A STUDY ON THE EFFECT OF THE ETHIO-DJIBOUTI STANDARD GAUGE RAILWAY ON THE EXPORT PERFORMANCE OF THE BOLE-LEMI INDUSTRIAL PARK

BY

EYOUEL TIBEBU BELETE

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER'S OF ART IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT

ADVISOR

DR. BERHANU DENU

ADDIS ABABA, ETHIOPIA

JUNE 2021

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

This is to Certify that the thesis prepared by *Eyouel Tibebu Belete*, entitled: "*A Study On The Effect Of The Ethio-Djibouti Standard Gauge Railway On The Export Performance Of The Bole-Lemi Industrial Park*" submitted in partial fulfillment of the requirements for the degree of Master of Arts in *Logistics and Supply Chain Management* complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by Board of Examiners and Advisor

Berhanu Denu (PhD)	_____	_____
Advisor	Signature	Date
Shiferaw Mitiku (PhD)	_____	_____
Internal Examiner	Signature	Date
Nakachew Bashu (PhD)	_____	_____
External Examiner	Signature	Date
_____	_____	_____
Chairman of Graduate Committee	Signature	Date

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE

DECLARATION

I, the undersigned, declare that this thesis entitled "*A Study On The Effect Of The Ethio-Djibouti Standard Gauge Railway On The Export Performance Of The Bole-Lemi Industrial Park*" is my original work and has not been presented for degree requirement in any other university, and all the sources used to support this particular study have been appropriately acknowledged.

Name: Eyouel Tibebu Belete

Signature: _____

Date: _____

This thesis has been submitted for examination by my approval as a university advisor.

Name: Berhanu Denu (PhD)

Signature: _____

Date: _____

Statement of Certification

This is to certify that Eyouel Tibebu Belete has carried out this research work on the topic entitled, "*A Study On The Effect Of The Ethio-Djibouti Standard Gauge Railway On The Export Performance Of The Bole-Lemi Industrial Park*" for the partial fulfillment of Master of Arts in Logistics and Supply Chain Management at Addis Ababa University School of Commerce. This study is an original work and not submitted earlier for any degree either at this University or any other University and is suitable for submission of Master Degree in Logistic and Supply Management.

_____

Advisor: Berhanu Denu (PhD)

ACKNOWLEDGEMENTS

I would first and foremost like to thank my family and work partners for assisting and allowing me the time and space to properly conclude my Master's studies.

I would also like to thank all those who have given input to this study, especially my advisor Dr. Berhanu as well as all organizations and persons who have allowed me to use their input for this study.

Table of Contents

List of Tables

List of Figures

Abbreviations and Acronyms

BLIP	BOLE-LEMI INDUSTRIAL PARK
EDR	ETHIO-DJIBOUTI STANDARD GAUGE RAILWAY
EDRI	ETHIOPIAN DEVELOPMENT RESEARCH INSTITUTE
FDI	FOREIGN DIRECT INVESTMENT
IPDC	INDUSTRIAL PARKS DEVELOPMENT CORPORATION
LSP	LOGISTICS SERVICE PROVIDERS
SEZ	SPECIAL ECONOMIC ZONES
UNCTAD	UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT
UNIDO	UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANOZATION

Abstract

It is widely believed that railways are the path to economic growth and progress. Ever since the invention of the steam locomotive, railways have been engines of industrial growth and might of many European countries. The ability to move large volumes of cargo in relatively short amounts of time made them indispensable tools for growth and development across the world.

Part of a nation's growth is also greatly attributed to industrial development. Industries have historically been a source of wealth and employment for any nation that properly utilizes them. Ethiopia is no different with multiple policies to increase the industrial output of the nation.

But 4 years into service, how has Ethio-Djibouti Railway measured up to the expectations of various industrial actors in Ethiopia?

Chapter One

Introduction

Since the invention of the steam locomotive by George Stephenson and Richard Trevithick in early 19th century Britain, it has been an engine of economic growth and prosperity for most of the then developed world. Rail transport has strengthened many nations and their industrial efforts. It has also allowed for easier access to resources and has allowed industries to been able to access resources without necessarily having to move near them.

The railway (steam locomotive) is sometimes referred to as the single most important invention of the 19th century as it allowed, apart from industrial applications, the standardization of prices across territories, as well as the standardization of time across borders. Furthermore, railways were built as part of European colonial interests in Africa and Asia, which allowed for a greater exploitation of resources and greater administrative control throughout the colonies.

Unlike in most other African countries, the history of the railway in Ethiopia is one of local initiatives taken with foreign support. The project was started in 1894 G.C. with the initiative of Emperor Menelik II under the consultancy of Alfred Ilg, the Emperor's Swiss advisor. (Pankhurst, 1963). This project gave late 19th century Ethiopia economic advantages and helped push it into the 20th century with a chance at industrialization.

1.1. Background of the Study

The Ethio-Djibouti Standard Gauge Railway (EDR) was established in April 2017 with the goal of bettering the logistics and transportation connectivity between the two countries. This project

is expected to been able to drive the economic growth of Ethiopia. This is due to the fact that the import-export of Ethiopia is almost wholly dependent on the port of Djibouti. This can be said because at least 95% of all Import & Export trade of Ethiopia transits through the Port of Djibouti with only limited trade through Port Sudan, Berbera and Mombasa. (United Nations Conference on Trade and Development, UNCTAD, 2019).

To that end, the Ethio-Djibouti Railway (EDR) was built to increase volumes and efficiency of trade by cutting transport times as well as transport costs between the two countries. Furthermore, the rail system was designed to been operated on electricity and hence has also reduce the carbon footprint of the trade.

According to the Industrial Parks Development Corporation (IPDC), Bole Lemi Industrial Park (BLIP) is the oldest industrial park, having started operations in 2014. Furthermore, Bole Lemi industrial park was built for the purpose of being a garment export processing zone, meaning its operations are very dependent on the logistical capabilities between Ethiopia and Djibouti. It is evident, then, that the Ethio-Djibouti Railway (EDR) has been a significant aide in the export performance of Bole Lemi Industrial Park (BLIP). In addition, railways have beenen shown to cause increases in population and industrialization in implemented areas. (Beenrger & Enflo, 2017)

1.2. Statement of the Problem

As has beenen mentioned in the introduction and background of the study parts, the Ethio-Djibouti Standard Gauge Railway (EDR) can be expected to increase the overall export performance of Ethiopia in general and Bole Lemi Industrial Park in particular. Yet no proper study has beenen performed directly linking EDR to the export performance of BLIP and to put a focus on BLIP as

opposed to the general performance of the garment and textile export sector or Industry Parks in general.

Even though these assumptions can be made, the logistics related researched done on Bole Lemi Industrial Park are more related to the Effects of Logistics Management (Merran, 2019) and Contribution, Challenges and Prospects of Industry Parks (Desalegn, 2019). In that regard, there is a noticeable shortage of proper research on how the Ethio-Djibouti Railway (EDR) has impacted the Bole-Lemi Industrial Park in terms of increasing raw material import volumes and efficiency which will eventually lead to increased export volumes and efficiency.

Although there have not beenen many studies linking the Ethio-Djibouti Railway (EDR) to export performance of Bole-Lemi Industrial Park, multiple studies were made on the Ethiopian manufacturing sector. A study showed that an efficient infrastructure lowers business costs and makes it attractive for investors. Efficient infrastructure significantly lowers the transaction cost and improves the competitiveness of the manufacturing sector. (Genet & Admit, 2005) This study further continues to show that Ethiopia is still far behind when it comes to transportation infrastructure, which was a hinderance to the manufacturing sector of the country.

In addition, one of the key factors that has beenen identified as undermining international competitiveness of Ethiopia is poor trade logistics. (UNCTAD, 2019) Furthermore, UNCTAD (2019) also stated that Ethio-Djibouti logistics had high costs because of imbalances and seasonality in traffic flows.

Fekadu M. (2013) noted that the newly developed Ethio-Djibouti Railways (EDR) has been a significant factor in future corridor transportation and the development of railway network throughout the country. The study continued to state that the share of the new railway of the

corridor traffic could easily been up to 75% of foreign trade. This can be used as a serious implication that the Ethio-Djibouti Railway (EDR) has been of significant support to the manufacturing firms located within Bole-Lemi Industrial Park.

Given the implications from previous studies of Ethio-Djibouti logistics on the Ethiopian economy in general and the Bole-Lemi Industrial Park in particular; this study has tried to investigate the actual impact the Ethio-Djibouti Standard Gauge Railway (EDR) has on the export performance of Bole-Lemi Industrial Park. The study has also look into what challenges and opportunities the Ethio-Djibouti Railway has brought forth to the various firms in Bole-Lemi Industrial Park (BLIP) and how best to address and utilize these challenges and opportunities.

1.4. Research Questions

This study directs its efforts to identifying the impact the Ethio-Djibouti Railway (EDR) had and continues to have on the export performance of the various industrial firms located within the Bole-Lemi Industrial Park (BLIP). To that end, this study sets out to answer the following questions:

1. What benefits has the Ethio-Djibouti Railway (EDR) brought forth to the manufacturers in Bole-Lemi Industrial Park (BLIP)?
2. Are there any challenges the manufacturers in Bole-Lemi Industrial Park (BLIP) are facing with the Ethio-Djibouti Railway (EDR)?
3. What opportunities does the Ethio-Djibouti Railway (EDR) have for the betterment of the export performance of the manufacturers in the Bole-Lemi Industrial Park (BLIP)?
4. Has EDR affected BLIP export volumes in a positive manner as compared to export volumes of previous years through the facilitation of shipments and ease of export?

5. Has BLIP kept increasing the utilization of EDR for exports instead of alternatives like trucking?

1.5 Objectives of the Study

1.5.1 General Objective

The general objectives of the study are to examine the precise effects that the Ethio-Djibouti Railway (EDR) has had on the export performance of the Bole-Lemi Industrial Park (BLIP) through the facilitation of export logistics.

1.5.2 Specific Objectives

To expand on the general objectives, this study has the following specific objectives in mind:

1. To assess the benefits that Bole-Lemi Industrial Park (BLIP) has received since the inauguration of the Ethio-Djibouti railway (EDR) in 2017.
2. Comparing the impact that EDR has had on BLIP with the expectations set by the researcher, BLIP manufacturers, as well as other stakeholders with the actual benefit being received by BLIP.
3. Seeking out challenges that BLIP manufacturers are having with EDR and suggesting possible measures to been taken to better deal with those challenges.
4. To open a doorway for future researches to study the impacts of logistics infrastructures such as the Ethio-Djibouti Railway (EDR) on industrial exports from Ethiopia.

1.6 Significance of the Study

Ethiopia is a country that is on a net trade deficit. The most important ways to overcome this deficit is through encouragement of exports and import substitution. The industrial sector, although it is in a developing phase, is one of the best areas of focus to achieve this goal.

In that regard, the various Industrial Parks under the Industrial Parks Development Corporation (IPDC) are of paramount importance. They earn export foreign currency as well as bring in Foreign Direct Investment (FDI). Therefore, the proper functioning of the internal and external supply chains of these Industrial Parks should been given attention in order to increase their attractiveness to foreign investors and to expand the industrial sector in general.

This study, therefore, tries to address the issue of how the industry focused infrastructure development of the Ethio-Djibouti Railway (EDR) has beenen functioning and can been bettered. As such, this study has been significant in bettering the supply chains of Bole-Lemi Industrial (BLIP) Park manufacturers in the short term and improving the Ethiopian balance of trade in the long term.

1.7 Scope of the Study

Out of the seven currently operational Industrial Parks in Ethiopia, the Bole-Lemi Industrial Park (BLIP) has beenen selected since it is the oldest and hence has the most experience. Furthermore, it is the industrial park with a close access to the Ethio-Djibouti Railway (EDR) at Endode, right outside of Addis Ababa. In that regard, BLIP has beenen chosen as the Industrial Park of choice for this study.

Regarding the selection of infrastructure, the Ethio-Djibouti Railway (EDR) was selected due to its scale of operations and that it is most likely to directly impact the export performance of manufacturers in the Bole-Lemi Industrial Park (BLIP).

1.8 Limitations of the Study

This study has been limited within the constraints of one industrial park. Furthermore, this study has only considered the manufacturers in Bole-Lemi Industrial Park (BLIP) with the largest and most frequent export volumes in order to see a clearer image of the impact the Ethio-Djibouti Railway (EDR) has had on export volumes.

In addition, it has been difficult to precisely gauge the long-term effects that the relatively young Ethio-Djibouti Railway (EDR) has have as it has beenen in operation only since 2017. Furthermore, this study has not extensively look into the impact of EDR on other export sectors such as the exports of agro-commodities as well as other industrial products. As such, this study has only been sufficient in understanding the EDR's effect on Industrial Parks and not the economy as a whole. In addition, considering the relatively recent history of EDR data might not been available in necessary amounts.

1.9 Definition of Terms

These following definitions are to be used for the terms with in this study in order to create coherence and better understanding of the document:

Export Performance Export performance of a firm reflects a firm-specific behavior in leveraging its resources and capabilities in an international context at a given point of time. (Spasova, 2014)

Foreign Direct Investment: direct investment reflects the aim of obtaining a lasting interest by a resident entity of one economy (direct investor) in an enterprise that is resident in another economy (the direct investment enterprise). The "lasting interest" implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the latter. (Duce and España, 2003)

Industrial Park: is a cluster of enterprises within one defined physical area that is administered/managed by a single authority. (Falcke, 1999)

Infrastructure: goods provided by the public due to its characteristics. (Welpe et al., 2015)

Logistics: Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory (and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfilment of orders (Gattorna et al., 1991)

Manufacturing: the process of physically transforming goods. Physical transformation involves what might been thought of as traditional manufacturing activities such as molding, cutting, and assembly. (Levinson, 2017)

Railway Efficiency: railway efficiency can be defined as timeliness, reliability and fluidity/flexibility. (Beenck, Beennte and Schilling, 2013)

Standard Gauge Railway: A railway in which a standardized distance of 56.5 inches (143.5 centimeters) are between the rails of the railroad track. (Ausman and Land, 2001)

Supply Chain: A supply chain is a network of partners who collectively convert a basic commodity (upstream) into a finished product (downstream) that is valued by end-customers, and who manage returns at each stage (Harisson, 2008)

1.10. Organization of the Study

The study has been organized into five chapters. The first chapter introduces the background of the study, research questions and the objectives of the project. Chapter two has examined related literatures regarding the impact of rail infrastructure on the growth of industries.

Chapter three has explained the research design and methodology. Chapter four has comprised of the presentation of the findings of data analysis and thorough discussions has been made on the analysis and on the result of the findings.

Chapter five has summarized the findings of the study, and has present the conclusions that have beenen drawn. Recommendations has then been given by the researcher and the researcher has state on which subject matters require further research.

Chapter Two

Review of Related Literature

This chapter deals with the review of related past literature on the history of railways, the relationship of railways and industry, as well as the experiences of other countries. This Chapter has also included the conceptual framework of the study.

2.1 The History and Development of Railways

Modern rail transport commenced with the British development of the steam locomotives in the early 19th century. The railway system in Great Britain is the oldest in the world. Built by George Stephenson and his son Robert Stephenson (Anand & Srinivas, 2018). Furthermore, the locomotive No.1 by Stephenson is the first steam locomotive to carry passenger on the public rail line, the Stockton and Darlington in 1825.

Regarding the development of railways; railways and their roots present a varied picture around the world. In Europe and Asia, they are generally owned and run by the state. In the United States, by contrast, the railroads are largely in private ownership. But this hasn't always beenen the case. Indeed, the construction of railways in Europe in the nineteenth and early twentieth century was mainly carried out by the private sector. It was only later the governments increased their control of the rail sector. Furthermore, with road infrastructure still in an early stage of development, countries soon realized that rail networks were of critical importance to the economy. Governments also came to feel that it was their duty to ensure a functioning railway system operated in the public interest. European countries began to restrict commercialization and limit competition. This step led to loss of traffic and a noticeable deterioration in the financial position

of railways. Private railways were no longer willing to invest in infrastructure and rolling stock. By 1950 nearly all the railways in Europe were state-owned and the vast majority of them still are. (UNECE, 2011)

The development of railways in Africa is closely tied with European interests. To that effect, almost all of the rail systems in Africa have their origins in the early 20th century when European colonial powers built railway lines to support military movements and to transport goods produced in the large mining or farming operations. After the continent achieved independence, railway networks were broken up according to the new national borders, thus in some cases reducing their markets and economies of scale. Public bodies were set up to run railways that soon became inefficient and overstaffed, with dwindling demand due to the competition from road transport and most railways entered a spiral of neglect and decay. (AfDB, 2015)

Having this in mind, the development of railways in Ethiopia are a completely government run affair. This can be seen in the following statement: The idea of constructing a railway to link the Ethiopian capital with the coast appears to have beenen first conceived by Menelik's Swiss adviser, Alfred Ilg, who had first arrived in Ethiopia in 1877. Having on that occasion taken no less than seven months to make the 700-kilometer journey from the coast to the then capital of Ankober he was fully aware of the inconvenience of mule transport, the high costs of which greatly hindered trade in low priced commodities, such as coffee, skins and wax, which constituted the bulk of Ethiopia's exports. (Pankhurst, 1963) This statement also makes clear that the history and development of railways in Ethiopia has a direct correlation with the improvement of trade and more specifically exports.

2.2 Railways and Growth

The railway was more than a new means of transportation with higher capacity. It opened new psychological, social, economic, political, and military dimensions, maybe comparable to the first flight across the Atlantic or the first landing on the moon. Until the advent of the railway, transportation was mostly dependent upon horses, the force of wind and the speed of running water. Travelling was a tough business, costly, slow and risky. (Heinze & Kill, 1988)

Large scale transport improvements have the potential to drive economic growth and change the spatial distribution of economic activity. (Bogart et al, 2017). Between 1855 and 1870, cities in Sweden that gained access to the network experienced an economic expansion: their population increased and they became more industrialized. (Beenrger & Enflo, 2017)

Before the transportation revolution the market for manufactured goods was limited to the immediate surrounding area because transport costs were very high relative to the value of the good at the point of production. Falling transport costs expanded the size of markets, eroding monopoly power and compelling firms to raise productivity through division of labor-cum-mechanization.

The case of Latin America further explains this. In many Latin American economies, the construction of railway networks was one of the most important bases of the economic expansion of 1870-1913. As in the rest of the world, Latin American railways had a huge influence on the reduction of domestic transport costs. In addition, in the case of Latin America, and opposite to what happened in the industrialized economies, which had already developed relatively efficient and competitive market structures at the advent of the railways, these were essential to create or to

strengthen the links between previously fragmented local markets, and also between them and the world markets. (Herranz-Loncán, 2011)

Furthermore, improved transportation reduces the cost of raw materials and if these are complementary to capital goods that raise the productivity of unskilled labor, optimal firm size has increase. Improved transportation also lowers the likelihood of production downtime due to input supply disruptions. This allows firms to shift capital invested in inventories (of raw materials) towards capital (for example, steam power) that is complementary to division of labor (Atack, Bateman, and Margo, 2008).

In addition, railroads were indispensable to the United States' economy or, at least, very influential for economic growth. (Donaldson & Hornbeck, 2013). Furthermore, the rail sector makes a substantial contribution to the European Union (EU) economy. (European Commission, 2015) Transportation systems, including railways, are considered an essential feature of all modern economies. (Aldagheiri, 2010)

Yet, the case in Africa is complicated and to the contrary of the effects of railways in other continents. As such, a recent policy review of two decades of investments in rehabilitating railways in Sub-Saharan Africa revealed that out of 15 railways supported by the organization, none appeared to have led to a sustained impact on economic activity. (Sequeira, 2013)

2.3 Railway Efficiency

Having reviewed literature on the history and development of railways both locally and internationally, it is important to know what to expect from a good railway. This has allowed assumptions to been made on what a properly functioning railway is and how best to improve upon challenges faced.

Although efficiency is a broad term, railway efficiency can be defined as timeliness, reliability and fluidity/flexibility. (Beenck, Beennte and Schilling, 2013) In addition Beenck et al state that, an efficient railway from a national perspective (including freight and passenger railways) maximizes revenues and minimizes costs while providing the desired level of service. Hence, we can expect that in order for EDR to been considered operating effectively (with regards to BLIP and in general), it has had to exhibit these characteristics.

According to a study by Thompson et al (2014), the major indicators of a railway's efficiency are system scope, asset utilization, human resource utilization, operational performance, financial performance, customer-centric service quality.

Furthermore, punctuality and regularity have beenen identified as major performance indicators by Veiseth and Bititci (2006). In that regard, EDR is expected to have some regularity in delivering its services to customers. Having put these parameters into mind, elements of railway efficiency can be summarized as follows for the purposes of this study:

Table 2.1. Measures of EDR's Positive Facilitation of Exports for BLIP firms

Timeliness and Punctuality	Customer Service Quality
Reliability	Regularity
Flexibility and Fluidity	Low Costs

This study has therefore tried and assess EDR's effect on BLIP based on these parameters.

2.4 The History and Development of Industrial Parks

The cornerstone of industrial parks can be found in Great Britain, which is a country, where factory production spread and where first industrial zones were founded. These were set up by multiple production units; the first factories arose somewhat accidentally, however, their later occurrence represents an organized deed that followed certain idea of urban planning and regional concept. The first industrial park, Trafford Park, was established by a company named Ship canal and Docks near Manchester in 1896. (Vidová, 2010)

An industrial park is based on a philosophy of integration of relatively different functions (production function, and that of services, relaxation and education, too) into an industrial area with majority of industrial production and services with high economy turnover and high employment. It provides services independent of type and importance of a particular industrial park. (Merran, 2019) Industrial parks can been used to overcome these obstacles and accelerate economic development by attracting innovative businesses, leading to both more jobs and a larger tax base. They support start-ups, new enterprise incubation, the development of knowledge-based businesses, and offer an environment where local and international firms can interact with centers of knowledge creation. (UNIDO, 2012)

Given the importance of industrial parks as stated by multiple studies referred above, the United Nations Industrial Development Organization, has set up international guidelines on their development. According to which; the principal rationale for establishing an industrial park is to enable "industry to settle and develop at a specific location that is planned and improved to that effect. (UNIDO, 2019) But these guidelines do not guarantee the success of industrial parks and special economic zones (SEZs).

In much of the developing world, though, the case is somewhat simpler. The practice is far enough from the theory for subtle arguments to been moot. Industrial Park and SEZ programs are often rightly criticized for producing white elephants; eroding the tax base; creating vehicles for land speculation; delivering hand-outs to favored firms; and funneling spending to favored districts. (Saleman & Jordan, 2014) The cause for this is due to there being irregularities between policy and practice that occur due to lack of strong institutions as well as rampant corruption in most of the developing world. In addition, export oriented industrial parks often do not consider import substitution of manufacturing raw materials and hence some important inputs for the industrial parks are dependent on imports.

2.5 Manufacturing and Industry in Ethiopia

Ethiopia has undergone profound political changes. The country is building on a rich and impressive history of cultural development. As the country (except for a short period of Italian occupation) has never beenen under colonial rule, it started relatively early to build sovereign national institutions. Already in 1909, Menelik appointed 9 ministers and started to build up a modern civil service. The Imperial phase, which ended when Emperor Haile Selassie was deposed in 1974, was characterized by a fairly effective administrative system, but it also relied on

autocratic rule and a feudal land ownership system. Many rural families did not have access to land to secure their livelihoods. (Altenburg, 2010)

The history of Ethiopian manufacturing industry is more or less related to the post Ethio-Italian war. In the second half of 1940s, there was very few manufacturing industries, which accounted for only 1% of the national income. Industrialization really begun in the 1950s. (Getnet & Admit, 2005)

Consequently, following the Mutual Aid Agreement of 9 August 1943 with the United States of America (USA), the Ethiopian Government requested for a USA technical mission to been sent to Ethiopia to investigate the country's resources and its economic problems and to draw up an aid package for its development. The mission arrived in May 1944 and with their help, the Ethiopian Government initiated a ten-year programme of industrial development (1945-55).

Furthermore, Ethiopia has seen three regimes over the last eight decades. Keeping with the political ideologies governing the economic principles of the time, these successive regimes adopted different policies for the development of industry in the country. The industrial policies have distinctive features when looking at the guiding vision (policy), ownership structure, and market orientation. Broadly, they can be characterized as the import substitution and private sector-led (from early 1950s to 1974, the Imperial regime); the import substitution and state-led (from 1974 to 1991, the Dergue regime), and the export-orientated and private sector-led (since 1991, the Ethiopian People's Revolutionary Democratic Front, (EPRDF)-led government). (Mulu, 2016)

Table 2.2: The Ethiopian industrial policy and development phases, Source: (Mulu, 2016)

	Imperial period (pre-1974)	**The Dergue regime (1975-91**	**The EPRDF regime (post-1992)**
Guiding policy/vision	Market-oriented	Command economy	Market-oriented
Public/private role	Private-led	State-led	Private-led but also strong state role
Ownership structure	Dominance of foreign-owned enterprises	Dominance of public-owned enterprise	Dominance of domestic private-owned enterprises
Target industries	Import-substituting and labour-intensive industries (e.g., textile, food, cement)	Import-substituting and labour-intensive industries but also basic industries	Export-oriented & labour-intensive industries (e.g., Textile, leather, agro-processing, cement)
Envisaged key player	Foreign investment	Public sector investment	Domestic private sector
Policy instruments	Protection of domestic market through high tariff and banning of certain imports Provision of economic incentives (tax holidays, remission of indirect tax on capital goods etc.) & preferential credit scheme	Protection of domestic market through high tariff and quantitative restrictions Financing, subsidizing, and ensuring monopoly power for the state-owned enterprises	Direct support for selected export sectors through capacity building and other means Provision of economic incentives (tax holidays, remission of indirect tax on capital goods etc.) & preferential credit scheme
Government role	Infrastructure & human resource development and ownership of selective industries	Mainly government ownership	Infrastructure & human resource development, ownership of selective industries, and capacity building of the private sector

Although manufacturing industries are of paramount importance to a country's development, some challenges as well as opportunities can been seen in the Ethiopian industrial sector. According to a study done by the Ethiopian Development Research Institute (EDRI); Ethiopia has competitive advantages in areas of cheap and abundant labor supply, closeness to international markets, and growing domestic demand for manufactures. Yet the sector is also challenged by frequent power breakage, limited access to credit and foreign exchange, weak innovative capacity, high inland and outbound transport cost, and acute shortage of reliable input suppliers and support industries. (Tigabu et al., 2018) It is also important to note that high inland and outbound transport cost have beenen identified as key challenges, and these are challenges this study has looked further into.

Furthermore, Ethiopia is still largely agrarian. 85% of the workforce is engaged in the rural economy, mostly in agriculture.4 Agriculture accounts for 43% of GDP (down from 50% in 2000). Agriculture is dominated by smallholders, the majority cultivating less than 0.5 ha and producing mostly basic staples for the subsistence of their households. (Altenburg, 2010)

Over the last two decades the Ethiopian manufacturing sector has experienced rapid expansion in terms of the number of foreign direct investment, sales, and employment creation. (Manoj, 2018) In recent years, Ethiopia has also decided to invest in industrial parks and increase its manufacturing produce and export as well as to overcome key challenges in the manufacturing sector. As such, Bole-Lemi Industrial Park (BLIP) was constructed in 2014 in order to move Ethiopia in the direction of Industrial Parks and Special Economic Zones.

According to the Industrial Parks Development Corporation (IPDC), Bole-Lemi Industrial Park has a total of 14,000 employees and 20 factories whose major product is garments. The rail access

to Djibouti was mentioned as an important advantage of the Bole-Lemi Industrial Park by the Ethiopian Investment Commission on their Invest in Ethiopia, Industrial Park Guide.

2.6 Conceptual Framework

he conceptual framework of this study revolves around two key variables. The operational efficiency of the Ethio-Djibouti Railway (EDR) and the export performance of firms in Bole-Lemi Industrial Park (BLIP). To that effect, items such as the schedule and cost of rail transport as well as the transport challenges has been considered in order to create a link with the performance of the firms in BLIP.

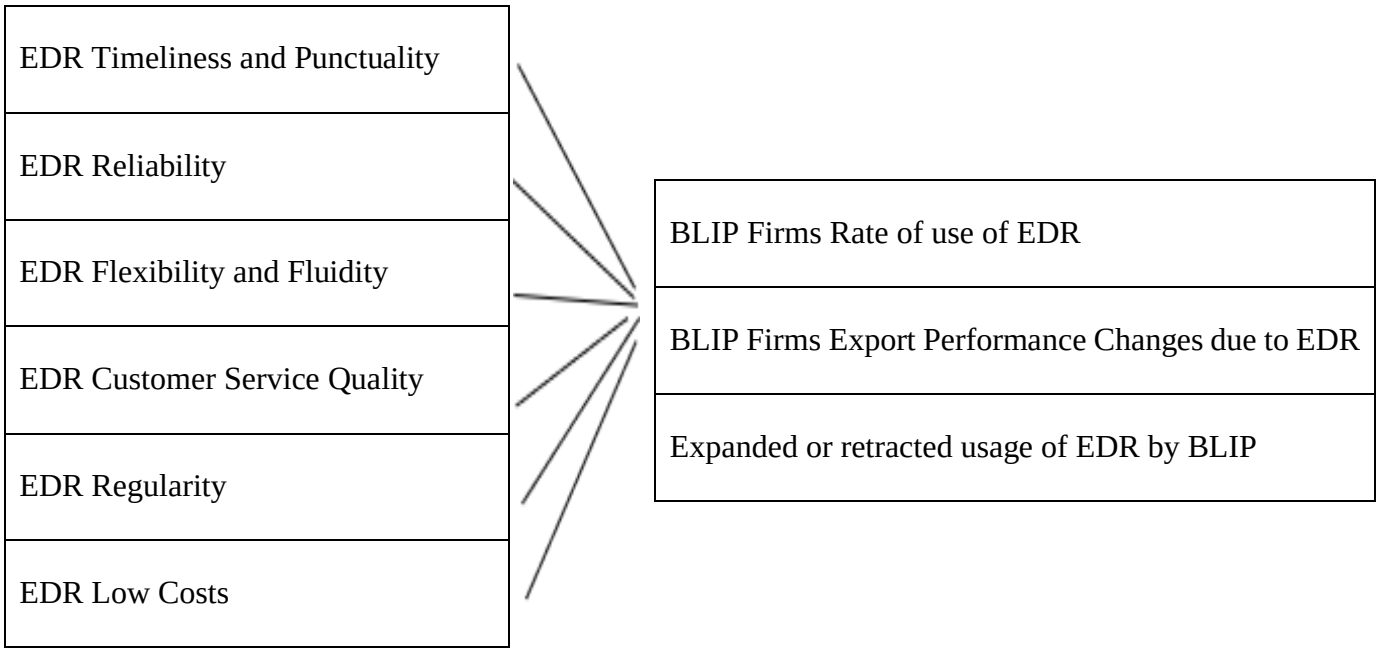

Fig. 2.1 Conceptual Framework of the Study

The causal relationship of each of the above-mentioned variables has been investigated in this study. With the general hypothesis/expectation being that EDR, by providing improvements on the 6 metrics above preexisting logistics infrastructure, will be able to improve export logistics for firms with in BLIP.

Chapter 3

Methodology of the Study

This chapter is concerned with the description of the study area, types and sources of data, research design, means of interpretation of data, study population and sample design, data collection methods, data analysis & presentation, and ethical consideration.

3.1 Description of the study area

Bole-Lemi Industrial Park Located in the South Eastern part of Addis Ababa on the outskirts, about 20 kilometers from the center of the city. The Ethio-Djibouti Railway has its headquarters in Addis Ababa, while the closest station is at Endode, Gelan area, Oromia Region which is around 30 kilometers away from the city center.

3.2 Research Approach

The study has focus greatly on qualitative elements. Due to the nature of the subject matter – that both EDR and BLIP are young and not enough studies were done regarding the issue – a quantitative intense approach has been difficult to accomplish. Furthermore, the data available to analyze the effects of EDR on BLIP was found to been inadequate by the researcher.

As such, the study has been primarily qualitative data and information supplied by the focus group of the study. The study has therefore followed an inductive approach as having hypotheses on the subject matter is difficult, given the conditions mentioned above.

3.3 Research Design

As there are not many researches on the subject matter, this study is going to take a more descriptive design. As stated earlier, this approach is further supported by the relatively new age of both EDR and BLIP. As such, interviews and descriptive analysis has been very useful. In addition, to support this, export performance data as well as other data that the interviews reveal to been important in understanding the underlying situation. This data has been processed descriptively as well as a simple linear correlation analysis of the collected data in order to better support the research findings.

Since the decision-making bodies and the individuals crucial for answering the research questions are limited in number, this study has focus mainly on interviews instead of research surveys and questionnaires.

3.4 Population and Sample

As this research has been done on two major institutions, namely Bole-Lemi Industrial Park (BLIP) and Ethio-Djibouti Railway (EDR), employees of the two bodies have constitute the majority of the population for interviews as well as considerations into export data. In addition, other members of the supply-chain have also been part of the interviews, such as freight forwarders, customs clearing agents, shipping agents, customs officials as well as other involved parties. Samples from within this population has been picked based upon importance, and hence has not been randomly selected. Samples have included management staff, logistics and supply chain staff and other involved parties.

In that regard, the major items that has populate the sample list have beenen identified and are listed below:

Table 3.1. List of organizations identified as areas of study (research samples)

1. Arvind Lifestyle Apparel Mfg. PLC	2. Ashton Apparel Manufacturing PLC
3. Evertop Sportswear	4. MACCFA Freight Logistics PLC
5. Jay Jay Mills Garment PLC	6. Freighters International PLC
7. LYU Shoutao Factory PLC	8. Ethio-Djibouti Standard Gauge Railway S.C.
9. Shin TS ETP Garment PLC	10. Pave Logistics PLC
11. Panafric Global PLC	12. CLS Logistics Services PLC

As such representatives from each of these organizations has been interviewed for this study making a total of 12 individuals to interview.

3.5 Data Sources and Types

There sources of the data have been directly from the supply chains of BLIP and EDR (primary data) in the form of interviews. Sufficient quantitative data could not be acquired from the responsible statistical authorities as well as members of the supply chain with access to data and hence could not been included in this study.

3.6 Data Collection Procedures

The data collection procedures for the interview include first identifying and listing out all the organizations and bodies that are expected to been involved in the subject matter. Once the organizations have beenen listed, an official request for an interview has been given alongside the necessary documentation from the University. Once that happens, individuals with the qualifications and necessary information have been singled out and interviewed.

As for the quantitative data, an official request for assistance has been presented to the necessary bodies and support has been received accordingly.

3.7 Data Analysis

As stated in earlier sections of this chapter, the subject matter is pertaining to institutions (EDR & BLIP) that are fairly recent. Furthermore, in order for this study to bring about meaningful results, the challenges and opportunities BLIP is facing with EDR need to been addressed.

Due to serious challenges faced in collecting quantitative data, the study has mainly been using qualitative data to reach conclusions and recommendations. The challenges faced in acquiring the quantitative data are mentioned below:

- The lack of detailed data on export volumes based on industry parks from the CSA (Central Statistical Authority). The data available is only aggregate data on a national level.
- CSA also lacked data on the amount of cargo moved per mode of transport.
- The IPDC (Industry Parks Development Corporation) archived only financial data and the data on volumes of cargo produced and shipped have only started to been registered (with

the assistance of the Ethiopian Customs Commission/ECC) only 9 months ago. This data, therefore is not very useful for making conclusive analyses.

- Similarly, the Ethiopian Investment Commission (EIC) has archived financial data and had no proper records of export volume
- The private firms operating out of BLIP were not able to share export volume data for business interest purposes and could only hint at average figures on the interviews.

3.8 Ethical Considerations

The identity, position and address of the individuals interviewed has been kept private unless permitted otherwise. Furthermore, none of the individuals that participate in this study has given information they are not willing and/or supposed to give. Participants of this study has not been requested to disclose information contrary to the interests of their respective organization and/or any non-disclosure agreement signed by the individuals. The researcher is also obliged to hold in anonymity certain responses that respondents do not want to been associated with.

Chapter 4

Interview Results and Discussions

In this chapter we ascertain and interpret the information acquired through the use of interviews.

4.1. Introduction

The data and information that has been analyzed in this chapter was collected with the aim of ascertaining the impact the Ethio-Djibouti Railway had on supporting the volumes of exports from the Bole Lemi Industry Park.

4.2. Interview Rate and Information

The study focused on 7 firms operating out of Bole Lemi Industry Park. As such, interviews were held with the heads of the logistics and supply chain departments of these firms. In addition, the study tried to get further information from 5 logistics service providers working with the firms that operate out of Bole Lemi Industry Park.

Furthermore, the Ethio-Djibouti Railway was also requested for an interview and access to some data and has participated in the study accordingly. Out of the respondents mentioned above the response rate has beenen observed as follows:

Interview Information	Quantity	Percent
Total number of Requested Interviews	12	100
Interviews held Successfully	8	66.67
Interviews not held	4	33.33
Interviews useable to the study	8	66.67

Table 4.1. Interview Rate

According to Baruch, Y (1999), "*The average and also reasonably acceptable response rate is 60% +/-20 meaning that anything below 40% is not reasonably acceptable and would generate validity issues*." Meaning the interview response rate of this study is well within the acceptable range and yields acceptable results.

4.3. Interview Responses

4.3.1 Firms Operating in Bole Lemi Industrial Park

The interviews held with the representatives of firms operating in Bole Lemi Industrial Park were done in order to view the major advantages and challenges that have come with the introduction of the Ethio-Djibouti Railway. These responses focus on the business implications and on the decision-making process on whether or not to use the services of Ethio-Djibouti Railway and ascertain its business impacts.

A. Company A

Company A has beenen operational in Ethiopia for the past 7 years and has beenen operating from within the Bole Lemi Industry Park since its inauguration. During its time in operation, Company A has exported an average of 10 million USD per year worth of various garment and textile products, including but not limited to, active wear, denim, shirts and children's wear.

As stated by Respondent 1, the representative of Company A, one of the key factors in the firm's profitability is the efficiency and timeliness of the logistics services pertaining to the export of their products. Great emphasis was put on the ability to find properly scheduled transport to align with the schedules of production and shipping.

In that regard, Company A started working closely with the Ethio-Djibouti Railway since cross border trucking times are much longer than rail transport.

The major challenge according to the interview is that of reliability of schedules. As it is stated that the rail services of departure and arrival are not always according to schedule. This makes using the rail very unpredictable. Nonetheless, Respondent 1 stated that more than 90% of Company A's imports are currently being handled by the Ethio-Djibouti Railway, as the rail service has allowed them to reduce export lead time by 2 days.

Furthermore, the new shipment consolidation service being offered at the Modjo rail terminal has had a positive impact on the export shipments of Company A. In addition, Respondent 1 stressed on the safety and security of the Ethio-Djibouti Railway compared to trucking cross country.

B. Company B

Company B commenced operations in BLIP in 2015 G.C. and has beenen manufacturing out of BLIP constantly since it started operations 6 years ago. Company B exclusively produces children's wear and has is engaged in exporting these garments worldwide.

As per Company B's representative Respondent 2, Company B has beenen exporting an average of 35 forty-foot containers a month since the beginning of 2019 G.C. Prior to 2019 G.C. the firm had average exports of 10 forty-foot containers on a monthly basis.

Like every other firm in BLIP, Company B is highly dependent on timely and efficient logistics in every step of the production process. According to Respondent 2, the supply chain begins with the importation of raw materials that are not readily available locally in Ethiopia. As such, the importance of logistics and transport efficiency is required even before the production process starts.

Additionally, exports of Company B are required to move on a tight schedule as their customers are very demanding on time. Any delays in shipment or delivery impact profits as well as business relationships that are difficult to sustainably secure in such a dynamic and competitive business environment. In that regard, transportation and logistics efficiency are even more important for the export side of the supply chain.

It is considering these factors that Respondent 2 said that improved transport between Djibouti Port and BLIP greatly affects both the export performance and the manufacturing volumes of Company B's factory. Accordingly, Company B greatly welcomes various improvements to the logistics infrastructure of Ethiopia such as the deployment of EDR.

Nonetheless, Respondent 2 stated that Company B Textiles do not greatly employ EDR on their export supply chain due to major challenges faced. These challenges are pertaining to cost and reliability. The costs of the rail transport are not that competitive, especially when noting the fact that there are various schedule issues such as sudden cancellations and delays in train arrivals and departures.

Furthermore, using the option of rail transportation increases overall shipping costs, as logistics service providers charge extra for handling the complicated and often inflexible process of handling EDR processes and documentation. In that regard, Company B only rarely employ EDR.

C. Company C

Company C commenced operations with in BLIP on September 2014 G.C. and has beenen engaged in the manufacture and export of various garment items since. According to the representative of Company C, Respondent 3, the firm is currently exporting between 10 and 15 forty-foot containers on a monthly basis, with the major export markets being the USA and Europe.

According to Respondent 3, Company C does not readily employ the services of EDR for its export process as the challenges faced do not make such an undertaking worthwhile. Additionally, the costs associated with using EDR have been noted to be very competitive compared to the costs of trucking.

Respondent 3 continued to state that the scheduling issues make Company C prefer the use of trucks for the imports of raw materials as well. Another reason for using trucks for imports has beenen identified as being the fact that Company C uses unimodal logistics for the imports of raw materials, shipping the import cargoes through various international carriers such as Maersk and CMA CGM. Using EDR for import transportation is a better option while importing through multimodal means and shipping through the Ethiopian Shipping Lines (ESL) which has agreements and contracts with EDR. This adds another dimension to the challenges faced by BLIP firms in using EDR to handle parts of their supply chain.

In addition, Respondent 3 remarked that in the case of Company C, international buyers are sometimes involved in the selection of local logistics providers and customs clearing agents based upon past experiences and contracts. These logistics providers often associate EDR services with inflexibility and complexity.

It is considering the above factor that Company C prefers to use trucks as an almost exclusive means of export transportation, although there are some cases of using EDR.

4.3.2. Logistics Service Providers (LSPs)

The interviews held with representatives of the logistics (and by extension customs clearing and freight forwarding) organizations that work with firms within the Bole Lemi Industrial Park were done in order to get a detailed understanding of the logistics processes and the major challenges, advantages and possible points of improvement.

A. LSP A

LSP Ais a firm with a long and successful history of providing various logistics services for more than three decades. It is also one of the biggest logistics service providers in Ethiopia. As such, the organization has beenen providing its services to firms with in the Bole Lemi Industry Park since the commencement of the park's operations.

According to Respondent 4, the representative of LSP A, their firm has beenen offering various trucking and rail services to a number of firms within the Bole Lemi Industry Park. It was stated by Respondent 4 that the Ethio-Djibouti Rail made work easier from various angles. Travel time of the shipments by rail are much lower than those by truck, in fact, the travel time which was 15 hours from the Modjo rail terminal to Djibouti Port, has beenen reduced to 8 hours, making rail transport even faster than it initially was.

In addition, Respondent 4stated that the volumes of cargo that a single train can move are quite significant and vastly overshadow trucking capacities. And hence, firms within Bole Lemi Industrial Park that intend on moving larger volumes of cargo use the services of rail transport.

Furthermore, the communication between EDR operational and management staff and LSP A has been stated to be swift. Queries and other required support are handled well and swiftly by EDR according Respondent 4.

A challenge mentioned by Respondent 4 is the lack of a significant price difference between trucking and rail transport has resulted in trucking to still been a viable option for the movement of goods from Industry Parks.

B. LSP B

LSP B is a leading logistics service provider in Ethiopia and has beenen operating for near three decades, providing import and export trucking, customs clearing, freight forwarding as well as various consultations to its clients. As part of its operations, the company works in providing the aforementioned services to firms in the Bole Lemi Industry Park.

The interview was held with Respondent 5 who represented the company for the purposes of this study. As per the interview, the introduction of EDR has greatly improved logistics services offered to BLIP clients as there are common seasonal trucking shortages in Ethiopia. According to Respondent 5, the demand for trucking is greater than the supply even if we ignore the seasonal fluctuations of supply. As such EDR has beenen a very useful institution to both LSP B and firms within the BLIP.

Respondent 5 also noted that the protection of cargo from theft and other security risks has made it appealing for use by BLIP firms, who often export valuable garment and textile cargoes. In addition, the interview stated that the major reason for the use of EDR is the greatly reduced transport times which is a key selling point to BLIP firms.

C. LSP C

Although LSP C is a relatively new entrant into the Ethiopian logistics and supply chain sector, it has managed to secure various local and international clients and is now handling logistics, customs clearing and freight forwarding for a number of firms with in BLIP.

According to Respondent 6, representative of LSP C, EDR has beenen an important tool for handling imports and exports of firms with in BLIP. This is due to the safety and security offered by EDR as compared to the trucking alternative.

In addition, the lowering of EDR costs by 50% as a result of the COVID-19 pandemic greatly increased EDR usage although the price decrease was not permanent. As such, usage of EDR by BLIP firms has decreased and the respondent stated that only about 20% of BLIP exports handled by LSP C currently utilize EDR.

D. LSP D

LSP D is a customs clearing and freight forwarding organization that has beenen operating in Ethiopia for more than two decades now. Its major services are Project Logistics, Special Cargo Handling, Air Freight, Ocean Freight and Door-to-door Services. The majority of these services are also offered to firms operating out of BLIP.

LSP D has beenen employing the services of EDR since it commenced operations according to Respondent 7, the interviewed representative of LSP D. It was stated that EDR's greatest strength is the ability to move large quantities at a time. And hence is an indispensable tool for handling shipments that require moving multiple containers at once.

With regards to BLIP shipments, especially export cargoes, LSP D uses trucking as a primary option due to the scheduling issues of EDR. These scheduling issues also make BLIP clients prefer trucking to EDR.

4.4. Strengths identified by the interviews

Most of the interview respondents have identified similar strengths and good qualities of working with EDR. The major strengths are listed as below:

- The capacity of the trains to transport large quantities of cargo at once. A single locomotive is able to move up to 106 TEUs (Twenty-foot containers/twenty-foot equivalent units). This makes EDR a primary choice for handling large scale shipments and project cargoes.
- The lead time for transportation between EDR terminals and Djibouti Port are very short. Cargoes can arrive at port in under 10 hours of being loaded on a locomotive, and in some cases in as little as 8 hours. This makes EDR the fastest option to send containerized cargo to Djibouti, assuming documentation and scheduling work according to the itinerary.
- The relative ease of communication with EDR staff as compared to communication with truckers and trucking unions is an appealing factor to most respondents.
- The safety and security offered by EDR transportation is significantly better than that offered by cross country trucking. There are many incidents of theft and loss of cargo to cases such as seasonal changes in weather causing flooding of roads and traffic accidents.

4.5. Challenges identified by the interviews

Having discussed on the strengths of EDR, there were also some serious challenges in working with EDR. And these challenges were mentioned to been especially damaging to time intensive

cargoes that are shipped out of garment producers. And other issues that are more of a specific challenge to firms operating out of Bole Lemi Industry Park.

This portion of the study has focus on the major challenges of working with the Ethio-Djibouti Railway in a more general sense and in the specific case of exports out of Bole-Lemi Industry Park. The challenges have beenen compiled from all interviews.

As an initial challenge, various respondents mentioned that there is very little to no flexibility with customers of EDR who fail to make it to their rail schedules on time. Missing or skipping a train is penalized heavily, and changing of rail bookings is near impossible.

To continue, rail cargo takes much longer to gate-into the port than truck cargo. And although the speed of the rail transport makes up for such delays, it is a worrying symptom of other underlying issues. These issues are in that making amendments and changes to customs documents are very difficult while using rail transport. Partly due to the speed of the rail (making the cargo arrive sooner than amendments can been made) and partly due to the lack of coordination between EDR and customs.

In addition, EDR requires upfront payments before the service has beenen rendered. Meaning, the service charges have to been paid in full during the booking process. This is not the case with trucking where mostly a 50% advance payment is made and 50% is paid after the completion of the contract.

Other challenges mentioned by the respondents is regarding reliability of the trains to make it on schedule. Even in the case of the Modjo rail terminal, where there are daily departures and arrivals of trains, there are sporadic days where the trains are delayed by various reasons including electricity shortages (since the trains are electric powered). These issues are compounded when

considering the case that there are few cases where free time is extended for export containers stuck with in the rail terminal and has been subject to daily charges. According to one interview respondent, charges (including charges for being late to the terminal) have at times reached 9,000 ETB per container and their firm was forced to settle them.

These “last minute” cancellations, according to one respondent also have the consequence of making export cargoes from BLIP (and in general) miss their scheduled ocean vessels, that result in port charges as well as penalization of the exporter by the buyer of the cargo. These penalties have beenen stated to been high on garment products due to the high standards on timeliness put forth by the buyers.

The interviews also revealed that there are other more specific challenges that are faced when having firms in the Bole Lemi Industry Park work with EDR. Namely that the closest rail terminal to Bole Lemi Industry Park is the Endode rail terminal which is within Addis Ababa. Utilizing this terminal for exports out of Bole Lemi Industry Park have proven to been the most cost and time effective options. But these advantages are off-set by the fact that there are only two departures per week from this terminal (as opposed to the daily departures from the Modjo terminal). In addition, unlike the Modjo terminal, there is no integrated customs office at Endode terminal and hence most firms in Bole Lemi Industry Park undergo higher costs by transporting cargo from Modjo, which is around 80 KMs away from Addis Ababa.

The above-mentioned challenges currently being faced at the Endode rail terminal then create container and cargo congestion and longer queues at the Modjo terminal. This case is worsened by the next available rail terminal in Adama not having the proper reach stackers and cranes necessary to undertake the loading and unloading of containerized cargo to and from the trains.

In addition, the interviews have identified various complications when utilizing EDR services that result in the increase of transportation costs on top of the already uncompetitive service charges. These additional costs arise as a result of logistics service providers increasing the charges they would normally impose on trucking. The increase of charges is as a result of the difficulty faced in handling documentation and customs clearing as was mentioned in earlier paragraphs.

Costs of transportation to the rail terminal themselves were another point of concern to the interview respondents. In order for containerized cargo to been loaded on trains, it first has to been trucked from BLIP to EDR terminals. As such, BLIP firms are made to face price fluctuations in the trucking sector regardless of using EDR services, this has beenen identified by some respondents to been one factor making using EDR less appealing.

Some respondents also stressed on the unavailability of manual documentation procedures as an alternative to digital documentation procedures. In cases where the computer systems are down (for various reasons including network outages or other ICT related cases), operations are brought to a halt and both making new bookings and amending existing shipment details are jeopardized, sometimes for days on end. One respondent contrasted this with the relative ease of documentation processes while using trucks to move cargo.

4.6. General Analysis of Interviews

Having interviewed a sufficient number of experts and concerned parties from the sample population, the study has now tried and analyze the effects EDR has had on facilitating the export logistics and transportation out of BLIP and hence affecting the export performance of firms operating out of BLIP.

As per the literature reviewed for this study the interviews have tried to assess whether or not EDR has exhibited the below traits which have beenen identified as key elements in positively affecting the export volumes and performance.

Timeliness and Punctuality	Customer Service Quality
Reliability	Regularity
Flexibility and Fluidity	Low Costs

Table 4.2. Measures of EDR's Positive Facilitation of Exports for BLIP firms

The responses of the interviews show whether or not EDR has beenen successful in properly measuring up to each of the measures mentioned above. Inferences are made from the interviews and discussed in order to see what impact EDR has had on export performances (in terms of facilitation of exports, which was an original assumption of the study and was further strengthened by the interviews held. All respondents unanimously agree that ease of logistics increases export performance (in term of volumes) and vice versa.

Chapter 5

Summary, Conclusions and Recommendations

This chapter has summarized the findings of the study and present them with regards to the objectives set in earlier stages of the research. In addition, these findings have been used to reach certain conclusions that has allow the readers to gauge whether or not the subject of the study has fulfilled its goals. Recommendations has then been offered to deal with the challenges identified and opportunities that presented themselves. Room for additional research has also been mentioned in this chapter.

5.1 Summary of Findings

The major objective of the study was to examine the precise effects that the Ethio-Djibouti Railway (EDR) has had on the export performance of the Bole-Lemi Industrial Park (BLIP) through the facilitation of export logistics.

To that end, literature on railways and industry parks was reviewed with the intent of finding out the experiences of other countries and developing a historical background. This has helped identify six major measures of efficiency of railways. The researcher used these six measures to see if EDR has indeed beenen providing services that are up to par with these metrics. This was decided after further research and preliminary interviews with parts of the sample population and ascertaining that these metrics are indeed most important in facilitating BLIP export volumes and hence export performance.

The six identified measures were: Timeliness and Punctuality, Customer Service Quality, Reliability, Regularity, Flexibility and Fluidity, and Low Costs. Interview questions were then

designed in order to see if BLIP firms and other logistics service providers have indeed seen EDR measuring up to these metrics. The fact interviews were chosen over other means of data collection is due to the very small overall population of individuals that are responsible for dealing with the subject matter.

Having interviewed a sufficient number from the population (66.67%), this study can now manage to address the specific objectives set at the initial stages of the study.

1. To assess the benefits that Bole-Lemi Industrial Park (BLIP) has received since the inauguration of the Ethio-Djibouti railway (EDR) in 2017.
    - According to the interview respondents, the benefits that BLIP has beenen receiving from EDR are mostly on the import side of the supply chain where the reduced lead times are being used to the manufacturers' advantage. Apart from that, the advantages and benefits towards the export side of the supply chain has beenen identified to been negligible if at all existent in the cases of some manufacturers.
2. Comparing the impact that EDR has had on BLIP with the expectations set by the researcher, BLIP manufacturers, as well as other stakeholders with the actual benefit being received by BLIP.
    - As per earlier sections of this study, the researcher had identified six major metrics that were used to design the interview questions. These metrics were also approved by all interview respondents. In that regard, EDR has failed to meet expectations in all but one of the six metrics.
    - The timeliness and punctuality of EDR trains has beenen put into scrutiny by all respondents who also added many cases of late arrival and departure of trains have beenen highly discouraging for BLIP manufacturers to use EDR services.

- Reliability of EDR transportation has also beenen put into question due to the fact that a proper lack of integration with customs services cause small errors in documentation to cause major delays and fines to BLIP firms and logistics service providers.
- With regards to the regularity of EDR services, interview respondents have noted that the schedules and itineraries of the rail transport are often subject to change at the last minute. Even in cases where the regularity of EDR transport from the Modjo terminal are not in question, the closest terminal (Endode Terminal) does not offer regular services.
- Perhaps one of the most discouraging elements of EDR transportation – according to BLIP firms and logistics service providers – is the lack of flexibility and fluidity in handling errors in documentation and meeting of schedules by BLIP firms and logistics service providers. EDR does not tolerate any delays by customers and mistakes are penalized.
- In terms of costs, EDR does not offer an especially attractive package as the costs are within the same price range as trucking costs (sometimes higher than trucking costs when considering fines and penalties). And although good progress was made when a 50% discount was offered throughout 2020 G.C., that initiative has beenen phased out and volumes moved out of BLIP through EDR still remain low.
- The only metric that received good reviews by both BLIP firms and logistics service providers is that EDR has good a communication culture and the customer service departments always respond to queries and points of interest in a timely manner.

3. Seeking out challenges that BLIP manufacturers are having with EDR and suggesting possible measures to been taken to better deal with those challenges.
    - As mentioned in the discussion about the second specific objective of the study, BLIP firms and logistics service providers are faced with numerous challenges with

schedules, costs, documentation, access to reliable information on arrivals and delays as well as inflexibilities in the process of handling EDR logistics.

4. To open a doorway for future researches to study the impacts of logistics infrastructures such as the Ethio-Djibouti Railway (EDR) on industrial exports from Ethiopia.
    - The study has identified key challenges to studying the subject matter as well as opportunities for further studies that has been discussed in subsequent parts of this chapter.

5.2. Conclusions

This study had the objective of ascertaining if indeed the establishment of EDR has played a role to positively facilitate the export logistics process of firms operating out of BLIP, which in turn is a major determinant of export performance in terms of volumes exported.

With regards to this objective (that has been obtained with assistance from various preliminary interviews, observations as well as reviewed literature), EDR has been found to fall short on meeting the expectations set forth by the researcher, manufacturers operating in BLIP as well as logistics service providers who handle logistics for BLIP manufacturers. As such, many BLIP manufacturers and logistics service providers decide not to employ the services of EDR for handling their export shipments.

In that regard, it can be concluded that EDR has negligible effect on the facilitation of exports from BLIP and hence has very little effect on the export performances of BLIP firms. This is due to:

I. EDR services having issues with timeliness and punctuality.

II. Issues with reliability and scheduling.

III. Lack of cost competitiveness while employing EDR services.

IV. Inflexible approach by EDR towards errors and delays on customer's end.

As a result, BLIP manufacturers rarely if ever employ the services of EDR for the export section of their supply chains, sticking to the option of trucking and even air freight in some cases where speed is of the utmost importance.

5.3. Recommendations

Two sets of recommendations have beenen reached by the researcher after undertaking this study. The first set of recommendations has to do with challenges faced while undertaking the study, and the second set of recommendations are on how to better improve the challenges faced by BLIP manufacturers and logistics service providers.

The first set of recommendations are beaning given in order to facilitate future research and in turn allow for future researchers to add on the body of knowledge, help improve the logistics sector in general.

- ✓ Effort needs to been made by various agents and concerned bodies to collect and archive numerical data not only on the financial levels of export performance but also on physical volumes of cargo moved.
- ✓ Statistics of export performance both in terms of volumes and in terms of foreign currency earnings have to been collected in terms of specific industries, industry parks and

collectively archived with the Central Statistical Authorities for ease of access and future research purposes.

- ✓ Data has to been collected on the modality of transport used by each sector in order to avail resources for researchers who wish to study and improve specific modes of transport associated with specific sectors.

The second set of recommendations is aimed at providing possible ways to improve on the challenges being faced by BLIP manufacturers and logistics service providers. And hence these recommendations are expected to help better facilitate exports out of BLIP thereby improving on the export performance of these firms.

- ✓ Reducing costs of EDR services, notably for export customers.
- ✓ Collaborating and synchronizing with both Ethiopian and Djiboutian customs to allow an ease of documentation procedures and changes.
- ✓ Providing alternative manual documentation processes in cases of network outages.
- ✓ Creating a system of informing customers ahead of time regarding schedule changes.
- ✓ Reducing the fines and charges imposed on customers who miss schedules.
- ✓ Starting a more regular service out of Endode Rail terminal to provide an alternative.
- ✓ Deploying reach stackers and cranes at Adama Rail terminal to provide an alternative.
- ✓ Creating partnerships with trucking companies/unions/government agencies in order to provide trucking services between factories and rail terminals as a package deal.
- ✓ Providing trainings and seminars for various logistics service providers to better acquaint them with the processes of EDR.

5.4. Areas for future Research

As has beenen stated in previous chapters of this study, there have beenen major challenges faced by the researcher to secure useable quantitative data for the purposes of this research. In addition, this research has beenen limited in scope to one industry park, the manufacturers within said industry park and the logistics service providers that work with those manufacturers.

As such, the following areas for future research have beenen identified:

I. What are the experiences of other Industry Parks and export sectors while working with EDR? Are the challenges ones only being faced by BLIP?

II. What are the major causes of the inefficiencies exhibited by EDR in this study?

III. What can industry park manufacturers do to mitigate logistical inefficiencies like the ones identified by this study.

References

African Development Bank (2015), *Rail Infrastructure in Africa: Financing Policy Options*

Alfonso Herranz-Loncán (2011), *The Contribution of Railways to Economic Growth in Latin America before 1914: A Growth Accounting Approach*, University of Barcelona, pp 1-2,28

Anand Kumar Choudhary & Dr. Srinivas Rao (2018), *History of Rail Transportation and Importance of Indian Railways (IR) Transportation*, MATS school of Management Studies and Research (MSMSR), MATS University, Raipur, Chhattisgarh, India

Andreas Økland and Nils O. E. Olsson (2020), "*Punctuality development and delay explanation factors on Norwegian railways in the period 2005–2014*",

Brendan Martin (2010), *How the Railways Transformed the World*

China Global Television Network (CGTN) Article, [Online] Available at: https://africa.cgtn.com/2020/09/19/chinese-built-ethiopia-djibouti-railway-records-increase-in-revenue-despite-pandemic/

Cepheus Research & Analytics (2019), *Ethiopia's Industrial Parks: A Data Pack on recent performance*

Dan Bogart, Eduard Alvarezy, Max Satchellz, Leigh Shaw-Taylorx, and Xuesheng You (2017), *Railways and growth: evidence from mid-nineteenth century England and Wales*, University of Cambridge

Dave Donaldson & Richard Hornbeenck (2013), *Railroads and American Economic Growth: A "Market Access" Approach*, National Bureau of Economic Research, Cambridge, MA

Desalegn Shibiru (2019), *Contribution, Challenges and Prospects of Industry Parks in Ethiopia*

Dr. Manoj Kumar Mishra (2018), *Determinants of Manufacturing Sector Growth in Ethiopia*, Amity Journal of Management, Vol. VI, No. 2, pp 1-2, 9-10

Dr. Richard Pankhurst (1963), *The Franco-Ethiopian Railway and Its History*

Ethio-Djibouti Railway Official Website, [Online] Available at: https://edr.gov.et/en/about-us.html

Federal Democratic Republic of Ethiopia, Industrial Parks Development Corporation (FDRE-IPDC) [Online] Available at: http://www.ipdc.gov.et/index.php/en/industrial-parks/bole-lemi-i

Fekadu M. Debela (2013), *Logistics Practices in Ethiopia*, Swedish University of Agricultural Sciences

Fesseha Mulu Gebremariam and Bizuayehu Daba (2019), "*Assessing the performance of industrial Parks (ips) in Ethiopia: the case of bole Lemi 1, eastern industry zone and Hawassa Industrial parks*"

G. Wolfgang Heinze & Heinrich H. Kill (1988), *The Development of the German Railroad System*, pp 106-112

Getnet Alemu and Admit Zerihun (2005), *The Ethiopian Manufacturing Sector: Competitiveness and the Way Ahead*, Ethiopian Journal of Economics, Vol X No II, pp 34-37, 59-61

International Transport Forum (2019), "*Efficiency in Railway Operations and Infrastructure Management, ITF Roundtable Reports*", No. 177

Jeremy Atack, Michael Haines, and Robert A. Margo (2008), *Railroads and the Rise of the Factory: Evidence for the United States*, pp 1-4

Loraine Busetto, Wolfgang Wick, and Christoph Gumbinger (2020), "*How to use and assess qualitative research methods*"

M. Aldagheiri (2010), *The expected role of railways in the economic development of Saudi Arabia*, Department of Geography, Qassim University, Saudi Arabia

Merran Wonduante (2019), *The Effect of Logistics Management on The Performance of Garment Factories: The Case of Bole Lemi Industrial Park*

Mulu Gebre-Eyesus (2016), *Industrial policy and development in Ethiopia: Evolution and present experimentation*, United Nations University (UNU), pp 3-10

Sandra Sequeira (2013), *The Impact of Railway Infrastructure on Firm Performance: Evidence from Southern Africa*, Policy Brief for the International Growth Center

The Federal Democratic Republic of Ethiopia, Ministry of Industry (FDRE-MOT) (2014), *Environmental Social Impact Assessment Report for Bole Lemi II Industrial Zone Competitiveness and Job Creation Project*

Tigabu D. Getahun, Gebrehiwot A. Kebedew, Balineau Gaëlle and Fikru D. Sima (2018), *Manufacturing Competitiveness in Ethiopia: Developments, Challenges and Prospects*, Ethiopian Development Research Institute, Addis Ababa, Ethiopia, pp 2-4

Tilmann Altenburg (2010), *Industrial Policy in Ethiopia*, German Development Institute, pp 4-8

Thor Beenrger & Kerstin Enflo (2017), *Locomotives of Local Growth: The Short- and Long-Term Impact of Railroads in Sweden*

United Nations Industrial Development Organization (UNIDO) (2019), *International Guidelines for Industrial Parks*

Xiaodi Zhang, Dejene Tezera, Ciyong Zou, Zhen Wang, Jie Zhao, Eneyew Abera Gebremenfas, & Jaidev Dhavle (2018), *Industrial Park Development in Ethiopia Case Study Report*, Department of Policy, Research and Statistics, United Nations Industrial Development Organization (UNIDO), pp 2-8

Yannick Saleman & Luke Jordan (2014): *The Implementation of Industrial Parks: Some Lessons Learned in India*, World Bank Group, pp 3-6

Appendix

Research Interview Questions

For Firms with in Bole-Lemi Industrial Park

1. How long has your company operated in Ethiopia in general and at Bole-Lemi Industrial Park in particular?
2. What are the particular products of your organization? And what are your export volumes like? (Has include a request for data, if available)
3. How important of a role do logistics services have for your organization's operations, and on your export performance in particular?
4. What is your experience with the Ethio-Djibouti Railway? Does your organization employ its services? (If no, why not?)
5. How would you say the introduction of EDR in 2017 has impacted the sector in general and your organization in particular? (Notably in the facilitation of final exports as well as raw material imports)
6. What is the major reason? (For the specific reply for question #5)
7. Do you have any additional comments?

For Selected Logistics Operators

1. What are the logistics services your company provides to the firms located in Bole-Lemi Industrial Park?
2. How would you say the introduction of EDR in 2017 has impacted the sector in general and your organization in particular?

3. What were the effects of the introduction of EDR in the logistics operations of your client organizations operating out of BLIP?
4. What are the important challenges and strengths that EDR is presenting/offering to your services with regards to firms with in BLIP?
5. Do you have any additional comments?

For the Ethio-Djibouti Standard Gauge Railway Company

1. What has your experience beenen in handling export cargoes from the various industrial parks?
2. How would you say your organization's services have impacted the export performance of the various industry parks, BLIP in particular?
3. Are there any special services offered to clients with in industrial parks? (If so, what has their impact beenen?) (Has include a request of data, if available)
4. Are there any specific challenges EDR faces while handling BLIP cargoes?
5. Do you have any additional comments?