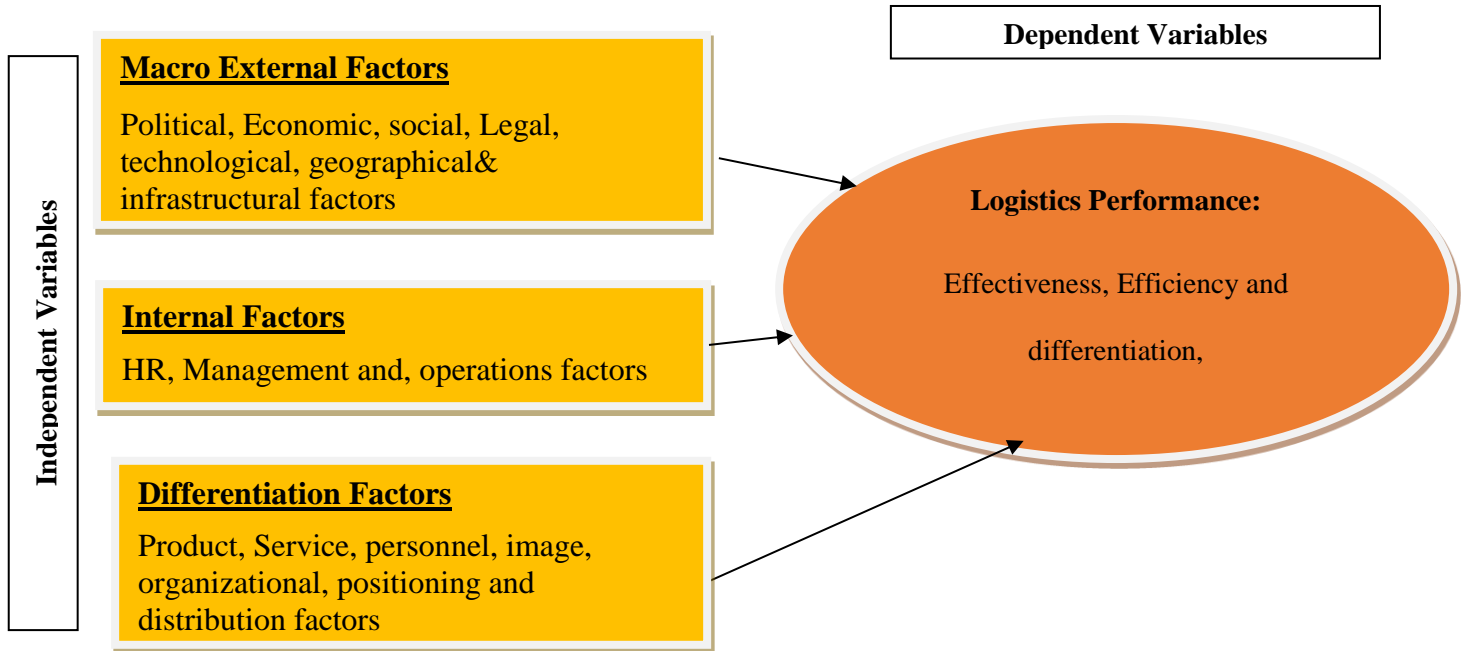


Figure 2.1: Conceptual model adapted and modified from (Fugate, *et al.*, 2010)

Logistics Performance factors	Determinant variables	Result
Efficiency	The ratio of resources utilized against result derived (Mentzer and Konrad, 1991)	Logistics Performance
	The internal functioning of logistics and generally is considered through some ratio of the normal level of inputs to the real level of outputs. (Chamberlain 1968; Van der Meulen and Spijkerman, 1985).	
	The measure of how well the resource expected are utilized (Fugate et. al 2010).	
Effectiveness	To the extent which the logistics goals are accomplished (Mentzer and Konrad, 1991)	
	The ability to achieve pre-defined objectives, for example, in meeting customer requirements in critical (e.g. Product Guarantee, in-stock availability, fulfilment time convince. (Langley and Holcomb, 1992).	
Differentiation	Comparing result of logistics activity to competitors (Langley and Holcomb, 1992).	
	Superiority when compared to competitors. (Fugate et. al 2010).	

Table 2.2 : Conceptual model from (Fugate, et al., 2010)

The conceptual design of the Fugate model consists of two levels of analysis. The central level, which represents the convergence of the model for analysis of the impact of logistics performance on organizational performance, where the authors seek to obtain the final result of the investigation. And at a previous level, it examines variables that form the constructs of logistic performance. This model has been tested and validated with a number of randomly selected large companies. These authors’ conclusions point to confirmation of a significant relationship between organizational performance and logistics performance.

The Fugate model refutes an argument at the centre of controversy over the possible trade-off between the constructs underlying performance dimensions. Some authors have reflected on the relationship between business objectives and the concepts of efficiency and effectiveness. According to these authors, when defining a direction or a goal, business leaders should opt for

one dimension, since it appears that performance progress in one dimension entails a step backwards in another.

Conversely, (Fugate, 2010) find firms that choose to combine efficiency and effectiveness achieve better performance than their competitors who choose only one of these dimensions. This finding clarifies the condition that companies should not consider the dimensions of performance as antagonistic, but instead be able to achieve both simultaneously.

These authors also emphasize the fact that in addition to efficiency and effectiveness, the logistics function must also provide value added service to its customers to differentiate companies in today's market. Thus, the main task is conjugating the three constructs of logistics performance simultaneously and being innovative, since, as mentioned by (Fugate, 2010) excellence in logistics is associated with better organizational performance.

Therefore, the study assessed the logistic performance dimensions in terms of logistic performance effectiveness, Logistic performance efficiency and logistic performance differentiation and found out literature gap that there is no a such highly focused study conducted so far from the perspective of logistics service providers and more specifically in the Ethiopian context. Thus, this study contributed to fill the literature gaps observed.

CHAPTER THREE

METHODOLOGY OF THE STUDY

3.1. Introduction

This Study utilized a descriptive and explanatory research method to identify variables that are mainly considered as problems in the logistics performances. The research covered specific areas as part of its assessment of on factors affecting the logistics performance from the perspective of logistics service providers in Ethiopia, specifically, the freight forwarders who are engaged in the import and export activities in Ethiopia. In conducting the research, it was not possible to collect data from all the population due to time, cost and convenience, therefore sampling was used to collect data from concerned organization under investigation while trying to maintain its representativeness.

The main research objective of this study was to identify the factors which are affecting the logistics performance from the perspective of logistics service providers, specifically, freight forwarders and transit service providers who are engaged/ licensed to provide import and export services to their customers.

3.2. Description of the study area

For any organization it could be manufacturing, agriculture, government/non-government service, whatsoever, needs the service of logistics for movement and storage of goods, finance and information from the point of origin to the points of consumptions in an efficient and effective manner to satisfy the needs of the customer or user in forward and reverse moves as defined by councils of logistics management (CSCMP, 2018). Therefore, the study focused on logistics performance of Ethiopian logistics service providers.

3.3. Research approach

The study was conducted using a mixed approach to get advantages of both qualitative and quantitative approaches which can contribute to the wholeness of the investigation at hand. The

quantitative approach involves the generation of data in quantitative form which can be subjected to rigorous quantitative analysis in a formal and rigid fashion while the qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour. Research in such a situation is function of researcher's insight and impression (Kothari, 2004)

Most researchers argued that the best method to use for a study depends on the purpose of the research, researcher data and the accompanying research questions. According (Kothari, 2004) mixed research method is defined as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language in to a single study.

This study used mixed method design in sequential descriptive way. Because, mixed research is useful to capture the best of both qualitative and quantitative approaches and in these the researcher also intended to assess detail features of logistic performance factors in the logistics service providing companies. The advantage of using mixed methods is that it enables to triangulate and support the data and result collected by questionnaire (Greener, 2008 and Saunders *et.al*, 2007).

3.4. Design of the study

Cross-sectional study type of research was applied to assess the factors affecting Logistic performance. Also, descriptive research design was used to describe independent and dependent variables and it is a scientific method of carrying out a systematic or formal inquiry in which data is collected and analysed in order to describe the current conditions concerning the specific field problems at hand.

The study used probability method for selecting the sample in which each in relation to the study is included. Used simple random sampling method to conduct the probability method. Also, the researchers applied a research strategy which is survey to collect the intended data through structured questionnaire.

Accordingly, the study used close ended questionnaires to meet research objectives. The data was analysed using Statistic Package for Social Sciences (SPSS) through descriptive analysis techniques. The result was also analysed using tables.

3.5. Population and sample

3.5.1. Sample Design

The study adopted five sampling steps of as indicated by (Malhotra et al., 2006); these steps are closely interrelated and relevant to all aspects of the research. Those are identified target population, determine the sampling frame, select sampling techniques, determine the sample size and execute the sampling process.

3.5.2. Target Population

The aggregate population of the study was the total logistics service providers/ freight forwarders and transit service providers operating in Ethiopia and also who are engaged in import and export activities while licensed and registered by EMAA (Ethiopian Maritime Affairs Authority) to conduct the logistics service in the country including customs clearing agents. According to EMAA, then, there are more than 251 service providers who are active and registered to render the logistics service and customs clearing by combination of all activities or just some of the logistical activities.

3.5.3. Sampling frame

The sample frame of the study was operations units of the logistics companies who are responsible for leading and managing the day to day activities of the logistics business in the company's'. Accordingly these target were addressed by structured questionnaire.

3.5.4. Sampling unit

According to (Kothari, 2004) the researcher has to decide one or more of sampling that he has to select for his study. The sampling unit of this study was operation senior staffs of the logistics companies.

3.5.5. Sampling Technique

According to (Saunders *et.al* 2007) regarding to selection of respondents, the researcher used simple random probability sampling. This study uses probability sampling method for operation senior staffs of the logistics companies.

3.5.6. Sample Size

According to (Cochran W.G., 1977) as cited in (Kothari 2004) determining sample size varies for various types of research designs and there are several approaches in practice. A general rule, one can say that the sample must be of an optimum size it should neither be excessively large nor too small.

Finding the appropriate sample size usually matters in determining the right proportion and statistically significance sample size. Often, an optimum size of sample is far better than minimum or average size when it comes to representation. In other words, sample size neither needs to be excessively large nor too small (Kothari 2004). In this specific research (Zikmund and Babin, 2010) model of sampling technique to determine the sample proportion was adhered. According to (Glenn, 1992) assumption this research took in to consideration a margin of error of 5%, and sample size determined at 95% confidence level.

(Lewis and Thornhill 2012) state that the likely response rate shall be reasonable 50% or moderately high, while (Patrick, B. 2003) referring (Babe 1979), the return or success rate 50% is 'adequate'; 60% response rate is 'good' and 70% rate or higher is 'very good'. Having this experience, for this research purpose confidence of successfully collect or return rate expected to be 70% and the remaining may be defected or non-response and sampling size determined at 95% confidence level.

Having this, the sample size was determined with the help of the following formula by (Cochran W.G., 1977) as cited in (Kothari, 2004):

Where: p = sample population

q = 1-p acceptable sample error

n = sample size

z = score level 1.96 from normal distribution table at 95% confidence level

e = standard margin of error 5%

N= total population

Therefore, by using the above parameters the researcher has obtained the sample size of

$$n = \frac{Z^2 * p * q * N}{e^2 (N-1) + Z^2 * p * q}$$

n= 151 respondents

3.5.7. Data source and type

The source of data was both primary and secondary data which was collected by using questionnaire and review of related articles and documents to acquire the data needed. The questionnaire and reviews are focused on the logistics activities affected by various factors.

The items was prepared in English language since the respondents representing the logistics companies are expected to have adequate understanding of the language and are professionals; so there were no difficulty as expected to understand the questions.

3.5.8. Data collection procedure

In research, there are numerous methods, and procedures to be applied such as Historical Method, Experimental Method, Survey Method, Descriptive Method and Case study Method. Out of these methods, the descriptive method was selected which is believed to be the most appropriate to the study under investigation. Therefore, the research used questionnaire for data collection tool.

3.6. Variables of the study

The objective of the study is to identify the determinant factor of logistics performance. Therefore, the study consist of dependent and independent variables. Logistics performance is the major variable of the study. This dependent variable is represented by three specific dependent variables: effectiveness, efficiency and differentiation of logistics performance.

Logistics performance effectiveness is the first dependent variables which is expressed as a function of ten independent variables. These independent variables includes dimensions of macro external environmental factors and internal/industry factors of logistics effectiveness. The macro external factors consists of political, economic, social, technological, legal, geographic and infrastructural factors. The internal factors is composed of human resource, management, and operational factors of logistics performance effectiveness.

On the other hand, logistics performance efficiency is the second dependent variable. This variable is expressed as a function of the same ten independent dimensional variables that were used to measure the first criterion variable.

The third dependent variable of the study is logistics performance differentiation. The third dependent variable is expressed as function of seven dimensions of independent variables. These dimensional predictor variables include; product, service, personnel, image, positioning, organizational and distribution factors of logistics performance differentiation.

3.7. Model specification

To determine the relationship between the three dependent variables and their respective independent dimensional variables, the study has employed the classical linier multiple regression model. The general formula adopted for this study from (Cohen J., Cohen P, *et al*, 2003) was;

$$LSP = Co + \sum \beta_i X_i + \epsilon \dots \dots \dots \text{Equation 1}$$

Where LSP= Logistics performance

Co= the intercept of the equation

β_i = Unstandardized coefficient of the different independent variables

X_i = Different independent variables

E= error terms of the regression model

In terms of the specific variables of the study the regression model equation has been converted in to the following three expressions;

$$\text{LSPE} = C_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{10} X_{10} + \varepsilon \dots \dots \text{Equation 2}$$

Where LSPE= Logistics service performance effectiveness (1st dependent variable)

C_0 = the intercept of the equation

$\beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{10} X_{10}$ = Unstandardized coefficient of the
Independent variable

$X_1, X_2 \dots X_{10}$ = Independent variables of effectiveness

E= standard error of estimate

Similarly,

$$\text{LSPEF} = C_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{10} X_{10} + \varepsilon \dots \dots \text{Equation 3}$$

Where LSPE= Logistics service performance efficiency (2nd dependent variable)

And,

$$\text{LSPD} = C_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_7 X_7 + \varepsilon \dots \dots \text{Equation 4}$$

Where LSPE= Logistics service performance differentiation (3rd dependent variable)

$X_1, X_2 \dots X_{10}$ = Independent variables of differentiation

In terms of standardized coefficients, anyone of the equation would appear as shown below;

$$LSP = \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots\dots\dots \text{Equation 5}$$

Where: $\beta_1, \beta_2, \dots, \beta_n$ are standardized coefficients.

3.8. Data Analysis

This study has analysed data by using both descriptive and inferential statistical procedures. Moreover, a software called SPSS has been employed in the process of analysis.

3.8.1. Descriptive Statistics

The descriptive part of the statistical procedures includes frequency, percentage, table, mean score values, and standard deviation.

Frequencies, table, and percentage are used to describe some important demographic characteristics so as to describe the appropriateness of respondents in relation to this study.

Mean score values have been used to compare the levels of logistics service performance. For this purpose the mean score comparison technique that was adopted by (Zaidotal & Bagheri, 2009, pp. 338-346) has been employed. For a five point Likert scale, according to Zaidotal and Bagheri, mean score values of are classified into three levels of ranges. Table 3 below presents the mean score ranges and their level of description.

Table 3.1

Table 3.1: Mean score ranges & descriptions

Mean score	Level of description
<3.34	Low
3.4-3.79	Moderate
>3.80	High

Source: (Zaidotal & Bagheri, 2009)

3.8.2. Inferential statistics

In this study inferential statistics has been used for different purposes. One of the purposes of survey study is to draw conclusion about the population based on sample information. This study based on 114 sample respondents, draws conclusion on Ethiopian Logistics performance. This conclusion requires to test whether the sample mean is acceptable to represent the population mean. Thus, a one-sample t-test has been conducted to achieve the purpose.

Moreover, inferential statistics has been employed to make some necessary tests to check beforehand whether the data is fit for multiple linear regression analysis.

Finally, this has been conducted regression analysis to determine how well the independent variable have accounted for the variance in their respective variables.

3.9. Reliability and Validity

As the rule of thumb for Cronbach's alpha is that Cronbach's alpha value of .7 or higher. The higher alpha value indicates more reliability and higher consistency of the measurable items under the same latent construct. Hence the reliability measurement of this study was measured and reported using reliability statistics with Cronbach's alpha value as below.

Table 3.2 Reliability statistics

Dimensions	Cronbach's alpha	N of item
Efficiency	.734	64
Effectiveness	.812	64
Differentiation	.765	29

Source own survey

3.10. Ethical consideration

There is much more than the ethics behind the chosen subject to consider during the research process. Considerable focus was put at ensuring that more specific research ethics, especially while

dealing with the construction of the thesis frameworks during the stage of data collection. There was respect for the participants of the survey. Research ethics include the privacy of possible and actual participants. There should be confidential handling of the data provided by participants, additionally there must be an acknowledgement of the effects the research might have on the participants and their provided information. The research paper fulfilled all the research ethics started above in collection and interpretation of primary data.

CHAPTER FOUR

RESULT, DISCUSSION AND INTERPRETATION

This chapter contains the presentation and interpretation of data collected. Primarily the data was collected through questionnaires and from secondary sources and these were discussed mainly using descriptive and inferential statistics. The data collected through questionnaire were summarized and analysed using statistical software called Statistical Package for social science (SPSS). Most of the measurements items were measured in a five point Likert-scale types ranging from 1- strongly disagree to 5- Strongly agree.

The analysis of the study was structured and conducted to answer questions by addressing the objectives of the research. Therefore the main concern of this chapter is to analyse and present the data collected on factors affecting performance of the logistics service providers specifically the freight forwarders operating in Ethiopia.

Table 4.1: Summary of questionnaire distributed and collected

Description	Number of respondents	Respondents in Percentage (%)
Questionnaires distributed	150	100%
Questionnaires returned	123	82%
Questionnaires not returned	27	18%
Questionnaires returned but disregarded	10	6.66%
Questionnaires used for analysis	113	75.33%

Source Own Survey, 2018*

Most of the respondents returned the questionnaire holding 86% and 18% of the respondent failed to return the questionnaire. Out of the total questionnaire (113) collected nine (10) of them were seriously defective to incorporate in the analysis, therefore, they are rejected by the researcher.

4.1. Demographic Characteristics of the respondents

The demographics profile of the respondents include the variables gender, education level, position and work experience. Table 4.2 below displays that distribution of demographics variables.

Table 4.2: Demographic Characteristics of the respondents

Variables		Frequency	Percent
Gender	Female	43	38.1
	Male	70	61.9
	Total	113	100.0
Age	31-35	54	47.8
	36-40	46	40.7
	Above 40	13	11.5
	Total	113	100.0
Education	Level 3-5	28	24.8
	BSC/BA	69	61.1
	MSC/MA	16	14.2
	Total	113	100.0
Job position	Medium Level	14	12.4
	Senior Level	36	31.9
	Management Level	63	55.8
	Total	113	100.0
Work Experience	1-2 Years	5	4.4
	3-5 Years	35	31.0
	> 5 Years	73	64.6
	Total	113	100.0

The table shows that 38.1% of the respondents are female while 61.9% are Male. This shows that the respondents group has fair composition of gender. Age wise consideration shows that all respondents are above 30 years. This shows that all respondents are matured and they may display more responsibility in filling out the questionnaire.

With regard to qualification it is observed that first degree (61.1%) and second degree (14.2%) add up to be 75.3% to account for a large majority of qualified respondents group. This implies that,

majority of the respondents can understand the questionnaire item in a relatively better way. In return this fact would enhance the quality of the data.

Furthermore, the position row of the table exhibits that 31.9% of the respondents are senior level workers while 58.8% are management members. These two groups add up to account for 90.7% of the respondents. This condition implies that this is well acquainted with practice of the Ethiopian logistics service sector activities. This means that that a more reliable data could be obtained from such respondents.

The table also shows that 31% of the respondents have a work experience of 3 to 5 years while 64.6% have a tenure of more than 5 years. This experience is expected to make them develop a significant level of awareness on factors of logistics performance.

The following section deals with the effectiveness of Ethiopia logistics service.

4.2. Ethiopian logistics performance effectiveness

The major objective of this topic is to determine the significant factors that influence the effectiveness of logistics performance by using a quantitative survey data. The purpose of this survey data is to make statistical inference about the significant factors and the performance level of the logistic performance effectiveness. However, such statistical inferences require to test the sample whether it fairly represents the population (Saha s., 1995). Therefore, this study conducted a test to estimate the confidence interval for the population mean. The sample mean is acceptable if it falls within the 95% confidence interval of the mean difference.

4.2.1. Confidence Interval Estimates

Table 4.3 below displays the 95% confidence interval of mean differences for the criterion variable effectiveness and for all its predictors.

Table 4.3: Confidence interval for effectiveness & its factors

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Eth. Logistics effectiveness	24.375	112	.000	1.584	1.46	1.71
Political	70.976	112	.000	4.447	4.32	4.57
Economic	27.648	112	.000	1.425	1.32	1.53
Social	82.212	112	.000	3.508	3.42	3.59
Technology	19.215	112	.000	1.805	1.62	1.99
Legal	22.009	112	.000	1.796	1.63	1.96
Geographic	18.939	112	.000	2.055	1.84	2.27
Infrastructural	20.797	112	.000	1.708	1.55	1.87
Human	20.063	112	.000	1.743	1.57	1.92
Management	21.524	112	.000	1.611	1.46	1.76
Operation	21.614	112	.000	1.686	1.53	1.84

The mean difference for the freight forward logistic effectiveness (1.584) lies between the lower (1.46) and the upper (1.71) limits of the 95% confidence interval of the difference. This means that sample mean for logistics performance effectiveness can represent the population of this criterion variable with a level of significance less than 0.001 as shown in the 2- tailed significance test of the table. This indicates that a conclusion can be drawn about the Ethiopian logistic performance effectiveness based on the sample mean.

On the other hand, the mean difference, in table 4.3, for each of the ten predictor variables fall within the 95% confidence interval of the difference with a level of significance less than 0.001 or at a level of 0.000. This means the sample mean of each of the ten factors or predictor variables can represent its respective population mean. It can then be concluded that an inference can be made on each of the freight forwarding effectiveness predictor variables based on their respective sample mean. Based on the results of the one-sample test presented above in table 4.3, the following section deals with the interpretation of the mean score values of the logistics performance effectiveness and its determinant factors.

4.2.2. Mean Score Values of Effectiveness

Table 4.4 below presents the mean score values for the logistics performance effectiveness and for its factors.

Table 4.4: Mean Score Values of Logistics performance Effectiveness

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Eth. Logistics effectiveness	113	1.58	.691	.065
Political	113	4.45	.666	.063
Economic	113	1.42	.548	.052
Social	113	3.51	.454	.043
Technology	113	1.81	.999	.094
Legal	113	1.80	.868	.082
Geographic	113	2.05	1.153	.108
Infrastructural	113	1.71	.873	.082
Human	113	1.74	.924	.087
Management	113	1.61	.795	.075
Operation	113	1.69	.829	.078

Regarding the logistics performance effectiveness, its mean score value is used to describe its performance level while the mean score values of factor variables is used to describe the level of influence the variables have on the effectiveness variable.

Table 4.4 shows that the Ethiopian logistics performance effectiveness has a mean value of 1.58 with a standard deviation of 0.69. According to (Ziadotal and Bagheri 2009), the mean 1.58 lies within the low level range. The mean score value comparison technique described in chapter three implies that the Ethiopian logistics performance has a low level of effectiveness. This low level effectiveness can be interpreted that the logistics service performance effectiveness is not satisfactory. Further consideration of this fact implies that this low level of logistics performance effectiveness affects not only the success of the service providers but it also has consequences on for other business enterprise in other industries. (Bowersox, 1996) Stated that logistics service is important as a source of competitive advantage and as critical success factor for business enterprises. From this perspective it can be concluded that the low level of the logistics performance effectiveness can pose a negative influence on the success and competitive advantage of other Ethiopian business enterprises in other industries.

Moreover, table 4.4 exhibits mean score values of the predictor variables or factors of logistics effectiveness. It is observed that political factor has a mean score value of 4.45. The mean score value of political factors lies within the high level range. This indicates that political factors have level of influence on the logistics service effectiveness. Nevertheless, this information is not sufficient by itself to characterize the influence of political factors as negative or as positive on logistics performance effectiveness. The social factor variable has a mean score value of 3.51. This value lies within the range of a moderate level. Mean score comparison technique implies that the social factor variable has a moderate level of influence in constituting the effectiveness of logistics service. Of all the factors of effectiveness, the lowest mean score (1.42) is the contribution of the variable economic factor. The mean score of the economic factor variable falls in the low level. This means all other factors, except political and social factors have a low level influence on the effectiveness of freight forwarding logistics service in Ethiopia.

4.2.3. Correlation Analysis for Logistics Effectiveness & its Predictor Variables

Correlation procedures vary depending on data type. This study used an interval data. Therefore, Pearson's Product Moment Coefficient (r) is the appropriate statistical procedure to measure the degree of association between two interval variables. Table 8 below displays the bivariate correlation results for the data collected on the criterion variable on freight forwarding logistics service effectiveness and its predictor variables.

Table 4.5: Pearson's Bivariate Correlation for Logistics Effectiveness

		Eth. Logistics effectiveness	political	economic	social	technology	legal	geographic	infrastructural	human	management	operation
Eth. Logistics effectiveness	Pearson Correlation	1	-.805**	.660**	0.014	.891**	.468**	.578**	.833**	.755**	.905**	.803**
	Sig. (2-tailed)		0	0	0.887	0	0	0	0	0	0	0
political	Pearson Correlation	-.805**	1	-.635**	0.052	-.626**	-.359**	-.423**	-.641**	.465**	-.680**	-.620**
	Sig. (2-tailed)	0		0	0.587	0	0	0	0	0	0	0
economic	Pearson Correlation	.660**	-.635**	1	-0.035	.560**	.334**	.325**	.542**	.482**	.588**	.501**
	Sig. (2-tailed)	0	0		0.711	0	0	0	0	0	0	0
social	Pearson Correlation	0.014	0.052	-0.035	1	-0.056	0.034	-0.061	0.026	-0.061	0.009	-0.088
	Sig. (2-tailed)	0.887	0.587	0.711		0.558	0.723	0.524	0.783	0.52	0.927	0.356
technology	Pearson Correlation	.891**	-.626**	.560**	-0.056	1	.325**	.614**	.764**	.836**	.881**	.751**
	Sig. (2-tailed)	0	0	0	0.558		0	0	0	0	0	0
legal	Pearson Correlation	.468**	-.359**	.334**	0.034	.325**	1	.209*	.322**	.291**	.376**	.355**
	Sig. (2-tailed)	0	0	0	0.723	0		0.026	0.001	0.002	0	0
geographic	Pearson Correlation	.578**	-.423**	.325**	-0.061	.614**	.209*	1	.509**	.456**	.533**	.565**
	Sig. (2-tailed)	0	0	0	0.524	0	0.026		0	0	0	0
infrastructural	Pearson Correlation	.833**	-.641**	.542**	0.026	.764**	.322**	.509**	1	.637**	.786**	.718**

	Sig. (2-tailed)	0	0	0	0.783	0	0.001	0		0	0	0
human	Pearson Correlation	.755**	-.465**	.482**	-0.061	.836**	.291**	.456**	.637**	1	.762**	.598**
	Sig. (2-tailed)	0	0	0	0.52	0	0.002	0	0		0	0
management	Pearson Correlation	.905**	-.680**	.588**	0.009	.881**	.376**	.533**	.786**	.762**	1	.763**
	Sig. (2-tailed)	0	0	0	0.927	0	0	0	0	0		0
operation	Pearson Correlation	.803**	-.620**	.501**	-0.088	.751**	.355**	.565**	.718**	.598**	.763**	1
	Sig. (2-tailed)	0	0	0	0.356	0	0	0	0	0	0	
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Considering the relationship of the criterion variable effectiveness with each of the predictor variables shows that effectiveness is negatively and significantly related with eight of its predictor variables; economic, technological, legal geographic, Infrastructural. Human resource, management, and operation variables at 0.01 level of significance. On the other hand, logistic effectiveness has a weak (0.014) positive and non-significant ($p=0.887$) relationship with the predictor social variable.

Freight forwarding logistics effectiveness is negatively related with political factor with a correlation coefficient $r=-0.805^{**}$ at 0.000 level of significance. This correlation is highly strong with a negative relationship at a high level of significance. This result shows that freight forwarding effectiveness decreases as the influence of political factors increases. The correlation coefficient $r=0.660^{**}$ between effectiveness and economic factors indicates that this relationship is positive and strong at a level of significance that is less than 0.001. This shows that effectiveness increases as the influence of economic factor increases.

The relationship between social factors and effectiveness is positive with $r=0.014$ at a level of $p=0.887$. This means that there is a weak positive relationship. However the P -value shows that there is no significant relationship between effectiveness and social factors.

The coefficient of correlation between logistics performance effectiveness and technology is $r=0.891^{**}$. This means there is a positive relationship between these variables at a level of 0.01. It can be then concluded that logistics performance effectiveness increases as the influence of technological factor increases.

The coefficient of correlation between logistics performance effectiveness and the predictor variable legal factor ($r=0.468^{**}$) indicates that there is a weak but significant positive relationship between these variables. Thus, it can be concluded that effectiveness increases as the influence of legal factors increases.

Moreover, the predictor variable logistics performance effectiveness has a positive and significant relationship with the predictors geographic factor ($r=0.578^{**}$), infrastructural factor ($r=0.833^{**}$), human resource factor ($r=0.755^{**}$), management ($r=0.905^{**}$), and operation factors (0.803^{**}). This means logistics performance effectiveness increases as the influence of geographic, infrastructural, human resource, management and operation factors increases.

4.2.4. Regression Analysis for Freight Forwarding Logistics Effectiveness

This study employed Classical Linear Multiple Regression Model to determine the significant predictor variables that has influence on the logistics performance effectiveness. Nevertheless, to conduct linear multiple regression analysis it is necessary to figure out beforehand whether the data makes sense for regression analysis. The first part of this topic, therefore, conducts two main diagnostic tests to confirm that the data is fit to a classical linear multiple regression model. Following are results of tests for normality and multicollinearity of data.

4.2.4.1. Normality Test for Effectiveness

Normality test is conducted to check whether the data is normally distributed around the regression line. This study used a numerical that is performed with help of SPSS software. The SPSS printout of the normality test result is presented in table 9 below.

Table 4.6: Normality Test for Effectiveness

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
political	.175	113	.204*	.962	113	.827
Economic	.164	113	.204*	.967	113	.886
Social	.153	113	.204*	.972	113	.837
Technological	.176	113	.204*	.965	113	.891
Legal	.167	113	.204*	.963	113	.799
Geographic	.157	113	.204*	.951	113	.891
infrastructure	.169	113	.204*	.961	113	.804
Human Recourse	.171	113	.204*	.944	113	.792
Management	.181	113	.204*	.963	113	.851
Operational	.188	113	.204*	.971	113	.865

a. Lilliefors Significance Correction

* Lower bound of the true significance

Table 4.6 above presents two well-known tests of normality: Kolmogorov-Smirnov test and Shapiro-Wilk test. This study used the Shapiro-Wilk test to analyse the normality of the data. In this test the null hypothesis proposed was that the logistics performance effectiveness (criterion) is normally distributed for each level of the independent variable. The table shows that the significance level of the Shapiro-Wilk test for each independent variable is greater than 0.05. The hypothesis tested were;

H₀: The distribution of sample and population is not different.

H₁: The distribution of sample and population is not different.

Therefore, the null hypothesis is accepted. It is then concluded that the data is normally distributed for each level of the independent variables.

4.2.4.2. Multicollinearity Test for Effectiveness

In multiple regression analysis predictor variables are supposed to be independent of each other and each predictor expected to be related to the criterion variable only. SPSS printout has been used to analyse the multi collinearity level of the data of the study. The printout is shown in table 4.7 below.

Table 4.7 Multicollinearity Test Results

Model		Coefficients ^a	
		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	political	.407	2.458
	economic	.534	1.872
	social	.947	1.055
	technology	.127	7.849
	legal	.817	1.224
	geographic	.583	1.714
	infrastructural	.320	3.124
	human	.280	3.577
	management	.163	6.150
	operation	.333	3.001

a. Dependent Variable: Eth. Logistics efficiency

Variables with tolerance values near 1 are those variables with relatively low multicollinearity. From table 4.7 it is observed that the variable social factor has the highest tolerance level (0.947) with the lowest variance inflating factor (VIF) (1.055). From all the predictor variables technological factor has the lowest tolerance level (0.127) with the highest inflation factor (7.849). However, all tolerance values are not close to zero. Thus, the data as a whole can be considered as having a tolerable level of multicollinearity to run a regression analysis.

4.2.5. Regression Model Summary for Effectiveness

This section provides information on how much criterion variability is accounted for by the predictor variables as a whole. Table 4.8 below displays the multiple correlation coefficient (R) which is the correlation between the criterion variable logistics performance effectiveness and the average of all predictor variables taken together.

Table 4.8: Regression Model Summary for Effectiveness

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.973 ^a	.946	.941	.168
a. Predictors: (Constant), operation, social, legal, economic, geographic, human, political, infrastructural, management, technology				

In table 4.8 it is observed that the multiple regression coefficient is 0.973 while the squared multiple R and the adjusted squared multiple R are 0.946 and 0.941 respectively. The adjusted R square represents the proportion of variability in the criterion due to the variation of the predictors. Therefore, it is concluded that the 10 predictor variables account for 94.1 percent of the variability of logistics performance effectiveness. This means the remaining 5.9% of the variability in the criterion variable is due to other predictor variables that are not included in this study. The standard error of estimate (0.168) represents the standard deviation of the residuals. Though the multiple correlation between the criterion and the predictor variables is less than perfect, the standard error of estimate is sufficiently small not to affect the significance of the correlation.

4.2.6. Regression Mode Viability

Table 4.9 represents the result of the analysis of variance represented by the regression equation being tested. The analysis of variance is used to detect whether the model is a viable one.

Table 4.9: Analysis of Variance

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.561	10	5.056	178.443	.000 ^b
	Residual	2.890	102	.028		
	Total	53.451	112			
a. Dependent Variable: Eth. Logistics effectiveness						
b. Predictors: (Constant), operation, social, legal, economic, geographic, human, political, infrastructural, management, technology						

In regression analysis the variance comes from two sources; from the regression itself and from variance unaccounted for after the regression analysis. The total sum of squares (53.451) is the sum of squared deviations about the regression line. It is composed of two parts: the regression sum of squares (50.561) and the residual sum of squares (2.890). Degree of freedom is a concept

related to the number of variables and the number of subjects. In this study the freight forwarding logistics performance effectiveness has a total 11 dimensions of variable, one criterion and 10 predictor variables. The regression degree of freedom (10) equals the number of variables minus 1. The residual degree of freedom (102) equals the number of subjects (113) minus the number of variables (11). The mean square terms of regression (5.056) and residual (0.028) represent variances.

The F-ratio (178.443) which is the ratio of the mean square regression to the mean square residual and it is used to determine whether the variance due to regression is enough greater than the variance due to residual to make the model significant or viable. The last column in table 4.9 indicates the probability of the computed F-ratio being that large by chance, whether the p value is less than 0.05, in the analysis of variance, a significant model is declared. In the case of this study, the table shows that the p value is 0.000. This p value is very small that is less than 0.001. Therefore, this model is confirmed to be viable or significant.

4.2.7. Regression Coefficients for Effectiveness

This section presents the analysis of each predictor variable individually by employing SPSS printout that provides the regression coefficient (β s) as well as their significance tests.

Table 4.10: Regression Coefficients

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	1.331	.249		5.351	.000
	political	-.279	.037	-.269	-7.462	.000
	economic	.050	.040	.039	1.248	.215
	social	.074	.036	.049	2.051	.043
	technology	.171	.045	.247	3.822	.000
	legal	.079	.020	.099	3.891	.000
	geographic	.011	.018	.019	.634	.528
	infrastructural	.109	.032	.137	3.373	.001
	human	.058	.033	.078	1.785	.077
	management	.166	.050	.191	3.348	.001
	operation	.082	.033	.099	2.477	.015

a. Dependent Variable: Eth. Logistics effectiveness

In table 4.10 the constant value represents the value of logistics performance effectiveness when all predictors equal zero. The second column in the table displays the respective unstandardized coefficients (B) of the regression equation. Using these coefficients the regression equation for logistics performance effectiveness and its ten predictors is written as follows.

$$LSPE = 1.331 - 0.279X_1 + 0.074X_2 + 0.0171X_3 + 0.079X_4 + 0.109X_5 + 0.166X_6 + 0.082X_7 + \xi$$

Where LSPE: is the predicted score for logistics service performance effectiveness

X_1 , X_2 , X_3 , X_4 , X_5 , X_6 , and X_7 represents raw scores of political, social, technological, legal, infrastructural, management, and operation predictor variables respectively.

The standard error column in the table represents the standard deviation of the respective regression coefficients (β s). The standard error is used in a t-test to determine whether the unstandardized B value is significant. The t-values in the t-column are respective ratios of the unstandardized coefficient (β) to the standard error.

Unstandardized coefficients cannot be used to compare the relative influence of predictor variables on the criterion variable. Therefore, standardized regression coefficients or beta weight (β) are used in regression equations to compare the relative strength of predictors in influencing the criterion variable. In this study the table displays that political factor the most influential predictor variable ($\beta = -0.269$). Technological factors ($\beta = 0.247$) & management factors ($\beta = 0.191$) are respectively the second and the third influential predictor variables. Regarding effectiveness, social factor ($\beta = 0.049$) is the least influential predictor. It is observed that political factor is more than five times more influential than social predictor. In table 13 the t-test values are used to determine whether the predictor is significant. The p values in the last column of the table indicate the probability of obtaining the computed t-value.

For the political factor p is 0.000 which is less than 0.001. This means there is almost a zero percent chance of getting the t-value of -0.7462 for political predictor by chance. Therefore, it is concluded political factor is a significant predictor. For economic factor there is a 21.5% (0.215) chance of getting the t-value of 1.248 by chance. Thus, economic factor is not a significant predictor since p (0.215) is greater than 0.05.

Considering the social factor the table shows that there is a 4.3% (0.043) chance of getting the t-value of 2.051 by chance. Since $4.3\% < 5\%$ it is concluded that social factor is a significant predictor.

The p value of technological factor (0.000) is less than 0.001. There is a probability less than 1% to get the t-value of 3.822 by chance. Therefore, technological factor is a significant predictor of logistics effectiveness since $0.001 < 0.05$.

The t-value of legal factor is 3.891. The probability of getting this t-value by chance is 0.000 < 0.001 . Therefore, legal factor is a significant predictor for freight forwarding logistics service performance effectiveness.

There is a 52.8% (0.528) probability of getting the t-value of 0.634 for geographic factor by chance. Thus, geographic factor is not a significant predictor of effectiveness since $0.528 > 0.05$. The probability of getting the t-value of infrastructural factor (3.373) by chance is 1%. Since the p-value $0.001 < 0.05$, infrastructural factor is a significant predictor of logistics service performance effectiveness.

For human resource factor there is a 7.7% chance of getting the t-value (1.785) by chance. Since $7.7\% > 0.05\%$, human resource factor is not a significant predictor.

The t-value of management factor is 3.348. There is also a probability 1% (0.001) of getting this t-value by chance. Therefore, management factor is a significant predictor since $0.001 < 0.05$.

There is a 1.5% (0.015) probability of getting the t-value of 2.477 for operation factor by chance. Therefore, operation factor is a significant predictor since $0.015 < 0.05$.

The first research question of this study asks about the factors affecting the logistics performance effectiveness. This section of the analysis has provided an answer to this question. Thus, political, social, technological, legal, infrastructural, management and operation factors are significant factors of logistic service effectiveness. Out of these seven significant predictors the political predictor is associated negatively with effectiveness while the rest six predictors have positive relationship with effectiveness. Moreover, it has been confirmed that economic, geographic and human factors are not significant predictors.

An empirical study conducted by (Nge D. et al, 2016)(Neg *et al* 2016) supports some of the significant factors identified by this study. He confirmed that operation factors, ICT factors and

management factors as critical factors that influence the performance of logistics activities. The result of this study indicated that economic, geographic, and human resource factors are not significant factors for logistics service performance effectiveness. In opposition to this result the study recognizes economic, geographic, and human related factors as critical factors that influence logistics performance effectiveness. However, the study of (Neg *et al*, 2016) did not specify that type of logistics service to which the identified factors as critical.

4.3. Ethiopian Freight Forwarding logistics service performance efficiency.

The main objective of this section is to determine significant factors that influence the logistics performance efficiency. However, since the study uses a survey data it is necessary to conduct a one-sample test to check whether the sample mean is appropriate to represent the population mean so as to draw conclusion about some characteristics of the population based on the sample statistics.

4.3.1. Confidence interval estimates for efficiency

A 95% confidence interval test of mean difference for efficiency as criterion variable and its ten predictors is displayed in the table 14 below.

Table 4.11: Confidence interval estimate result for logistics performance efficiency

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Eth. Logistics efficiency	81.214	112	.000	1.452	1.35	1.58
Political	72.313	112	.000	1.673	1.42	1.78
Economic	24.612	112	.000	2.112	1.99	2.23
Social	27.333	112	.000	2.613	2.31	2.84
Technology	417.156	112	.000	1.961	1.74	2.01
Legal	28.231	112	.000	1.521	1.42	1.79
Geographic	29.121	112	.000	1.793	1.60	1.83
Infrastructural	20.201	112	.000	2.654	2.45	2.81
Human Resource	21.225	112	.000	2.121	2.00	2.34
Management	21.345	112	.000	2.442	2.11	2.65
Operation	19.412	112	.000	1.795	1.51	1.92

Table 4.11 shows the mean difference for logistics efficiency (1.452) falls between the lower (1.35) and the upper (1.58) limits of 95% confidence interval of the difference. This means that the sample mean for efficiency represents the population with a level of significance <0.001 . This means conclusion can be drawn on the Ethiopian logistics performance efficiency based on the sample mean for efficiency.

Moreover, the mean difference of the 10 predictor variables fall within their respective 95% confidence interval of the difference at a level of less than 0.001. This indicates that the sample mean of each of the predictor variable can represent their respective population mean. Thus, it is possible to draw conclusion about the predictor variables based on the sample mean.

4.3.2. Mean score values of efficiency

The mean score values of the criterion variable efficiency and its predictors is displayed in table 4.12 below.

Table 4.12: Mean Score Values of Efficiency and its predictors

One-Sample Statistics			
	N	Mean	Std. Deviation
Eth. Logistics efficiency	113	2.769	0.578
Political	113	2.435	0.743
Economic	113	2.792	0.669
Social	113	2.553	1.021
Technology	113	4.352	0.864
Legal	113	1.553	0.732
Geographic	113	2.793	0.821
Infrastructural	113	1.924	0.894
Human Resource	113	3.651	0.901
Management	113	3.725	0.955
Operation	113	4.025	0.895

In table 4.12 above the mean score value of criterion variable is used to describe the level of logistics service efficiency. On the other hand, the mean score values of the predictor variable are used to describe the level of their influence on the criterion variable (Zaidotal and Bagheri, 2009).

It is observed that the mean score value of the logistics service efficiency (2.769) falls within the low level of range. This means that the Ethiopian logistics performance efficiency is not satisfactory.

According to (Coelho and Mansidão, 2014), Logistics performance efficiency measures how resources are used and it has effect on production, distribution and transaction costs. The effect of efficiency on logistics service enterprises has effect on the competitive advantage and success of other enterprises on other industries. (Bowersox and Closs, 1996). From, this point of view it can be concluded that the low level of performance efficiency of the logistics service has a negative influence on the success and competitive advantage of other enterprises in other industries as well.

The mean score values of technology (4.352) and operation (4.025) lie in the high level of range. This means that technological and operational factors have strong influence on the logistics service performance efficiency. Table 15 shows that mean score values of human resource (3.651) and management (3.725) factor fall within the range of the moderate level. This means that, human and management factors have an average level of influence on the logistics performance efficiency.

The mean score value of political (2.435), economic (2.792), social (2.553), legal (1.553), geography (2.793), and infrastructural (1.924) factors all fall within the low level of range. This indicates that these factors have a low level of influence in determining logistics performance efficiency.

4.3.3. Correlation analysis on logistics service performance efficiency

Pearson's product moment correlation has been conducted to describe the degree of association between two variables and its significance. Table 4.13 below displays the bivariate correlation results for the variable efficiency and its factor variables.

Table 4.13: Pearson's bivariate correlation for logistics efficiency

		Eth. Logistics effectiveness	political	economic	social	technology	legal	geographic	infrastructural	human	management	operation
Eth. Logistics effectiveness	Pearson Correlation	1	.081	.074	.092	.765**	.014	.026	.067	.842**	.672**	.875**
	Sig. (2-tailed)		.412	.563	.882	.000	.666	.651	.556	.000	.000	.000
political	Pearson Correlation	.081	1	-.541**	.111	-.721**	-.454**	.664**	.073	.013	.021	.451*
	Sig. (2-tailed)	.412		.000	.791	.000	.000	.000	.623	.941	.831	.003
economic	Pearson Correlation	.074	-.541**	1	-.124	.620**	.358	-.485**	.666*	.553**	.612**	.021
	Sig. (2-tailed)	.563	.000		.781	.000	.547	.000	.000	.000	.000	.793
social	Pearson Correlation	.092	.111	-.124	1	.013	.771**	.012	.479*	.741**	.312	.011
	Sig. (2-tailed)	.882	.791	.781		.663	.000	.641	.013	.000	.761	.819
technology	Pearson Correlation	.765**	-.721**	.620**	.013	1	.061	.612**	.042	.513**	.017	.673**
	Sig. (2-tailed)	.000	.000	.000	.663		.589	.000	.679	.000	.891	.000
legal	Pearson Correlation	.014	-.454**	.358	.771**	.061	1	.301*	.051	.221	.124	.027
	Sig. (2-tailed)	.666	.000	.547	.000	.589		.016	.881	.661	.613	.651
geographic	Pearson Correlation	.026	.664**	-.485**	.012	.612**	.301*	1	.451**	.456**	.008	.029
	Sig. (2-tailed)	.651	.000	.000	.641	.000	.016		.000	.000	.849	.813
infrastructural	Pearson Correlation	.067	.073	.666*	.479*	.042	.051	.451**	1	.514	-.431*	.771**

	Sig. (2-tailed)	.556	.623	.000	.013	.679	.881	.000		.000	.000	.000
human	Pearson Correlation	.842**	.013	.553**	.741**	.513**	.221	.456**	.514	1	.491**	.655**
	Sig. (2-tailed)	.000	.941	.000	.000	.000	.661	.000	.000		.000	.000
management	Pearson Correlation	.672**	.021	.612**	.312	.017	.124	.008	-.431*	.491**	1	.499**
	Sig. (2-tailed)	.000	.831	.000	.761	.891	.613	.849	.000	.000		.000
operation	Pearson Correlation	.875**	.451*	.021	.011	.673**	.027	.029	.771**	.655**	.499**	1
	Sig. (2-tailed)	.000	.003	.793	.819	.000	.651	.813	.000	.000	.000	
**. Correlation is significant at the 0.01 level (2-tailed).												
*. Correlation is significant at the 0.05 level (2-tailed).												

Table 4.13 displays that the variable efficiency has positive and significant correlation with technology ($r = .765^{**}$), human ($r = .842^{**}$), management ($r = .672^{**}$) and operation ($r = .875^{**}$) factors. Logistics performance efficiency has positive but non-significant relationship with the political, economic, social, legal, geographic and infrastructural factor variables. This situation indicates that freight forwarding logistics service performance efficiency increases as the technological, human, management, and operation variables increases.

Table 4.14 also displayed the characteristics of the inter-correlation between factor variables. Accordingly, economic, and political factors with $r = -0.541^{**}$ have significant and negative relationship. Similarly, technology and political factors with $r = -.721^{**}$, legal and political factor with $r = -0.454^{**}$, geographic and economic factors with $r = -0.485^{**}$ have negative and significant relationship. All positive and negative correlations between factor variables are not so strong to reflect a problem of multicollinearity. Section 4.3.6. Provides more information about the possibility of multicollinearity.

4.3.4. Regression analysis on logistics service performance efficiency

The purpose of this section is to identify the significant factor that affect the logistics performance efficiency by using the classical linear multiple regression model equation. However, such regression analysis requires to conduct certain diagnostic test in order to confirm that the data id fit for regression analysis. Therefore, two main diagnostics, normality and multicollinearity tests are performed as follows.

4.3.5. Normality test of efficiency

Regression data are required to be normally distributed around the regression line. This, the purpose of normality test is to check whether the data is normally distributed along the regression line. There are two methods, graphical and numerical to test normality. This study employed the numerical method. The SPSS printout delivers two well-known normality tests as the same time- Kolmogorov- Smirnov and Shapiro-Wilk test. This study employed the Shapiro-Wilk test for analysis and interpretation purpose. Table 4.14 below exhibits the result of the test.

Table 4.14: Normality test result for efficiency

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
political	.064	113	.300 [*]	.845	113	.772
Economic	.155	113	.300 [*]	.965	113	.882
Social	.172	113	.300 [*]	.963	113	.861
Technological	.129	113	.300 [*]	.967	113	.521
Legal	.139	113	.300 [*]	.954	113	.554
Geographic	.147	113	.300 [*]	.951	113	.655
infrastructure	.152	113	.300 [*]	.984	113	.763
Human Recourse	.167	113	.300 [*]	.962	113	.821
Management	.181	113	.300 [*]	.974	113	.963
Operational	.179	113	.300 [*]	.982	113	.951

b. Lilliefors Significance Correction

* Lower bound of the true significance

Table 4.14 shows that the significance level of the Shapiro-Wilk test for each independent variable is greater than 0.05. The hypothesis tested was,

H₀: Population distribution is the same with sample distribution.

H₁: Population distribution is the same with sample distribution.

It is then null hypothesis is accepted in a way that each of the data is normally distributed for each level of the independent variable.

4.3.6. Multicollinearity Test for Efficiency

For classical multiple regression model predictor variables are expected to be independent of each other. Furthermore, each predictor is expected to be related to the criterion variable only. The SPSS printout of the multicollinearity test result is displayed in table 18 below.

Table 4.15: Multicollinearity test for efficiency

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	political	.244	5.241
	economic	.456	3.001
	social	.321	7.501
	technology	.945	1.102
	legal	.235	6.324
	geographic	.107	8.321
	infrastructural	.632	1.631
	human	.962	1.001
	management	.875	1.021
	operation	.701	1.032

a. Dependent Variable: Eth. Logistics efficiency

Those variables with tolerance value near 1 relatively have relatively low level of multicollinearity. The variable human resource has the highest tolerance level with the lowest variance inflating factor (VIF). Geographic factor has the lowest tolerance factor with the greatest variable influence factor. Table 4.15 shows that as the tolerance level increases, the variable influence factor decreases. The tolerance level of all predictor variables are not close to zero. Therefore, it is concluded that the data has a tolerable level of multicollinearity and thus it is possible to run regression analysis.

4.3.7. Regression Model Summary for Efficiency

This topic deals with the amount of criterion variability accounted for by the predictor variable of efficiency as a whole. The multiple regression correlation coefficient (R) in the model summary describes the amount of variance in the criterion due to the variation of predictors. Table 4.16 below displays the regression model summary for the logistics performance efficiency.

Table 4.16: Regression Model Summary for Efficiency

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.749 ^a	.561	.556	.109
a. Predictors: (Constant), operation, social, legal, economic, geographic, human, political, infrastructural, management, technology				

In the table 4.16 above the multiple regression coefficient is 0.749. The squared multiple R is 0.561 while the adjusted square multiple is 0.556. The adjusted R^2 represents the proportion of variability in the criterion due to due the variation of the predictors. It is then concluded that the 10 predictor variables accounts for 55.6% of the variability of the logistics performance efficiency. This indicates that the remaining 44.4% of the variability in the criterion variable is due to other predictors that are not covered in this study.

The standard error of estimate (0.109) represents the standard deviation of the residuals. This standard error of estimate is sufficiently small and it does not affect the significance of the correlation.

4.3.8. Model Viability for Efficiency

This topic deals with the variance represented by the regression equation being tested. The purpose of this variance analysis is to explore the viability of the model. Table 4.17 below presents the analysis of the variance for the model.

Table 4.17 Analysis of Variance for Efficiency

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.643	10	5.564	83.045	.000 ^b
	Residual	6.845	102	.067		
	Total	62.488	112			
a. Dependent Variable: Eth. Logistics Efficiency						
b. Predictors: (Constant), operation, social, legal, economic, geographic, human, political, infrastructural, management, technology						

The second column in table 4.17 indicates the source of variance. The total variance comes from the regression and the residual. The total sum of square (62.488) is the sum of squared deviation about the regression line. The degree of freedom (df) in the fourth column of table 4.17 represents the degree of freedom for the variables of the study and the number of subjects in the first and the second cells of the column respectively. The mean square terms of regression (5.564) and residual (0.067) represent variances.

The F-ratio (83.045) in the table 4.17 is the statistics that is used to determine whether the variance due to regression is enough greater than the variance due to the residual to make the model significant or viable. The last column of the table describes the probability of the computed F-ratio being that large by chance. A model is declared significant if the value of significance (p-value) is less than 0.05. Since, the p-value of the table is 0.000 is less than 0.05, it is concluded that the model is viable or significant.

4.3.9. Regression coefficient for Efficiency

This topic analysis the regression coefficients of each predictor variables individually. The SPSS printout of regression coefficient and their respective significance and their respective significance test are displayed in table 4.18 below.

Table 4.18: Regression coefficient for Efficiency

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.421	.189	.204	7.507	.000
	political	0.171	.126	.157	1.354	.314
	economic	.062	.036	.056	1.722	.251
	social	.121	.041	.072	2.951	.567
	technology	.184	.019	.225	9.684	.022
	legal	.023	.018	.184	1.278	.785
	geographic	.404	.636	.176	.635	.521
	infrastructural	.187	.087	.060	1.001	.788
	human	.256	.038	.255	6.734	.000
	management	.175	.055	.201	3.182	.000
	operation	.198	.039	.195	5.012	.000

a. Dependent Variable: Eth. Logistics Efficiency

As shown in table 4.18 above, the constant value of 1.421 represents the value of the Ethiopian logistics performance efficiency when all predictor variables equal to zero. The β value unstandardized coefficient of the regression equation. The regression equation for logistics efficiency and 10 predictors is expressed as follows by using the unstandardized coefficients.

$$LSPEF = 1.421 + 0.184X_1 + 0.256X_2 + 0.175X_3 + 0.198X_4$$

Where: X_1 , X_2 , X_3 , and X_4 are raw score of technological, human, management and operation predictor variables, respectively.

The standard error represents the respective standard deviation of the unstandardized coefficients. Unstandardized coefficient cannot be used to compare the relative influence of predictor variables on the criterion. Therefore, standardized coefficient or beta weights are used to compare relative strength of predictors. Accordingly, it is observed that human factor (0.255) is the most influential predictor. Technology (0.225), management (0.201) and operation (0.195) are the second, third and fourth influential predictors respectively.

In the table of regression coefficient, the t-test value together with the significant level or p-value are used to determine whether predictors are significant. The p-values in the table 21 indicates that the probability of obtaining the computed t-value by chance.

For the political predictor there is a 31.4% probability of obtaining the t-value (1.354) by chance. Since 0.314 is greater than 0.05, the political factor is not a significant predictor of logistics performance efficiency.

For the economic factor there is a 25.1% chance of getting the t-value of 1,722 by chance. Since 25.1% is $> 5\%$, economic factor is not a significant predictor logistics performance efficiency.

There is 56.7% probability of getting the t-value of 0.072 for social factor by chance. Therefore, social factor is not a significant predictor of logistics performance efficiency since its p-value $0.567 > 0.05$.

There is 2.2% probability of obtaining the t-value of 0.072 for technological factor by chance. Therefore, social factor is a significant predictor of logistics performance efficiency since its p-value $2.2% > 5\%$.

For legal factor there is 78.5% chance of getting t-value of 1.278 by chance. Therefore, legal factor is not a significant predictor of logistics performance efficiency.

There is 52.1% chance of getting the t-value of geographic factor 0.635 by chance. Thus, geographic factor is not a significant predictor of predictor of logistics performance efficiency.

For infrastructural factor there is a 78.8% chance of getting the t-value of 1.001 by chance. Since 78.8% is $> 5\%$, infrastructural factor is not a significant of logistics performance efficiency.

There is a zero chance of getting the t-value of human resource factor 6.734 by chance. Since 0% is $< 5\%$, human resource is a significant factor for logistics performance efficiency.

For management there is a 0% chance of obtaining the t-value 3.182 by chance. Since $0.000 < 0.05$, management is significant predictor of logistics performance efficiency.

Operations factor has a 0% chance of getting its t-value 5.012 by chance. Since 0% is $< 5\%$ operations factor is a significant predictor of logistics performance efficiency.

The second resource question of this study asks about the factor affecting the Ethiopian logistics performance efficiency. This section of regression coefficient analysis has provided an answer to this research question.

Accordingly, technological, human resource, management and operational variables are significant predictors of the Ethiopian freight forwarding logistics service. These four predictors are significant and positively related with the criterion variable logistics performance efficiency. On the other hand, it has been confirmed that political, economic, social, legal, geographic and infrastructural variables are not significant predictor of logistics performance efficiency.

The result of this study are consistent with the findings of some previous studies. The empirical study by (Krauth E et al, 2004) and (Nge *et al.* 2016) have identified technology, human resource, management and operations are critical factor that influence the efficiency of logistics performance.

4.4. Ethiopian Freight Forwarding Logistics Service performance differentiation

This topic deals with the significant factor that influence the Ethiopian freight forwarding logistics service differentiation. Since this study employed a survey data, it also performs a one-sample test to ensure that statistical inference can be drawn based on the sample statistics. Moreover, this section analysed mean score values to describe the level of the logistics service performance differentiation. The last part of this topic presents correlation and regression analysis regarding the criterion variable differentiation and its predictors.

4.4.1. Confidence interval Estimate for Differentiation

In order to ensure the acceptability of the mean value of the survey data a 95% confidence interval test on mean difference have been conducted for the criterion variable and its predictors. The result of this test is presented in table 4.19 blow.

Table 4.19: Confidence interval estimate for differentiation

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Eth. Logistics differentiation	77.152	112	.000	1.453	1.367	1.479
Product	21.341	112	.000	1.768	1.621	1.893
Service	31.673	112	.000	2.108	1.998	2.223
Personnel	43.821	112	.000	2.324	2.215	2.567
Image	56.814	112	.000	1.925	1.810	2.011
Organizational	82.379	112	.000	1.811	1.695	1.998
positioning	61.635	112	.000	1.762	1.590	1.901
Distribution	21.324	112	.000	2.455	2.303	2.573

The mean difference for logistics performance differentiation (1.453) lies between the lower (1.376) and the upper (1.479) limits of the 95% confidence interval of the difference. This indicates that the sample mean of the survey represents the population mean at a level of 0.000 significance. Therefore, it is possible to draw conclusion about the differentiation of logistics performance based on the sample mean of the survey for differentiation.

On the other hand, the mean differentiation of the seven predictor variables of differentiation lie within their respective 95% confidence interval of the mean difference as a significance level 0.000. This means the sample mean for each of the predictor variables are acceptable to represent their respective population mean. Thus, it is also possible to draw conclusion about the population of the individual predictor variable based on their respective sample mean. The following sub topic refers to the mean score values of differentiation and its predictor variables.

4.4.2. Mean Score value of differentiation

Table 4.20 below exhibits mean score value of differentiation and its predictors.

Table 4.20: Mean Score Value of Differentiation

One-Sample Statistics			
	N	Mean	Std. Deviation
Eth. Logistics differentiation	113	2.898	.748
Product	113	3.205	.897
Service	113	2.696	.543
Personnel	113	3.569	.628
Image	113	3.041	.994
Organizational	113	2.789	.579
positioning	113	2.567	.903
Distribution	113	3.245	.648

In the table 4.20 the mean score value of differentiation is used to describe the level of the logistics performance differentiation. On the other hand, the mean score value of the predictor variables are used to describe the level of their respective influence on the criterion variable logistics performance differentiation.

The mean score value of logistics differentiation (2.898) lies within the low level range. This means that the Ethiopian logistics service performance differentiation is not satisfactory. According to (George K and Irovan M, 2014) logistics performance differentiation affects production and sales of enterprises. From the perspective of enterprises in other industries, the low level logistics performance differentiation indicates that other industries do not have the opportunity for a value added logistics services.

The mean score value of personnel variable (3.569) lies within the moderate level of the mean score categories. This implies that the personnel factor has a medium level of influence on the logistics performance differentiation.

On the other hand, the mean score values of product, service, image, organization, positioning and distribution factors all lie within the low level range of the mean score categories. This means, these predictor variables have low level of influence in the development of logistics performance differentiation.

4.4.3. Correlation Analysis on Logistics performance differentiation

Pearson's product moment correlation has been performed to describe the bivariate correlation for differentiation and its predictor factor variables. Table 4.21 presents the bivariate correlation between differentiation and its factor variables.

Table 4.21: Pearson's correlation for logistics differentiation

		Eth. Logistics differentiation	Product	Service	Personnel	Image	Organizational	Positioning	Distribution
Eth. Logistics differentiation	Pearson Correlation	1	.765**	.347	-.017	.844**	.451*	-.763*	-.549**
	Sig. (2-tailed)		.000	.456	.649	.000	.032	.011	.000
Product	Pearson Correlation	.765**	1	.695*	.083	.672*	.467*	-.563*	-.442*
	Sig. (2-tailed)	.000		.034	.558	.031	.000	.000	.035
Service	Pearson Correlation	.347	.695*	1	.745*	.555**	.391	.413*	-.427**
	Sig. (2-tailed)	.456	.034		.025	.000	.000	.021	.000
Personnel	Pearson Correlation	-.017	.083	.745*	1	.019	.541**	-.455	.329**
	Sig. (2-tailed)	.649	.558	.025		.416	.358	.328	.000
Image	Pearson Correlation	.844**	.672*	.555**	.019	1	.459*	-.424**	.0491
	Sig. (2-tailed)	.000	.031	.000	.416		.000	.001	.562
Organizational	Pearson Correlation	.451*	.467*	.391	.541**	.459*	1	.351*	-.545*
	Sig. (2-tailed)	.032	.000	.000	.358	.000		.022	.022
Positioning	Pearson Correlation	-.763*	-.563*	.413*	-.455	-.424**	.351*	1	-.354*
	Sig. (2-tailed)	.011	.000	.021	.328	.001	.022		.030
Distribution	Pearson Correlation	-.549**	-.442*	-.427**	.329**	.0491	-.545*	-.354*	1
	Sig. (2-tailed)	.000	.035	.000	.000	.562	.022	.030	
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

The differentiation variable, in table 4.21, has positive and significant correlation at a level of 0.05 with product (.765) and image (.844) variables. Differentiation also has significant but weak positive correlation at a level of 0.05 (2-tailed) with organizational (.451) factor. Moreover, logistics performance differentiation is strongly and inversely related (-.763) with positioning at 0.05 (2-tailed) level. In addition to this, differentiation is negatively related with distribution (-.549) at a level of 0.05 (2-tailed) significance.

On the other hand, the variable differentiation is positively but non-significantly related with the service (.347) variable. Differentiation I also negatively but non-significantly related with the personnel (-.017) variables.

Table 4.21 indicated that logistics performance differentiation has positive and significant correlation with product, image, and organizational variables. The positive correlation indicates that the logistics performance differentiation vary in the same direction with each other of these three predictor variables. This means as, the variable product, image and organizational variables increases, the variable differentiation also increases. Similarly, it has been observed that the logistics performance differentiation variable is negatively and significantly related with the variables of positioning and distribution. This means that the logistics performance differentiation variable decreases as the variables of positioning and distribution increases.

Table 4.21 also displayed that there is a particular strong correlation between service and product (.695), between service and personnel (.745), as well as between image and product (.672) variables. This implies that the high correlation .695, .745 and .672 might predict a certain degree of multicollinearity. Section 4.4.6 provides more information about this possibility.

Correlation procedure only analyses the degree of association between two variables and the significance level of the association as well as the existence of systemic co-variance between the variables. Beyond this, correlation procedure does not hand, analyses the relationship of variables as criterion and predictor. This, the next section performs regression analysis.

4.4.4. Regression Analysis on Logistics service performance differentiation

The main purpose of the section is to analyses the proportion variance in the logistics performance differentiation variable accounted for by the variance of predictors, to analyse model viability, and to identify significant predictors of differentiation. To accomplish this purpose a classical linear multiple regression model equation is employed. However, regression analysis requires

some diagnostics tests to be performed beforehand in order to figure out whether the data is fit for regression analysis. Thus, two main diagnostic test, namely normality test and multicollinearity test are conducted as follows.

4.4.5. Normality test of differentiation

The purpose of this test is to confirm whether the data of differentiation is normally distributed around the regression line. There are

There are two methods, graphical and numerical to test normality. This study employed the numerical method. The SPSS printout delivers two well-known normality tests as the same time- Kolmogorov- Smirnov and Shapiro-Wilk test. This study employed the Shapiro-Wilk test for analysis and interpretation of the normality of the data of differentiation. Table 25 below displays the SPSS printout of the diagnostic test result for normality.

Table 4.22: Normality Test on Differentiation

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Product	.152	113	.200 [*]	.796	113	.624
Service	.168	113	.200 [*]	.835	113	.747
Personnel	.149	113	.200 [*]	.896	113	.855
Image	.155	113	.200 [*]	.724	113	.623
Organizational	.145	113	.200 [*]	.962	113	.781
positioning	.181	113	.200 [*]	.963	113	.801
Distribution	.178	113	.200 [*]	.958	113	.853

c. Lilliefors Significance Correction

* Lower bound of the true significance

Table 4.22 displays that the significance level of the Shapiro-Wilk test for each independent variable is greater than 0.05. The hypothesis tested was,

H₀: Population distribution is the same with sample distribution.

H₁: Population distribution is the same with sample distribution.

Thus, the null hypothesis is accepted and the alternative hypothesis is rejected for differentiation is normally distributed to each level of the independent variable.

4.4.6. Multicollinearity test on differentiation

For regression model equation each predictor variable is expected to be independent and related to the criterion variable only. Table 4.23 presents the SPSS printout of the multicollinearity test results.

Table 4.23: Multicollinearity Test on Differentiation

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Product	.121	9.411
	Service	.248	5.310
	Personnel	.457	3.205
	Image	.951	1.070
	Organizational	.632	1.543
	positioning	.782	1.112
	Distribution	.205	7.639

a. Dependent Variable: Eth. Logistics differentiation

Variables with tolerance level that are close to 1 have relatively low multicollinearity level. The variable image has the highest tolerance level (.951) and it has the lowest variable inflation factor (1.07). Product has the lowest tolerance level (.121) and thus it has the highest variable inflation factor (9.411). It is observed that as tolerance level increases, the variance inflating factor (VIF) decreases. Tolerance level for all predictors are not so close to zero. Therefore, the data has a tolerance level of multicollinearity.

4.4.7. Regression Model Summary for Differentiation

This topic analyses the amount of criterion variability that is accounted for by the predictor variables. The multiple regression correction coefficient (R) in the model summary represent the amount of variance in the criterion due to the variation of the predictor variables. Table 4.23 below exhibits the regression model summary logistics performance differentiation.

Table 4.24 Regression Model Summary for Differentiation

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.766 ^a	.587	.560	.572
a. Predictors: (Constant), distribution, organizational, service, product, image, positioning, personnel				

The multiple regression coefficient in table 27 is 0.766. The squared multiple R is 0.587 and the adjustable R² is 0.560. The adjusted R square represents the proportion of variability in the criterion differentiation due to the variation of the 7 predictor variables accounted for 56% the variability in the logistics performance differentiation. This means the remaining 44% of the variability in the criterion is due to other predictor variables that are not included in this study.

4.4.8. Model Variability for Differentiation

This sub section deals with the variance represented by regression equation being tested. Table 4.25 below displays the variance for the model.

Table 4.25: Analysis of variance for differentiation

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.956	7	6.994	21.343	.000 ^b
	Residual	34.407	105	.328		
	Total	83.363	112			
a. Dependent Variable: Eth. Logistics differentiation						
b. Predictors: (Constant), distribution, organizational, service, product, image, positioning, personnel						

The total variance comes from two sources; from regression variance and from residual variance. The total sum of squares (83.363) is the sum of squared deviation about the regression line. The degree of freedom (df) refers to the degree of freedom for the total variables (8-1=7) and the degree of freedom of freedom for the number of subjects (113-8=105) of the study. The mean square terms of the regression (6.994) and the residual (0.328) represents variance in the regression and in the residual respectively.

The F-ratio (21.343) in table 4.25 is the ratio of the regression mean square (6.994) to the residual mean square (0.328) and it is the statistics that is used to determine whether the variance due to regression is enough greater than the variance due to the residual so that the model is significant or viable. The last column in table 28 indicates that probability of computed F-ratio being that large by chance. Since the p-value that represents significance (0.000) level is less than 0.005, the model is confirmed to be significant or viable.

4.4.9. Regression Coefficients for Differentiation

This section details the analysis of unstandardized and standardized coefficient for each predictor variable individually together with their respective significance tests. The SPSS printout in table 4.26 below presents regression coefficients and significance tests for their t-values.

Table 4.26: Regression coefficient for differentiation

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.066	.577		1.847	.068
	product	.503	.083	.499	6.099	.000
	service	.165	.109	.181	1.508	.135
	personnel	-.057	.090	-.074	-.636	.526
	image	.241	.077	.262	3.120	.002
	organizational	.190	.075	.181	2.527	.013
	positioning	-.265	.090	-.281	-2.930	.004
	distribution	-.162	.131	-.078	-1.236	.219

a. Dependent Variable: Eth. Logistics differentiation

The constant value in table 4.26 represents the value of Ethiopian f logistics performance differentiation when all the predictor variables equal zero. The β value in the table are the unstandardized coefficients of the regression equation. The regression equation for the logistics performance differentiation and its 7 predictors can be expressed by using the unstandardized coefficients as follows.

$$\text{LSPD} = 1.066 + 0.503X_1 + 0.241X_2 + 0.190X_3 \text{ predicted score}$$

Where LSPD = logistics performance differentiation and X_1, X_2, X_3 , raw scores of product, image, and organizational predictor variables respectively.

The standard errors in the table represent the respective standard deviations of the unstandardized coefficients. The unstandardized coefficients cannot directly be used to compare the relative influences of the predictor variables on the criterion variable. Therefore, standardized coefficients or beta weight are used to compare relative strengths of predictors. Thus, it is observed that product variable (0.499) is the most influential predictor. Positioning (0.281), image (0.262), and organizational (0.181) are the second, third, and fourth influential predictors respectively.

In table 4.26 the t-values and their probability of being obtained by chance (p-values) are used to determine whether predictors are significant. Accordingly for product predictor there is a 0.0% (0.000) probability of obtaining its t-value (6.099) by chance. The p-value (0.000) is less than 0.05. Therefore, product variable is a significant predictor of logistics performance differentiation.

For the service predictor variable there is a 13.5% (0.135) of probability of getting its t-value (1.508) by chance. Since 13.5% is greater than 5% (0.05), the variable service is not a significant predictor of logistics performance differentiation.

There is a 52.6% (0.526) probability of obtaining the t-value (0.636) of personnel by chance. Since $52.6\% > 5\%$, personnel is not a significant predictor of logistics performance differentiation.

For the variable image, there is a 2% (0.002) probability of getting its t-value (3.120) by chance. Since $2\% < 5\%$, the variable image is a significant predictor of logistics performance differentiation. Similarly for organizational variable there is a 1.3% (0.013) of getting its t-value (2.527) by chance. Since $1.3\% < 5\%$ organizational variable is a significant predictor of logistics performance differentiation.

The probability of obtaining the t-value of positioning (2.930) by chance is 4% (0.004). Since $4\% < 5\%$, the variable positioning is a significant predictor of logistics performance differentiation.

For the distribution there is a 21.9% (0.219) chance of getting its t-value (1.236) by chance. As $21.9\% > 5\%$, distribution is not a significant predictor of logistics performance differentiation.

The 3rd research question of this study intended to identify factors affecting the Ethiopian freight forwarding logistics service differentiation. This section of the regression analysis has provided an

answer to the 3rd research question. Accordingly product, image, organizational and positioning variables are significant predictors of the Ethiopian logistics performance differentiation.

The variable product is positively and significantly related with differentiation. This means an increased variation in product results in an increased variation in logistics performance differentiation. Moreover, organizational variable has a positive and significant relation with logistics performance differentiation. In contrast to this, the predictor variables image and positioning are negatively and significantly related with the logistics performance differentiation. On the other hand, service, personnel and distribution variables are not significant predictors of logistics performance differentiation.

Chapter Five

Summary, Conclusion and Recommendations

5.1. Summary

This study dealt with the problem of the logistics performance. Specifically, the problem of the study is to explore the logistics service performance of the logistics service providers. To accomplish this purpose a set of dimensions of logistics activities that includes effectiveness, efficiency and differentiation are taken as proxies of logistics performance.

The major objective was to determine the factors that have significant impact on the logistics performance. Specific objectives were designed to identify factors that influence logistics performance effectiveness, efficiency and differentiation.

A quantitative survey study was designed to investigate the logistics performance of service providing companies. A population of 251 logistics service providers were companies were identified as operating firms. From these target companies a total population of 151 were approached from functional departments. A sample of 151 including some management members were selected as subjects of the study through random sampling technique.

Quantitative data were collected from subjects through a survey questionnaire. Data were analysed through descriptive and inferential statistics procedures. Appropriate tests have been conducted to make sure that the data collected were adequate for making statistical inference inferences. Moreover, appropriate statistical procedures were applied for the purpose of analysis.

5.2. Respondents characteristics

Respondents were employees including management members from functional departments of logistics service providing firms. Majority of the respondents were degree holders who were composed from senior level and management positions having a work experience of 5 years and more. Respondents are expected to have considerable level of awareness on matters of logistics service performance.

5.3. Major Findings

The base research question is concerned with factors affecting the logistics service performance. Based on statistical tests and procedures of analysis, this section presents major finding on the factors affecting logistics service providers' performance.

5.3.1. Factors affecting logistics performance effectiveness

This section deals with the theme of first research question. A one-sample test performed on the data of logistics service performance effectiveness confirmed that the mean difference for both effectiveness and its 10 factors fall within their respective 95% confidence interval. This implies that the statistics mean can represent the parameter mean. Hence, statistical inference, regarding mean values can be made about the population based on sample information. The mean score value of the logistics performance effectiveness was 1.58. These mean score value falls within the low level range of mean value categories.

Correlational analysis indicated that logistics performance effectiveness has significant and positive relationship with economic, technological, legal, geographic, infrastructural, human, management and operational factors at 0.01 level of confidence. Effectiveness is positively and significantly related with social factors at 0.05 level of confidence. On the other hand, effectiveness has significant relationship with political factor at 0.01 level of confidence.

Before regression analysis, normality and collinearity test has been performed. The Shapiro-Wilk test of normality resulted with significance level of > 0.05 for effectiveness and each of its 10 factors was also made. Multicollinearity test displayed that both effectiveness and its predictors have satisfactory level of tolerance to make the data free from multicollinearity problem.

The first part of the regression analysis deals with the model summary. The model summary displayed that the adjusted R square was .0941 with a level of significance that is less than 0.001. The analysis of variance confirmed that the F-Statistic (178.443) was significant at a level of 0.000. Regression coefficient analysis displayed that the criterion variable is positively and significantly related with social, technological, legal, infrastructural, management, and operational predictor variables. On the other hand effectiveness is negatively and significantly related with the predictor variable political factor. Moreover, the predictor variables economic, geographic and operational factors are positively and non-significantly related with effectiveness.

5.3.2. Factors Affecting logistics performance efficiency

The second research question was concerned with the factors affecting logistics performance efficiency. A one-Sample test conducted on the data of logistics performance efficiency confirmed that the mean difference for efficiency all its factors lie within 95% confidence interval of the mean difference. The mean score value for the logistics performance efficiency was 2.769. This mean score value lies within the low level range of the mean value categories.

Pearson's correlation analysis performed for logistics service efficiency is significantly and positively associated with technological, human, management, and operational factors at 0.01 level of confidence. Conversely, political, economic, social, legal, geographic and infrastructural factors have no significant association with logistics performance efficiency at level of 0.05.

The Shapiro-Wilk normality test for the data of logistics service efficiency exhibits a significance level that is greater than 0.05. Multicollinearity test indicated that the tolerance level of all the variables are close to one.

The model summary of the regression analysis for logistics performance efficiency displayed that the adjusted square multiple regression coefficient was 0.556 with a 0.000 level of significance. Analysis of variance confirmed that F-Statistics of the model, F (83.045) was significant at 0.000 level of confidence. Regression coefficient analysis has shown that technological, human, management, and operational factors have positive and significant impact on logistics performance efficiency.

5.3.3. Factors Affecting logistics performance differentiation

The third research question was concerned with the factors that determines the logistics performance differentiation. The following are major findings on logistics performance differentiation and its predictor variables.

A one-sample test displayed that the mean difference for logistics performance differentiation and its seven factors fall within the 95% confidence interval. This shows that the sample mean represents the population mean for logistics performance differentiation and its factors. The mean score value for the logistics performance differentiation was 2.898, which is value found at the low level range.

Pearson's correlation analysis displayed that logistics performance differentiation has positive and significant association with product, organizational and distribution variables. While it has negative and significant relationship with image and positioning variables.

Regression analysis on the data of logistics performance differentiation exhibited that the adjusted square multiple regression coefficient was 0.560 with a 0.000 level of significance. In the analysis of variance, the F-Statistic F (21.34) was significant at level less than 0.001. In the analysis of regression coefficients, the beta coefficient of product and organizational variables have positive and significant impact on logistics performance differentiation while image and positioning variables have negative and significant impact. The variables personnel, service, and distribution have non-significance impact on differentiation.

Therefore the major findings are;

- Overall logistics performance effectiveness result shows low,
- Logistics performance efficiency rated low based on the study findings and,
- The overall logistics performance differentiation is also rated low as per the study findings,
- Finally, aggregate logistics performance factors for the subject area are rated low.

5.4. Conclusion

Since the statistics mean represents the parametric mean, statistical inferences regarding mean values can be made on the perception of the population of the workers of the logistics service providing companies about the performance of effectiveness on the industry. Thus, the low level mean score value of the Ethiopian logistics performance effectiveness implies that the logistics service performance is not effective. Furthermore, this low level effectiveness has effect on the success of other industries. That is, the ineffective logistics influences negatively the success and competitive advantage of business firms in other industries as well.

Based on the findings of correlation analysis, it is concluded that logistics performance effectiveness has significant relationship with all ten of its factors. This fact implies that there is a covariance between effectiveness and its factors. However, the existence of covariance does not indicate the degree of influence exerted by one variable on the other.

The findings of Shapiro-Wilk normality test implies that logistics service performance effectiveness was distributed normally for each level of predictor variables. Multicollinearity test

confirmed that there was no serious problem of multicollinearity. Based on normality and multicollinearity tests, it was concluded that the data of effectiveness and its predictors was fit to run multiple linear regression analysis.

The model summary in the regression analysis implied that the 94.1% of the variation in the criterion variable effectiveness was due to the variation in the predictor variables. Based on the F-statistics of the analysis of variance, it was concluded that the linear multiple regression model for logistics performance is viable or significant. Regression coefficients implied that political, social, technological, legal, infrastructural, management, and operational predictors are significant factors that determine the Ethiopian logistics service performance effectiveness. Economic, geographic, and operational variables are not significant variables that influence logistics service performance effectiveness.

The second research question is concerned with the factors affecting the logistics performance efficiency. Conclusion drawn with regard to the second research question are stated as follows.

The one-sample confidence interval test indicated that the statistics mean for logistics performance efficiency can represent the parameter mean. Therefore, statistical inference on efficiency of logistics performance can be made based on sample information. The low level mean score value of the logistics performance efficiency implies that the logistics performance is characterized with a low level of efficiency. This low level of efficiency has effect for other business industries. The low level of efficiency of the logistics service has a negative influence on the competitiveness and success of firms in other industries as well.

Correlation analysis confirmed that logistics efficiency shows systematic covariance with technological, human management and operational variables.

The result of normality test confirmed that the variable logistics efficiency is normally distributed about the regression line for each level of the predictor variables. Multicollinearity test implied that the data efficiency and its factors is free from serious multicollinearity problem. Both normality and multicollinearity tests confirmed that the data of logistics efficiency is fit for linear multiple regression analysis.

Based on the model summary of the regression analysis for logistics efficiency it is concluded that 55.6% of the variation in the logistics efficiency is due to the variation of the significant predictor

variables. Analysis of variance for logistics service efficiency implies that the model is significant or viable. Technological, human, management, and operational variables are the factors that determine the logistics performance efficiency.

For the data on logistics differentiation, statistical inference can be made based on the sample information since the statistics mean adequately represents the parameter mean. The low level mean score value of differentiation implies that the performance level of logistics differentiation is not satisfactory.

Based on persons correlation results, is deducted that product, personnel, image, organizational, and positioning variables shows systematic covariance with the variable of differentiation. Based on this conclusion, it is not possible to predict the type of impact one variable has on the other.

The regression model summary for differentiation depicted that 56% of the variation in logistics service differentiation is due to the variation of the predictor variables. The result of analysis of variance indicated that the model is viable or significant. Analysis of regression coefficients confirmed that product, image, organizational and positioning variables are significant factors that determine the Ethiopian logistics differentiation.

Therefore the following general conclusion can be drawn out of the study. They are;

- Overall logistics performance effectiveness result of Ethiopia is at lowest level,
- Logistics performance efficiency of Ethiopian logistics sector is far behind the expected,
- The overall logistics performance differentiation of Ethiopia are left behind from the expected level ,
- Generally, the logistics performance of Ethiopia based on the factors identified in the study are at the lowest level.

5.5. Recommendation

The analysis has made it clear that the Ethiopian logistics performance effectiveness, efficiency and differentiation have been characterized by a low level performance. Factors that determine the effectiveness, efficiency and differentiation of the logistics service have been identified. Ethiopian logistics sector are required to improve its performance level in terms of effectiveness, efficiency and differentiation.

Logistics industry need to improve the performance for two main reasons; one is that logistics service providers can remain in the logistics service industry as far as they have considerable competitive advantage in the market of the logistics service industry. The other reason is they have to recognize that their low level performance has a negative influence on the success of and competitiveness of any other business firms in other industries that operate out of the logistics industry.

In the process of improving performance in logistics performance the current service providers should make special focus on the factors that determine the logistics performance effectiveness, efficiency and differentiation.

As regards with the improvement in the logistics effectiveness, the industry stakeholders need to place special attention on political, social, technological, legal, infrastructural, management, and operational factors.

Similarly, to improve the logistics performance efficiency the service providers have to focus on the determinant factors of efficiency. In this case the determinant factors of logistics performance efficiency are technological, human, management, and operational factors.

In the effort of improving the Ethiopian logistics performance differentiation, the service providers need to make special focus on the factors that determined the performance of differentiation. That is, they need to focus on product, image, organizational, and positioning factors.

To improve external factors such as political, social, and legal factors the logistics service providers association could take the major responsibility for performance improvement. Regarding internal factors that influence logistics service performance, the major burden should be taken by those who are in the managerial position of the industry.

Therefore the following general recommendations are given based on the sturdy result. They are;

- To improve the logistics performance effectiveness concerned party should know and focus on the already identified areas of attention primarily including among other key areas,
- To improve the logistics performance efficiency of the sector among other factors should know its level of performance and focus to improve the identified problem areas,

- The logistics performance differentiation performance level have to get adequate attention in order to stay competitive in the global market while maintaining the effectiveness and efficiency level of the sector ,
- Keeping the identified factor as important area of focus improvement areas, all the stakeholders concerned have to do well in identifying other critical aspect and improve them to achieve aggregate logistics performance return both industry and national level.

Finally, since the exhaustiveness of this study was limited to the extent, future research on finding the remaining determinant factors that significantly affects the logistics performance has to be conducted.

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Annex I –Questionnaires



MASTER OF ART GRADUATE PROGRAM (MA IN LSCM)

Dear respondent

First of all I would like to forward my heartfelt gratitude and respect to you for administering this questionnaire honestly and responsibly. The questionnaire is designed to collect the necessary information to undertake a research on the topic “Factors affecting international logistics performance in Ethiopian freight forwarders” for the partial fulfilment of the requirements of the degree of Masters of Art in Logistics and Supply Chain Management at the Addis Ababa University

Enclosed is a brief questionnaire that asks a variety of open and close ended questions about your experience toward logistics factors in your respected firms. I am asking you to look over the questionnaire and, if you choose to do so, please complete the questionnaire and call me on the phone number provided below, so that I will come and take it on any time that is convenient for you.

Please do not write your name on the questionnaire. Your responses will not be identified with you personally, nor will anyone be able to determine which company you work for. Nothing you say on the questionnaire will in any way influence your company.

I hope you will take a few minutes to complete this questionnaire. Your participation is voluntary and there is no penalty if you do not participate.

If you have any questions or concerns about completing the questionnaire or about participating in this study, you may contact me at 0911154366 or at tamirat.jaleta@gmail.com.

Thank you in advance for your cooperation!

Notice: You are kindly requested to return back the questionnaire to the person assigned quickly with due attention after completion

I. Personal information/profile, Please select your choice

1. Gender a) Male b) Female
2. Age: a) Under 25 b) 25- 30 c) 31 - 35 d) 36 – 40 e) Above 40
3. Educational level a) Less than or Equal to 12th Grade b) Level 3-5 c) BSc/BA d) MSc /MA e) PhD
4. Position in the company a) Junior Level b) Medium Level c) Senior Level d) Management Level
5. Years of total work experience in the industry
a) Less than 1 year b) 1-2 years c) 3-5 years d) >5years
6. What is your level of awareness regarding the factors of international logistics performance?
a) Very Low b) Low c) Medium d) High e) Very High

II. Company Information

1. For how many years has your company operated as freight forwarding industry?
a) <3 years b) 3-6 years c) 7-10 years d) > 10 years
2. Does your company use any performance tracking systems? a) Yes b) No
3. How many employees are working in your company a) Less than 10 b)10-50 c) 51-500 d) >501

III. General Logistics Performance issues

1. Do you measure performance of your logistics activities? a) Yes b) No
2. The overall logistics performance of my company is well above industry average.
a) Strongly Disagree b) Disagree c) Neither d) Agree e) Strongly Agree
3. In general, our logistics performance is excellent
a) Strongly Disagree b) Disagree c) Neither d) Agree e) Strongly Agree
4. We are outstanding at performing our logistics activities
a) Strongly Disagree b) Disagree c) Neither d) Agree e) Strongly Agree
5. Which service does your company provide to its customers? (Chooses more than one if it applies)
a) Warehousing b)Transportation c) Customs clearance d) Shipping & Canvassing e) other,
6. Was your company set to be Efficient or responsive while establishing its strategy?
a) Efficient b)Responsive c) Designed to suit for the situation (Flexible) d) no plan at all

Please rate the following table for general performance perspective of the Ethiopian logistics service providers

No	Description of item	Rate
a)	The Ethiopian logistics performance system is effective	
b)	The Ethiopian logistics performance system is efficient	
c)	The Ethiopian logistics performance system is differentiated	

IV. Please rate the following tables for logistics service providers' *effectiveness* performance dimensions by a five point Likert scale ranging from:

- 1) Strongly disagree 2) Disagree 3) Neutral 4) Agree 5) Strongly Agree

Macro Environment						
Factors affecting Effectiveness of logistics performance						
No	Description of item	Rate				
1. Political Factors		1	2	3	4	5
1.1	Government involvement in the logistics business positively affects the LSPs' <i>effectiveness</i>					
1.2	Stability of political system positively affects LSPs' <i>effectiveness</i>					
1.3	Strong health and safety legislation positively affects the industry <i>effectiveness</i>					
1.4	Government prompt support to the industry positively affects LSPs' <i>effectiveness</i>					
1.5	Taxation regulations affects the LSPs' <i>effectiveness</i>					
2. Economic Factors		1	2	3	4	5
2.1	The general economic climate affects the LSPs' <i>effectiveness</i>					
2.2	Interest rate affects the LSPs' <i>effectiveness</i>					
2.3	Inflation rate affects the LSPs' <i>effectiveness</i>					
2.4	Exchange rate affects the LSPs' <i>effectiveness</i>					
2.5	Cost of living determines the LSPs' <i>effectiveness</i>					
2.6	Globalization positively affects the LSPs' <i>effectiveness</i>					
2.7	Availability of credit and finance passively affects the LSPs'					
3. Social Factors		1	2	3	4	5
3.1	Age distribution of the society affect the LSPs' <i>effectiveness</i>					
3.2	Population growth rate affect the LSPs' <i>effectiveness</i>					
3.3	Employment level determines the LSPs' <i>effectiveness</i>					
3.4	Income level of the society determines the LSPs' <i>effectiveness</i>					
3.5	Education and career trend determines the <i>effectiveness</i>					
4. Technological Factors		1	2	3	4	5
4.1	Innovating and adapting ICT positively affects performance of international logistics to generate more revenues and higher profit margin					

4.2	Investing on ICT equipment like EDI, bar code reader, shipment tracking devices leads to enhance the international logistics service provision <i>effectiveness</i>					
4.3	Networking with supplier, users and carrier companies through IT infrastructure ensues in improvement of logistics <i>effectiveness</i>					
4.4	ICT helps the achievement of perfect order fulfilment and coordination cost reduction <i>effectiveness</i>					
4.5	Emergence of new technologies leads to logistics <i>effectiveness</i>					
4.6	Customs modernization and automation reforms positively affects LSPs <i>effectiveness</i>					
5. Legal Factors		1	2	3	4	5
5.1	Fulfilment of licensing requirements will positively affects logistics <i>effectiveness</i>					
5.2	Employment laws of the country has directly positive effect on the logistics service providers <i>effectiveness</i>					
5.3	Consistency and comprehensiveness of the law governing the industry positively affects the logistics service providers <i>effectiveness</i>					
5.4	Stringent boarder management and transport regulations positively affects LSPs' <i>effectiveness</i>					
5.5	The quality of international transport agreement positively affects LSPs' <i>effectiveness</i>					
5.6	Deregulation of transport sector and allowing foreign LSPs' in the logistics service improves the <i>effectiveness</i> of LSPs'					
6. Geographic Factors		1	2	3	4	5
6.1	Proper location selection and channel cost ensures logistics <i>effectiveness</i>					
6.2	Lead time is determined by location which impacts positively the LSPs' <i>effectiveness</i>					
6.3	Proximity and availability of variety of ports ensures logistics <i>effectiveness</i> positively					
6.4	Presence of the service provider in multi locations and customer segment increases LSP's market share and <i>effectiveness</i>					
6.5	Good geographical r/ship to neighbours & major trade routes impacts the LSPs <i>effectiveness</i>					

6.6	Network complexity/geographic dispersion of firms' trading partners positively affects LSP' <i>effectiveness</i>					
7. Infrastructural Factors		1	2	3	4	5
7.1	Suitable road condition, vehicles regular repair and maintenance can improve number of trips per period positively affects logistics service <i>effectiveness</i>					
7.2	Quality of inland way (Rail and Road) determines logistics <i>effectiveness</i>					
7.3	Quality & availability of port & public infrastructure facilities improves logistics <i>effectiveness</i>					
7.4	Availability of varied optional energy sources determines logistics <i>effectiveness</i>					
7.5	Existence and capacity of telecom service determines logistics <i>effectiveness</i>					
Micro/Internal Factors						
8. Human Resource Factors		1	2	3	4	5
8.1	Human Resource training and development positively affects logistics <i>effectiveness</i>					
8.2	Availability of Expertise in determines LSPs' <i>effectiveness</i>					
8.3	The remuneration pattern of the industry determines the LSPs' <i>effectiveness</i>					
8.4	Labour productivity contributes to the <i>effectiveness</i> of the logistics performance					
9. Management and resource utilization factors		1	2	3	4	5
9.1	Maintaining delivery performance assures increased price trend <i>effectiveness</i>					
9.2	Using young fleets and best fleet management practices leads to increased number of deliveries and ensures logistics <i>effectiveness</i>					
9.3	Internal processing capacity leads to higher number of order <i>effectiveness</i>					
9.4	Growing focus on core competencies positively contribute to LSPs' <i>efficiency</i>					
9.5	Capacity utilizations contributes to logistics <i>effectiveness</i>					
9.6	Increased total loading capacity ensures logistics <i>effectiveness</i>					
9.7	Onetime delivery performance increases logistics <i>effectiveness</i>					
9.8	Developing a well-designed performance indicators positively affects LSP' <i>effectiveness</i>					
10. Operational Factors		1	2	3	4	5

10.1	Increased number of deliveries ensures logistics <i>effectiveness</i>					
10.2	Increased trip per period ensures logistics <i>effectiveness</i>					
10.3	Perfect order fulfilment, minimum waste & responsiveness ensures logistics <i>effectiveness</i>					
10.4	Increased number of orders ensures logistics <i>effectiveness</i>					
10.5	Increased number of customers: Regular, new, number of profitable customers ensures logistics <i>effectiveness</i>					
10.6	Continues improvement at a faster rate ensures logistics <i>effectiveness</i>					
10.7	Rising customer expectations on superior logistical services ensures logistics <i>effectiveness</i>					
10.8	Operational excellence can lead to plan fulfilment <i>effectiveness</i>					
10.9	Process complexity/time and task compression in the logistics process ensures LSPs' <i>effectiveness</i>					

I. Please rate the following tables for logistics service providers' *efficiency* performance dimensions by a five point Likert scale ranging from:

- 1) Strongly disagree 2) Disagree 3) Neutral 4) Agree 5) Strongly Agree

Macro Environmental factors						
Factors affecting <i>Efficiency</i> of logistics performance						
No	Description of item	Rate				
1. Political Factors		1	2	3	4	5
1.1	Government involvement in the logistics business positively affects the LSPs' <i>Efficiency</i>					
1.2	Stability of political system positively affects LSPs' <i>Efficiency</i>					
1.3	Strong health and safety legislation positively affects the industry <i>Efficiency</i>					
1.4	Government prompt support to the industry positively affects LSPs' <i>Efficiency</i>					
1.5	Taxation regulations affects the LSPs' <i>Efficiency</i>					
2. Economic Factors		1	2	3	4	5
2.1	The general economic climate affects the LSPs' <i>Efficiency</i>					
2.2	Interest rate affects the LSPs' <i>Efficiency</i>					

2.3	Inflation rate affects the LSPs' <i>Efficiency</i>					
2.4	Exchange rate affects the LSPs' <i>Efficiency</i>					
2.5	Cost of living determines the LSPs' <i>Efficiency</i>					
2.6	Globalization positively affects the LSPs' <i>Efficiency</i>					
2.7	Availability of credit and finance passively affects the LSPs'					
3. Social Factors		1	2	3	4	5
3.1	Age distribution of the society affect the LSPs' <i>Efficiency</i>					
3.2	Population growth rate affect the LSPs' <i>Efficiency</i>					
3.3	Employment level determines the LSPs' <i>Efficiency</i>					
3.4	Income level of the society determines the LSPs' <i>Efficiency</i>					
3.5	Education and career trend determines the <i>Efficiency</i>					
4. Technological Factors		1	2	3	4	5
4.1	Innovating and adapting ICT positively affects performance of international logistics to generate more revenues and higher profit margin					
4.2	Investing on ICT equipment like EDI, bar code reader, shipment tracking devices leads to enhance the international logistics service provision <i>Efficiency</i>					
4.3	Networking with supplier, users and carrier companies through IT infrastructure ensues in improvement of logistics <i>Efficiency</i>					
4.4	ICT helps the achievement of perfect order fulfilment and coordination cost reduction <i>Efficiency</i>					
4.5	Emergence of new technologies leads to logistics <i>Efficiency</i>					
4.6	Customs modernization and automation reforms positively affects LSPs <i>Efficiency</i>					
5. Legal Factors		1	2	3	4	5
5.1	Fulfilment of licensing requirements will positively affects logistics <i>Efficiency</i>					
5.2	Employment laws of the country has directly positive effect on the logistics service providers <i>Efficiency</i>					

5.3	Consistency and comprehensiveness of the law governing the industry positively affects the logistics service providers <i>Efficiency</i>					
5.4	Stringent boarder management and transport regulations positively affects LSPs' <i>Efficiency</i>					
5.5	The quality of international transport agreement positively affects LSPs' <i>Efficiency</i>					
5.6	Deregulation of transport sector and allowing foreign LSPs' in the logistics service improves the <i>Efficiency</i> of LSPs'					
6. Geographic Factors		1	2	3	4	5
6.1	Proper location selection and channel cost ensures logistics <i>Efficiency</i>					
6.2	Lead time is determined by location which impacts positively the LSPs' <i>Efficiency</i>					
6.3	Proximity and availability of variety of ports ensures logistics <i>effectiveness</i> positively					
6.4	Presence of the service provider in multi locations and customer segment increases LSP's market share and <i>Efficiency</i>					
6.5	Good geographical r/ship to neighbours & major trade routes impacts the LSPs' <i>Efficiency</i>					
6.6	Network complexity/geographic dispersion of firms' trading partners positively affects LSP' <i>Efficiency</i>					
7. Infrastructural Factors		1	2	3	4	5
7.1	Suitable road condition, vehicles regular repair and maintenance can improve number of trips per period positively affects logistics service <i>Efficiency</i>					
7.2	Quality of inland way (Rail and Road) determines logistics <i>Efficiency</i>					
7.3	Quality & availability of port & public infrastructure facilities improves logistics <i>Efficiency</i>					
7.4	Availability of varied optional energy sources determines logistics <i>Efficiency</i>					
7.5	Existence and capacity of telecom service determines logistics <i>Efficiency</i>					
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8. Human Resource Factors		1	2	3	4	5
8.1	Human Resource training and development positively affects logistics <i>Efficiency</i>					
8.2	Availability of Expertise in determines LSPs' <i>Efficiency</i>					
8.3	The remuneration pattern of the industry determines the LSPs' <i>Efficiency</i>					

8.4	Labour productivity contributes to the <i>Efficiency</i> of the logistics performance					
9. Management and resource utilization factors		1	2	3	4	5
9.1	Maintaining delivery performance assures increased price trend <i>Efficiency</i>					
9.2	Using young fleets and best fleet management practices leads to increased number of deliveries and ensures logistics <i>Efficiency</i>					
9.3	Internal processing capacity leads to higher number of order <i>Efficiency</i>					
9.4	Growing focus on core competencies positively contribute to LSPs' <i>Efficiency</i>					
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10.7	Rising customer expectations on superior logistical services ensures logistics <i>Efficiency</i>					
10.8	Operational excellence can lead to plan fulfilment <i>Efficiency</i>					
10.9	Process complexity/time and task compression in the logistics process ensures LSPs' <i>Efficiency</i>					

I. Please rate the following tables for logistics service providers' *Differentiation* performance dimensions by five a point Likert scale ranging from:

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

Logistics Differentiation performance factors

No	Item description	Rate				
		1	2	3	4	5
1. Product differentiation factors		1	2	3	4	5
1.1	We offer superior quality product to our customer than our competitors					
1.2	We always involves our customers in the product development projects					
1.3	We have customer care program which makes us unique					
1.4	Our main products have warranty schemes					
1.5	Our product is convenient to the customer					
1.6	We offer the actual product augmented with value added services					
1.7	Regularly adding a number of product makes us unique					
2. Service differentiation Factors		1	2	3	4	5
2.1	Order receiving easiness					
2.2	We provide training to the customer where appropriate					
2.3	We advance our competitors in collecting and manage customer compliant on time					
2.4	We provide value added services than our competitors					
3. Personnel differentiation Factors		1	2	3	4	5
3.1	We have a very skilled staff expertise					
3.2	Our staffs are highly educated					
3.3	We have a multi-cultural and lingual staffs					
3.4	Our staffs are multi nationals					
4. Image differentiation Factors		1	2	3	4	5
1. Image differentiation factors						
4.2	Our company is well known both domestically and internationally					
4.3	We have good social reputation					
4.4	Our company has the reputation to win the market					
5. Organizational differentiation factors		1	2	3	4	5
5.1	We use merge and accusations as a strategy to differentiator our company					
5.2	We use integration strategy to differentiator our company					
5.3	We use bundling and structured information and knowledge resources in flexible ways to solve complex problems for clients to our win our competitors					

5.4	We are more capable to adapt to changes and provide emergency services whenever needed					
6. Positioning Factors		1	2	3	4	5
6.1	We are capable of providing customers with innovative supply chain solutions.					
6.2	We are capable of providing an extensive range of logistics services, including value added services like bulk-breaking, consolidation and labelling					
6.3	We are capable of accommodating unique requests by implementing pre-planned solutions.					
6.4	We are capable of providing customers with logistics expertise in a range of industries					
7. Distribution Support Factors		1	2	3	4	5
7.1	We are capable of providing customers with widespread or extensive distribution coverage in Ethiopia as compared to our competitors					
7.2	Our transport and distribution network has helped customers achieve cost saving.					
7.3	We are capable of providing customers with global distribution coverage.					