UNIVERSITY OF GHANA

AN ASSESSMENT OF PORT PRICING POLICY AND ITS IMPACTS ON TRANSIT TRADE;
A CASE STUDY OF THE PORT OF TEMA, GHANA

BY

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MAY, 2018
DECLARATION

I, CHUNGA ELVIS FORGWE declare that this dissertation titled ‘AN ASSESSMENT OF PORT PRICING POLICY AND ITS IMPACTS ON TRANSIT TRADE; A CASE STUDY OF THE PORT OF TEMA, GHANA’ is my own effort produced under supervision and that, it contained published and unpublished materials related to the work identified and duly acknowledged.

STUDENT

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Sign…………………………………                                  Date……………………………….

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Sign…………………………………                                  Date……………………………….
DEDICATION

I wish to dedicate this dissertation to my awesome, lovely parents, Mr./Mrs. Chunga Patrick Dara and the entire family for their endless support and sacrifice financial, morally, materially spiritually through prayers towards the realization of this great work.
ACKNOWLEDGEMENT

I thank the Lord God Almighty for his abundant grace and mercies towards me during this program most especially at the moment of this research work. I will like to immensely thank my parents Mr. and Mrs. Chunga Patrick Dara for their morally and financial support may God bless them a million-fold, my uncle Mr. Wanye Henry and my cousins Mr. Wanye Christopher and Mr and Mrs. Oben Mathias for their support towards my studies.

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ABSTRACT

This paper provides an assessment of port pricing policy at the port of Tema, and it impact on transit trade. To better assess the port pricing system, port pricing components like cargo handling charges, vehicle handling charges, and storage charges were examine using the regression method. Information was gathered from authorities like Ghana Port and Harbour Authority (G.P.H.A), Ghana Shippers Authority (G.S.A), Ghana Maritime Authority (G.M.A), and shipping companies like Mediterranean Shipping Company (MSC) and terminal operators like Meridian Port services (MPS) as well as from transit shippers from Burkina Faso, Niger, and Mali. This can further be divided into Port Users and service providers.

Well-structured questionnaires were sampled using simple random sampling system. Literature review materials were categorized into two sections A and B; section “A” deals with port pricing policy, approaches and objectives of port pricing as well as charges levied at the port of Tema. While section “B” is on port pricing policy and Transit Trade in Ghana.

Looking at the main objective of this work which is to access Port Pricing and review its impacts on Transit Trade, it was revealed that Port Pricing, that’s the three-main component of port pricing which are; storage, cargo handling and vehicle handling charges used in this study has no significant relationship with Transit trade at the Port of Tema according to the regression method used. Hence unofficial tariffs and other factors such as implementation of axle load regulations, bureaucracy of customs clearance system, the unauthorized detention of vehicles in transit and the extortion of money from drivers and the high number of unauthorized police check points for transit vehicles slow down trade and thereby increasing the cost of doing business since it affects freight rates.
It was found out that G.P.H.A has been given the powers by the government of Ghana to set charges at the port of Tema which is accepted by all and even charges levied by terminal operators are approved by G.P.H.A. In determining these charges, a combination of cost approach is used with the help of market forces of demand and supply called the market approach with the aim at contributing to port productivity. Port pricing largely depend on the type of port organization and this can trigger greater economic growth and development.

From the interview conducted it was noticed that the government of Ghana through its stakeholders is trying to put in some measures to solve some of these problems like the port expansion project which is ongoing, the removal of the axle load policy, development of an inland port at Boankra, and the building of a cordial relationship between the government of Ghana and the government of the LLC’s and many others. Recommendation were made from this research on the view that all major stakeholders at the port should be consulted during tariffs review and be aware of the changes that occurs in the port in pricing so as to achieve the same objectives with the Port Authority. Recommendation were also made on how to encourage Transit Trade by reducing the turnaround time at the port, increasing storage facilities for transit goods and revitalization of the railway network as well as ensuring that the pricing method of the port is designed in such a way that will achieved the long term (future) objectives and not only the short term (present) pricing objectives at the Port of Tema.
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LIST OF ABBREVIATIONS

GPHA          Ghana Ports and Harbours Authority  
GSA           Ghana Shipers Authority  
CEO           Chief Executive Officer  
GIFF          Ghana Institute of Freight Forwarders  
BSC           Burkina Faso Shippers Council  
BFCCI         Burkina Faso Chamber of Commerce and Industry  
CPV           Cost performance value  
ECOWAS        Economic Community of West African States  
CEPS          Custom Excise and Preventive Service  
CS            Coastal State  
MCP           Marginal cost pricing  
UEMOA         Union Economique et Monétaire Ouest Africaine  
USAID         United State Agent for International Development  
AEC           Africa Economic Community  
CTTLC         Convention on Transit Trade of Landlocked Countries  
SIC           State insurance company  
MT            Metric tonnes  
GCMC          Ghana Customs Management System  
GCNet         Ghana Community Network  
GGWP          Ghana Gateway Project  
WATTFP        West Africa Transport and Trade Facilitation Project  
IRTG          Improved Road Transport Governance
<table>
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<tr>
<td>ICD</td>
<td>Inland-container depots</td>
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<tr>
<td>TRCB</td>
<td>Terminaux routiers à conteneurs du Burkina TRCB</td>
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<td>GSA</td>
<td>Ghana Shipper’s Authority</td>
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<tr>
<td>LLS</td>
<td>Landlocked States</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>BF</td>
<td>Burkina Faso</td>
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<td>MPS</td>
<td>Meridian Port Service</td>
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<td>TT</td>
<td>Transit trade</td>
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<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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CHAPTER ONE

OVERVIEW OF THE RESEARCH

1.1 INTRODUCTION

Pricing has always been a sensitive instrument and a call for concern especially when it comes to port pricing and competition with other ports. For this reason, certain parameters need to be considered when setting port prices like the supply of services, traffic, comparable advantage, the level of utilisation of facilities, the financial goals of the port and the estimated costs (UNCTAD, 2012 p. 36). UNCTAD (2012) also views port pricing as a “preferential strategic tool for port policies dealing with revenue, investment and operations”. It should be noted that it is very difficult to compare ports, since most port do have different tariffs and efficiency. An efficient port is one that is flexible and able to adapt to the needs of its customers especially in the domain of modernization in cargo handling equipment and information technology such as containerization and electronic data transfer, (Luguje Michael Achagwe, 2004). These ideas are not so different from the port pricing system used by the Port of Tema as will be seen as we proceed with this work. The scope of port pricing in this research work will be focussing on price charges by GPHA even though there are other charges such as container charges levied by shipping lines which is also vital for this work.

The lack of standardization and homogeneity in ports which emanates from the type of ownership, organization, administration of ports as well as their sizes, level of subsidization, functions and geographical location make port pricing vary from port to port. These differences in port pricing do influence maritime trade and port efficiency (Strandenes, 2004).

Transit Trade is a Customs regime by which goods destined for other countries pass through a coastal state or country through one entry point and leave the country through inland transport
modes-road, rail, or inland water way through another entry/exit point (GRA custom guide, 2011).

1.2 BACKGROUND OF THE STUDY

About 8.4 billion tonnes of cargo equating to 90% of international trade are transported by sea each year. This amount is predicted to triple globally by 2060 (UNCTAD, 2011). All this movement is done from one port to another. Seaports are considered as an important link in distribution channels, particularly those involving international trade. A port is seen as an economic multiplier for a region and for the country as a whole. It contributes greatly to the country’s gross national product (GNP) and to any nation’s transport infrastructure and it is also an area which immensely contributes to regional development in any nation.

Nottoboom and Winkelman (2001) look at port activities from two angles; the first is the provision of service port which can be charged directly on pilotage, berthing, handling and storage. The second one, often know as public services provided by the government through it port authority- service provided which favour all users without any discrimination some of these services include navigation aid, security, and the provision of a dredged channel.

However, port pricing always has a part to play in port operations and investment because tariffs can change user’s behaviour and impact on traffic or demand (operation), as well as contribute to improved performance of facilities and equipment (investment) (UNCTAD, 2010). Furthermore, when it comes to attain ship and port efficiency, a goods port pricing policy should be put in place.

Pricing is a tool and like any other tool it can provide the expected result only when properly used (UNCTAD, 2010). That is why port authority in Ghana cannot introduce or even modify an official tariff without approval from the government hence the government approve it after
examining certain economics issues which will help in stabilizing the economy (GPHA, n.d. and UNCTAD, 2012).

Port pricing policy can be viewed in two main dimensions that is using the financial and economic approaches. Looking at the economic approach which is focus on marginal cost pricing aiming at attaining the Maximum utilization of facilities. In such ports where the percentage of fixed cost is very high setting tariffs on marginal cost will not contribute in covering fixed cost during the require period (UNCTAD, 2012) even when the government comes in with subsidies to assist on port pricing policy.

The financial approach which rather lays emphasizes on the general overhead cost (total cost) or the accounting cost which end up balancing the variable cost and the fixed cost within a short period (UNCTAD, 2010). This approach promises some profit at the end and it is very valuable for a particular service such pilotage and towage services which have a stable tariff system. Hence every port would have to decide which approach to take which will achieve port efficiency and improved Transit Trade as identify as one of the objectives of this study. One of the main objectives of this thesis is to assess the port pricing system at the Port of Tema, taking into account the approaches mentioned above. The unofficial tariffs which emanating from indiscriminate charges by services providers, consolidators, clearing agents and others affect the freight rates for exports and imports commodities which contribute to higher costs of doing business in the ports of Tema.

The Port of Tema is the most important entry port in Ghana, it mostly receives petroleum products, wheat, clinker, alumina, caustic soda, crude oil, consumer goods and containerized goods (GPHA, 2014) into the county thus, it is handling around 70% of Ghana's total maritime cargo.
According to the GPHA 2015 statistics, the Port of Tema witness consistent increase and fluctuating nature of terminal charges within the year which contributed to the reduction in TT (Edmond 2014) and make things difficult at the level of clearance and releasing cargo documents at the Port of Tema (Geert de Jong and Thomas Baas, 2015). Hence if serious measures are not taken, TT might witness continuous decrease which means the LLCs could switch over to other neighbouring ports and this might hinder the Port of Tema from achieving some of its objectives in future. It is on this basis that this study is designed to look at port pricing approaches, port pricing impacts on transit trade as well as factors hindering transit trade at the Port of Tema.

1.3 PROBLEM STATEMENT

Two basic approaches may be adopted for pricing system; economic and financial approach. The economic approach focuses on marginal cost pricing, taking into consideration benefits derived by others. The financial approach focuses on prices to be set based on accounting cost, to recover fixed and variable cost and to provide an adequate rate of return. The later approach seeks to achieve profit. These patterns mention above are mostly used in ports pricing policy around the world. However, there has not been any or enough research or empirical evidence of the type of pricing policy adopted by the Port of Tema (Geert de Jong and Thomas Baas, 2015).

The introduction of different tariffs and the upward adjustment of existing charges have generally led to an increase in the cost of doing business at the Port of Tema. All these and more contributes to higher costs of doing business at the ports since cargo handling over the years has been one of the most expensive elements of total cost especially when it comes to transit cargoes through the port (Norman, 2014). This research seeks to identify the type of
pricing policy and main components that constitutes port pricing and investigate its impact on
Transit Trade at the Port of Tema.

With the Ghana Gateway Project becoming fully operational, more benefits are anticipated to
accrue at the Port of Tema in significant areas such as transit trade. Regrettably, available data
from GPHA (n.d.) indicate that between 2003 and 2015, except for Burkina Faso, the volume
of transit traffic from the Port of Tema destined for Mali and Niger has witnessed a marked
decline. This research attempts, therefore, to examine factors hindering Transit Trade at the
Port of Tema.

1.4 OBJECTIVE OF STUDY

The main objective of this work is to identify the pricing policy used, elements which constitute
port pricing at the Port of Tema, investigate its impact on Transit Trade and the reaction of
Transit Trade shippers to changes in prices. That is looking at how future port prices can affect
the maritime sector specifically on transit trade. This will provide an empirical analyses of
investigating price elasticity of the ports services.
1.4.1 SPECIFIC OBJECTIVES:

Specifically, the study objectives are:

• To establish the port pricing approach at the Port of Tema;

• To examine the impact of port pricing on Transit Trade at the Port of Tema; and

• To examine the factors hindering Transit Trade at the Port of Tema.

1.5 RESEARCH QUESTIONS:

• Which are the various approach(es) of port pricing used at the Port of Tema?

• To what extent can port pricing influence transit trade at the Port of Tema?

• Are there any major factors hindering transit trade at the Port of Tema?

1.6 HYPOTHESIS OF THE STUDY

The study will be guided by the following statement of hypotheses formulated based on the second objective of the study:

Test of Hypothesis 1

• There is no significant impact of Vehicle handling charges on Transit Trade.

Test of Hypothesis 2

• There is no significant impact of storage charges on Transit Trade

Test of Hypothesis 3

• There is no significant impact of cargo handling charges on Transit trade
1.7 JUSTIFICATION

Successful completion of this study will raise the following issues:

- This study will highlight the trend of Transit Trade for the Port of Tema.
- It will also bring out benefits derived from a good port pricing system
- Furthermore, it will portray factors affecting port pricing.
- It will highlight Impact of the prevailing port pricing on the future of Transit Trade in Ghana.
- It will also raise some challenges facing the port pricing policy in Ghana and how they are being overcome by the port authority.
- It will serve as basis for further research studies relating to port pricing and transit trade. The study will also give a preview and the modification situation of the port pricing policy at the Port of Tema and the impact on demand and supply of shipping activities at the Port of Tema.

1.8 BRIEF LITERATURE REVIEW AND THEORETICAL CONTRIBUTIONS

According to port pricing policy and ship efficiency by Siri Pettersen Strandenes (2004) seaport structure have been an example of traditional infrastructure pricing. Changes in port pricing do not necessary reflect the cost of providing the services; other charges are given in regard to the size of the vessels and the volume of cargoes. Cargo are charge separate fees for handling and storage, and all these charges make it difficult for ship operation to compare cost with other ports around the world.

Wayne K. Talley (2009) also confirmed that traditional port pricing structure is non-transparent with regards to tonnage charges, cargo charges and charges for specific services such as storage, pilotage, towage, and stevedoring. It is therefore very difficult for ship operator and charterers to compare cost with other ports. Furthermore, traditional port pricing scheme also
favours export where charges are set higher for import than export for example loading is charged less than discharging.

Cost base pricing which consist of average cost pricing, marginal cost pricing, variable cost pricing and market pricing operate differently when it comes to port pricing policy, for example marginal cost pricing for port services will cause a port to faced losses when infrastructure and cargo handling are characterized by economic of scale. Ports using this system thus have to be subsidies by the government (Rudolf, 1995).

According to these pricing systems, it should be emphasized clearly that despite the benefits receive by the port owners or the numerous charges incurred by the ship owners or a chartered party, the port owner should make sure they do not incurred any losses instead they should aim at making some reasonable profit so as to be able to compete by keeping up to standard through the provision of some additional infrastructure and equipment which will make the port functional to it full capacity hence continuation is guarantee.

The pricing strategies of carriers will depend upon the degree of competition in the market and the carrier’s operating objectives. The greater the degree of competition for carrier services, the less the control that carriers have and the greater the control that the market will have in setting prices for these services and vice versa (Souhir Abbes, 2007). The higher the quality of service provided to port users, the higher the competitiveness of the port.

This aspect of competition is seen within the Port of Tema where there is inter competition within terminal on the services provided in handling goods. A good port pricing will lead to growth and development of the port while the poor pricing will lead to the collapse and the subsequent inefficiency of a port. High port pricing will reduce demand while low pricing will increase demand leading to congestion which will hinder the port from making profit in the long run, (Haralambides & Veenstra, 2002).
1.9 RESEARCH APPROACH OR METHODOLOGY

Both quantitative and qualitative approaches will be used. Quantitative approach using regression analysis will facilitate the statistical analysis of data that will be obtained from primary and secondary data. Qualitative method will also enable the use of inductive approach to analysis respondents’ opinions, experiences, etc. obtained from personal interviews and research questionnaires.

1.10 SCOPE OF STUDY

Since this work is aimed at examining the impact of port pricing policy on Transit Trade at the Port of Tema, our scope of research will focus on the Port of Tema as a prominent port in Ghana and a hub port to be in terms of trading and warehousing in West Africa as a whole (UNCTAD, 2010), but others name ports might be used on bases of comparing issues especial the neighbouring ports like the port of Abidjan, Togo and the port of Benin. Hence information obtain from this research work might not be used to generalize occurrences happening to other ports. This work will also focus on Transit goods from port Tema to the LLC’s of Burkina Faso, Mali and Niger. Stakeholders to be involved in the research are; GPHA, GSA, MPS, GIFF, and the LLC’s shippers involved in TT found in Port of Tema.

This study is limited to the duration of eight (8) years that is from 2008 to 2015 statistics on traffic performance and port pricing at the Port of Tema.
1.11 SOME OPERATIONAL DEFINITION

Port pricing policy: these are the various approaches used in examine and setting port charges and tariffs.

Transit trade: goods moving in and out of a LLC’s passing through a coastal state. Better still UNCTAD, (2007) makes it clearer by defining TT as “a country’s external trade that passes through the territory of one or more countries prior to reaching its destination”.

Port efficiency: this is the degree of exploitation of capacity both quay and cargo handling equipment.

Ship efficiency: the ability of a ship to carry a maximum load that is (cargo carry per deadweight ton per period) within the allocated time after reduction in the turnaround time in port and time waiting for port access.

Priority pricing: this is an extra charge on ship operator to get access to the port or to be treated urgently. Such charges cover reallocation of port slot to increase ship efficiency and thus efficiency in the supply chain.

Port tariffs: charges in return for a specific service provided to the user that is the ship-owner, charterer, shipping agent etc. for towage, pilotage and warehousing and other services.

Port dues: these are charges for the use port facilities (for instance port dues on the vessel).

Port charges: these are the various fees collected from ship owners and cargo owners to cover all the other cost like construction, maintenance, operating and navigational facilities.

All these definitions above are found in (UNCTAD, 2010) and online Maritime Dictionary.
1.12 ORGANISATION OF THESIS:

This work will be arranged into five main chapters which are Chapter 1 introduction. Chapter 2 the literature review which discusses the various methods or approaches to port pricing by providing an in-side analysis on already existing literature on the topic and theoretical frame work which include objectives of port pricing with the type of port charges Levi. Chapter 3 deals research methodology. Chapter 4 looks at the presentation and analysis of primary and secondary data obtained in the field, and investigates the importance of an efficient port pricing methods at the Port of Tema. Furthermore, it determines the pricing approach that would relatively lead to positive changes at the ports and growth in the transit trade. Chapter 5 which is presentation of conclusion based on analyses and recommendations for the thesis which will highlight issues on the implications of the findings and make suggestion for future studies.

However, it is from this point that literature review on this topic will explore areas such as approaches of port pricing policy, various port charges, the main objectives of port pricing policy and the trend of Transit Trade at the Port of Tema.
CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter is a review of works related to port pricing and transit trade. The chapter is divided into two sections; A and B. Section A reviews areas on port pricing policy, objectives of port pricing policy, how port pricing are examined and types of port charges at the Port of Tema. Section B focuses on TT in West Africa, the trend of TT in Tema with its relevant conventions or agreements signed to govern it and lastly, the issue of port pricing and TT at the Port of Tema.

2.2 SECTION A: PORT PRICING POLICY

Literature review on port pricing shall be classified under three main groups which are strategies based on cost, strategies base on demand or traffic, and strategies based on performances (UNCTAD, 2010).

2.2.1 Strategies Based on Cost:

Waters (1975), makes it clear on the issues of marginal port pricing where he said despite the benefit derived from port pricing on marginal cost approach two port tariffs need to be introduce to rapidly achieved economic of scale. He notices that if a channel is dredged from 30 feet to 40 feet vessels using the 40feet will need to pay some extra charges to cover that extra expenditure. Furthermore, “unless there is congestion of vessels using that channel, the marginal cost of the passage of vessels of whatever draft is virtually zero”.
He argues that this pricing structure needs to be re-adjusted with bigger vessels paying more. He also made mention of the congestion charges on certain facilities. Hence marginal cost pricing will provide advantage to larger ships which will lead to economic of scale, port and ship efficiency and then growth and development in the maritime sector.

Bennathan and Walters (1979), as understood by Souhir Abbes (2007) explain the fact that when ports are well located geographically and due to their sizes it has an impact on its pricing structure “the larger the port the lower are the cost” that is with economic of scale being achieved it tend to lower pricing in port since it would be operating at full capacity on a large scale with so many benefits. Notwithstanding their geographical location cost is also determine because some ports are too expensive to maintain while others are cheaper to maintain so to with investment in them (p. 9).

Bennathan and Waters (1979) identified two principle of port pricing which are, the European and the Anglo-Saxon doctrines. The European facilitates the development and economic growth of the port interior. They acknowledge the fact that port should not break-even but make some profits which may be used for investment. While the Anglo-Saxon view was to make sure the port covers it cost and raise more profits and not losses without taken into consideration the activities of the hinterland port. Despite all these both failed to come out with a possible means on how port charges should be charged which is the main issue surrounding this topic.

Souhir Abbes (2007) classified port pricing into two categories; cost based pricing and alternative pricing methodologies.

In cost base pricing he said port authorities should have an ideal in the “long-run cost of infrastructure use in running an efficient port activity to adopt the best financial and administrative techniques and taken appropriate investment decisions” Hence cost base pricing turns mainly around marginal cost pricing which is efficient and fair from an economic view
point and methods of cost recovery. Furthermore, marginal can be noticed from the public goods provided by the government and that user needs to pay marginal social cost for it (p.11, 15)

Again, Bennathan and Walters, (1979) and J. Holguin-Veras, S. Jara-Diaz (1999) both classify port pricing into two approaches the first approach look at port as a social infrastructure with the aimed of promoting economic growth. The second approach examined port as a profit maximization economic sector with the interest of expanding in the long run. Following this judgment, they came out with an agreement that marginal port pricing “seems to be particularly appropriate for establishing the charges for the use of a dredged channel and for storage in transit sheds”

In addition, H. Meersman, E. Van de Voorde and T. Vanelislander (2004) accepted the fact to certain extend that, “marginal cost is best only in a perfectly competitive free economy or in an efficient socialist economy” (p.6).

Contrary to the above statement, Haralambides et al. (2001), explain the assertion that from a theoretical view point, in a normal situation “long-run marginal costs represent the most appropriate basis for efficient pricing”. He elaborates on the fact that “irrespective of the cost basis chosen, the principle that prices should accurately reflect (not to say recover) social opportunity costs is crucial” (p. 939) Meersman, E. Van de Voorde and T. Vanelislander also confirm it. Hence the issues of port pricing on short run or long run marginal cost, is still under debate.

Souhir Abbes (2007) emphasized the issues of Long-run marginal costs which include the capital costs of increasing capacity to accommodate an increase in output even though it difficult to measure. It is only where capacity is non-optimal that the issue arises. Short-run MCP is seen as offering optimal use of existing capacity, while long-run MCP offers
appropriate incentives to invest, although it may require regulatory action to ensure that the investment takes place. At this level, he looks at the consequences of short-run and long-run marginal cost pricing under three different hypotheses (optimal capacity, sub-optimal capacity, and over-capacity in ports), where he found out that, the choice between short-run and long-run marginal costs depends on economies of scale and the efficiency of the investment policy (capacity) of any port.

According to, Meyrick (1989), as cited by Souhir Abbes (2007) strategic issue must be borne by port objectives. He had considered that "insofar as the focus in Pricing is on costs at all, it is on the average cost of service provision rather than the marginal cost" and that "port accounting systems are incapable of providing a basis for pricing on anything other than an average cost basis". He argues wisely for full cost recovery rather than just marginal cost (p.15).

Souhir Abbes (2007) mentions that pricing is a strategy and so, Port authority must decide either to follow the marginal cost pricing or the financial method which is based on cost accounting. These two main pricing systems can attain the different objectives of the port.

“It is Cost, Performance, and Value of the service that determines the rate for prices”. When considering the following main points.

- A cost-based pricing for the port use.
- Pricing based on performance maximizes the output and reduces the congestion.
- Pricing based on the value of the services sufficiently generates income to cover the cost enquired (p.16).
2.2.2 Strategies Based on Demand or Traffic:

Gardner (1977) base his idea on the fact that tariffs are mostly based on ships and characteristics of the goods. In addition, Thomas (1978), another writer deems it necessary to notes that port tariffs could lead to a great effect on freight rates. To him, these charges must consider several issues such as the nature of the commodities, volume, the elasticity of demand and the type of ship involved in the transportation of the goods.

Siri Pettersen Strandenes (2004) classified port pricing into two main structures namely existing port pricing structures where we have traditional pricing, and cost-based pricing and efficiency promoting port price structures that is congestion pricing, priority pricing, and port slot auctions. “The traditional pricing structure is non-transparent with a set of tonnage charges, cargo charges and charges for specific services such as water, storage, pilots”, as concern port cost base pricing which is on long run marginal cost pricing indicates some influence in continuity even though waiting time for different vessels is neglected. The main criticism we have noticed against traditional pricing and cost-based pricing of port service is the fact that they do not induced ship efficiency as others like congestion pricing and port slot pricing. Congestion pricing on the other hand “induce efficient use of limited port capacity and thereby avoid investment in extra capacity to handle systematic variations in the demand for its services” especially port with variation in demand at time will help shipper to readjust the arrival time of their vessels to reduce cost. Priority pricing which is dealing with port slots to increase ship efficiency and port efficiency hence leading to fast supply chain management. While port slot auction allows ship owners to reschedule their location by biding for a new port slot (p.58-86).
2.2.3 Strategies Base on Performances:

H. Meersman, E. Van de Voorde and T. Vanelslander in their book port pricing; Considerations on Economic Principles and Marginal Costs. They said, “Pricing by and within ports should be proportional to the costs generated by the ship in question”. They mention three items to take note of which are cargo handling the time spent in port dues and charges. They go ahead to substantiate the fact that time spent in port is an opportunity cost that is time equal to an operation cost with a profit margin the most expensive cost here is cost borne from the handling of goods at time it is higher than port dues. That is why they consider short run marginal cost to be the best pricing structure in the port (p. 128).

In most sectors of the economy, prices depend on the quality of the goods or service. Strandenes and Marlow (2000) as cited from Souhir Abbes (2007) ascertain the fact that port tariffs must be based on the quality of the services. The word "quality" includes some elements such as “the time in port, punctuality, handling with minimum of damages, etc.” Hence the need for a two-part tariff system. The first component doesn't rely on the quality of the service. The second one increases with the level of quality that is the duration of port stay, turn-around time etc. This pricing system notified the port authorities and the ship-owners with respect to time factor. It encourages competitiveness of maritime transportation in relation to road transportation and other transport means.

It is noticed by these great writers Hilde Meersman, Siri Pettersen Strandenes and Eddy Van de Voorde (2014) that “port are complex service centers offering a considerable range of service products” to come out with an efficient port pricing there should be a distinction between port of call pricing, terminal-handling pricing and concession pricing. Port of calling deals with all services provided to a vessel like access to terminals, pilotage and bunkering. While terminal handling cost are cost from loading and unloading, storage, custom clearance
repacking and forwarding. Terminal concession cost which is cost emanating from dedicated terminal. (p.124)

In conclusion, both the government and the private do agreed on the issues of cost when it comes to port pricing, but the problem now lies between which cost theory to follow that will enable certain objectives to be attained as well as recovery cost. A good port approach can consider the charges due to the cost of an operations, the nature of the port and this depend on the various users and authority with their diversity in interest and objectives. An efficient port pricing is very difficult to be introduced in ports around the world especially in developing countries.

2.3 OBJECTIVES OF PORT PRICING

Port pricing is not homogeneous throughout the ports across the world due to varied objectives. That is why port authorities have different approaches toward port pricing in their various ports. The objectives of the Port of Tema are also in line with that as stipulated by UNCTAD (1975, 2010) which include;

- To promote efficient use of port equipments: the main objectives of most ports when port pricing is to make sure facilities are used efficiently. Pricing policy can influence the utilization of assets especially when the demand is price elastic that is a change in price will lead to more than proportional change in demand. On the other hand, when demand for the service is inelastic (the change in price does not affect the demand for the service).

- To maximise the return on the investments: this is mostly particular in developing countries since a great amount of capital used in investment might be borrowed money from financial institution so port pricing help to refund the money borrowed for investment. And, to use part of the investment to improve and carrying out
developmental issues within the country, hence stimulating the social-economic development of the country.

- To minimize the capital demand: through pricing, the required capital needed by the port is being reduced since some of it is being ploughed back in to the port investment scheme.

- To minimize the running cost of the port: when sufficient revenue is being achieved there is always a guarantee to solved unforeseen financial expectation like fall in revenue, rise in cost, and purchasing of valuable equipment needed thereby promoting continuity in operation and maintain the port autonomy.

- To stabilize the economy: this aspect is very common within ports in the developing countries control by the government through it stakeholder where imports are very high at time with high charges. These high charges end up being paid by domestic consumers in the form of high prices charge on goods consumed. That is why port pricing strategy that is too fluctuating will lead to instability in domestic prices which may cause an artificial market scarcity or black-market situation. The table below indicates the various port players and their possible objectives; it may vary in terms of ownership.
Table 2.1: Port Players and Their Possible Objectives

<table>
<thead>
<tr>
<th>Port Player</th>
<th>Possible Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Efficient management of assets</td>
</tr>
<tr>
<td>Economists</td>
<td>Minimizing the welfare losses</td>
</tr>
<tr>
<td>Port authorities</td>
<td>Maximizing throughput</td>
</tr>
<tr>
<td></td>
<td>Maximizing value added</td>
</tr>
<tr>
<td></td>
<td>Maximizing employment</td>
</tr>
<tr>
<td>Users</td>
<td>Transparency of charges</td>
</tr>
<tr>
<td></td>
<td>Prices should reflect the costs of the services</td>
</tr>
</tbody>
</table>

Source: Based on Suykens and Van de Voorde, 1998 and Pettersen-Strandenes and Marlow, 2000

2.4 DETAIL ANALYSES OF PORT PRICING APPROACHES:

For an efficient port pricing approach to be attained, there should be a clear-cut understanding between the various costs which will assist in preparing the appropriate tariffs. They are marginal cost pricing, average cost pricing, variable cost pricing, and market pricing.

2.4.1 Main Pricing Approach.

2.4.1.1 Marginal Cost Pricing (MCP).

In this type, the cost is based on unit that is cost growth cause by increase in the activity of one unit. Marginal cost will be cost originated from port for servicing one extra ship call, which is calculated as total cost = fixed + variable (UNCTAD 2010). The economy is assumed to be in a situation of perfect market conditions where there are many supplier and buyers and none of them can change the price situation of the market. It should be noted here that if price is more than cost, limited services will be provided, whereas if the price is lesser than the cost more of the service will be provided more than others. That is why they came up with two categories
of marginal cost pricing which are short run marginal cost pricing and long run marginal cost pricing (Esra Bennathan and Walters 1979, p. 6). This was later on acknowledged by Meersman et al., (2003), he made it clear that if “setting port prices equal marginal costs then it can only be possible in a perfectly competitive and free economy or in an efficient socialist economy system” (p.6). Looking into the pricing situation at the Port of Tema, MCP is applicable to an extent since the port authority (GPHA) also provides some services to the port users. Below is cost curve which illustrate the various situation of the marginal and average cost both in the long run and short run periods.

![Figure 2.1 Port Marginal Cost Pricing](source: adapted from Haralambides (2002 p333) and cited from Souhir abbes (2007))

Source: adapted from Haralambides (2002 p333) and cited from Souhir abbes (2007)

E = equilibrium point

G = new equilibrium when economic of scale set in

AB = deficit
CD = rent
DG = congestion
SRMC, LRMC = short run marginal cost and long run marginal cost
SRAC, LRAC = short run average cost and long run average cost

If a port operates under competition all things being equal, with the economics of scale being achieved, it must supply at Q₁ which is lesser than Q₀ that is pricing at SRMC P₁ will cause a deficit AB while pricing at P₀ which is the LRMC this will reduce the deficit to AF through public funding which led to economics of scale in the long run. Point E become the equilibrium since SRMC = LRMC. If economics of scale sets in quantity demanded will be at Q₂ with economics rent and congestion setting in CD and DG according to Haralambides (2002) it will not last long in the long run situation. Hence investment and expansion will take place and the economic rent and congestion will reduce and G becomes the new long run equilibrium. When SRAC is above the SRMC (SRMC > SRMC) diseconomies of scale is being eliminated and full capacity or optimum capacity and efficiency is attained. Note that SRMC may be lower than the LRMC depending on the condition that prevail. When the SRMC is lower it means that there is excess capacity LRMC will be greater than SRMC. Similar situation can be notice at the Port of Tema that is looking at the Port of Tema presently from ten years back, congestion (diseconomies of scale) was the talk of the day due to many investors getting into the business. This triggered an increase in economic rent hence leading to rapid expansion and privatization. This was seen in certain sectors like terminal handling given to MPS and so on, also expansion was noticed from the construction of new terminals like the Golden Jubilee Terminal and Inland-container Depots (ICD’s) by private companies hence help in reducing the issue of congestion at the Port of Tema. In addition, this aspect of expansion is still on a move with the 1.5 billion project which is at hand, the new refrigerated terminal with the capacity to hold 800 20-footer equivalent unit (TEU) containers all this expansion at the Port of Tema will position
it to be one of West Africa’s largest and most well-equipped seaports if all these projects are realized (De Wulf, L, 2011), thereby reducing diseconomies of scale as said by Haralambides (2002).

**2.4.1.2 Average Cost Pricing**

This is based on cost of providing the serviced determined by adding the total fixed and variable cost and dividing it by the projected demand for the services or facilities. Here the total revenue collected will be equal to the total cost if and only the projected demand is realized. This pricing approach helps the port to make more revenue used in carrying out other investment without depending on subsidies. When fixed cost increase, throughput decreases the average or per unit cost, while ports with increasing amount of variable cost will witness an increase in per unit cost as the throughput increases. There is a lot of criticism on this approach due to the fact that it is fluctuates and price discriminating. (UNESCAP, 1993)

**2.4.1.3 Variable Cost Pricing.**

Here pricing is based on the unit of variable cost which is attained by dividing the total variable cost by the projected demand for the services and facilities. It changes with the level of activities and it can be avoided even though it leads to efficient use of port resources. Furthermore, to use variable cost pricing in most ports at time is very difficult because most port services and facilities have variable costs which are too small for tariff to be Levi on and to recover the investment cost. Another advantage in this approach is that operational and financial objectives of port can be attained even when demand reduces for particular services. (UNCTAD, 2010).
2.4.2 Alternatives Pricing Approach.

2.4.2.1 Market Pricing

In this system the port pricing authority try to compare pricing with other neighbouring port (competitors), hence building up greater demands for its products (services and facilities) that will attract port users. It is done this by moderating the pricing to overcome its competitors. This is common where there is a market leader. Market pricing come with some benefits given by the port authorities to the users like discount tariffs, that is reducing tariffs depending on the tonnes of goods being imported or exported annually, that is the more tonnage of goods the lesser your tariffs you pay annually. On the other hand, market pricing can also cause tariff war which is a situation where reduction in pricing will cause other to reduce theirs even lower than yours this goes on and on in a cycle up to a point of breaking-even.

2.4.2.2 Valued-Based Pricing.

This is pricing based on the users’ choice of valuing a service being provided by a particular port. Most shippers always want their goods to be handled in a proper manner using modern standard equipment and should be ready to pay for it for this reason some port will have high tariffs as compare with other but still have high number of vessels call more than others.

2.4.2.3 Cost-Plus Pricing.

In this approach, according to Hilde Meersman e’ al (2014) pricing is done by “calculates prices based on cost plus a standard margin” this is the most direct method of pricing which many ports are implementing. (p.20)
2.5 TYPES OF PORT CHARGES AT THE PORT OF TEMA

For any business to be successful there must be a cost paid by the customers or consumers of that goods so that there is certainty of continuity in the business, this situation is not so different in port pricing. In port pricing, that cost which the customers pay is called port charges and tariffs which is our focus, it can be adjustable as well as non-adjustable.

It can be categories into general tariffs, facilities tariffs and services tariffs or better still be classified as charges on ship and charges on goods with the main charges on ship being the conservancy charges. However other charges or cost do exist pertaining to different organization concerned as seen below.

Table 2.2: Cost Demanded by Relevant Organisation present at the Port of Tema.

<table>
<thead>
<tr>
<th>Cost</th>
<th>Relevant Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freight</td>
<td>Shipping line</td>
</tr>
<tr>
<td>Port charges</td>
<td>Port Authority</td>
</tr>
<tr>
<td>Custom duty</td>
<td>Ghana Revenue Authority (customs)</td>
</tr>
<tr>
<td>Freight forwarding charges</td>
<td>Forwarding or Clearing Agent</td>
</tr>
</tbody>
</table>

Source; GPHA Tariffs 2015

2.5.1 Vessel Handling Charges

Must vessels are charge depending on their sizes that is gross registered tonnage (GRT) which is the volume or space available in the ship for cargo carrying, stores, fuel, passenger, and crew members. Some of these charges are;
2.5.1.1 Conservancy and Port Dues

Conservancy charges are compulsory and levied on the use of general nautical facilities in the approach to a port that is outside the port area, such facilities and services include aids to navigation, charges on cost of dredging, training wall, harbour facilities and many others, charges are measure in gross registered tonnage (GRT).

It is often called harbour and light rates. Sometimes the State governments set the rate or port authorities. On the other hand, port dues are levied for services and facilities used within the port area, some of these services and facilities are vessel traffic services, channel break water, emergency firefighting services, marine security and pollution control. In some, port conservancy and port dues are combined into a single charge. Port dues are based on vessels sizes, type and GRT is the standard unit used in measurement even though Net Registered Tonnage (NRT) and Dead Weight Tonnage can still be used in measuring charges. In the Port of Tema Gross Tonnage is being use.

2.5.1.2 Pilotage.

A charge levied for the use of pilots who go on board the vessels to manoeuvre it from dangerous and congested areas. In some ports it is compulsory. Charges for pilotage services include ancillary services like helicopter which is used by the pilots, labour, and shore facilities. Pilotage is carried out in two ways inside and outside the port and charges depends on GRT. For vessels more than 10 NRT pilotage is compulsory when entering, leaving or shifting in the main harbour whereas in the fishing harbour it is Optional and vessels wishing to enter harbour must await the pilot off the harbour entrance, up to 2.5 miles from distance (GPHA Tariff April 27, 2015). In respect to our area of studies which is the Port of Tema, GRT is the unit used in determining charges, and it varies with vessel type. Presently, vessels of 30000 GT to 40000GT are being levied US$ 964.0 for a movement while tankers and bulk carrier of the same capacity pay US$ 1923.68 for a movement.
Pilotage Operations lasting more than one hour shall attract additional charge of 25 percent of the rates stated for every additional 30 minutes or part thereof. Towage to offshore locations e.g. Oil and Gas Production Platforms, Single Point Mooring facilities, etc. shall attract double the rates specified here (GPHA Tariff, 2015).

2.5.1.3 Towage

It a charge for the provision of tug services. It might be within or out of the port or even within berth in a port. This service is not compulsory but for security purpose it should be taken into consideration. A tug is compulsory for ships over 1000 GRT, with two tugs compulsory for tankers and Valco ships. Towage charges can be a flat fee or depending on the type of tug boat used and time duration of the activity. At Tema, towage of vessels 1000GT pays US$ 96.72; it varied with GT of the vessels like tankers and bulk carrier for example vessels with 20000GT up to 30000GT is levied US$ 2570.88 that is higher than the price of the other vessels. Towage Operations lasting more than one hour shall attract additional charge of 25 per cent of the rates stated for every additional 30 minutes or part thereof. Towage to offshore locations e.g. Oil and Gas Production Platforms, Single Point Mooring facilities, etc. shall attract double the rates specified here (GPHA Tariff, 2015)

2.5.1.4 Mooring – Unmooring (Berthing and Unberthing)

This is the charge for tying up the mooring ropes when the vessels enter the berth and releasing them when the vessels are leaving the berth. This service is at time provided by a private operator. Charges may be based on GRT, characteristic of the vessels or a fixed rate. In the Port of Tema charges are levied according to GT of the vessels and the type vessel.

For instance, bulk carrier of about 20000GT to 30000GT pays close to US$ 231.92 whereas tankers of the same capacity pay US$ 661.44. Mooring and Unmooring Operations lasting
more than one hour shall attract additional charge of 25% of the rates stated for every additional 30 minutes or part thereof (GPHA Tariff, 2015)

2.5.1.5 Berth Hires (Berth Occupancy)

It is a charge on ship for occupying the berth for a length of period. Charges are used to maintain docks, dredges, and quays provision. Berth charges are determined by measuring the length and multiplying it with the time spent at berth. In the Port of Tema it is based on the length over all (LOA) as indicated in the Lloyd’s register of shipping, up to 1000meters pays US$ 193.44 per day.

2.5.1.6 Vessel Shifting Charges and Anchorage Charges

This takes place after pilotage when a vessel needs to be moved or displaced. shifting Operations lasting more than one hour shall also attract additional charge of 25 percent of the rate stated for every additional 30 minutes. Anchorage charges are paid per day, but 50 per cent rebate on it shall be granted to vessels/crafts which spend no more than 24 hours at the Anchorage. (GPHA Tariff, 2015)

2.6 Charges on Cargo

2.6.1 Wharfage

It is a charge on cargo, sometime called harbour dues. Charges are based on cargo type, tonnage, quality, and type of trade.

Charges are not meant to cover a specific purpose but varieties of cost such as; infrastructure, superstructure, facilities, quays, parking area cost, security control etc. (Rubie, R. D. Pricing of Port Services BTE, 1989)
2.6.2 Warehousing

This is a charge for storing of cargo beyond a specific basic time schedule. Charges depend on cargo type, tonnage, time spend in the warehouse and with the type of storage involve; open or close storage and frozen storage. At the Port of Tema there is a free storage period for 21 days, there after the next 7 days for the case of conventional cargo is levied US$ 1.00 per day and another 7 days is charge at US$1.25 per day there after it is charged at US$1.50 per day. In the Port of Tema, rent on empty containers shall be calculated from the date the container was unstuffed (emptied) to the date of living the Port or shipment. Also, if cargo meant for export was removed from the vessel for one reason or the other shall attract full storage rent for the period spent in the Port. This will incur another handling charge but shall enjoy 7 days without rent (GPHA Tariff, 2015).

2.6.3 Transit Storage

When cargo arrive the port, it is stored in the transit zone for collection if not collected in time then it is sent to the warehouse. Transit charge is levied for cost of keeping your cargo in the transit zone or shed for that specific duration. Increasing the charges will indirectly force owners to collect their cargo fast creating space for other goods. These charges are mostly fixed. Rent days on inbound containers (transit inbound) shall be computed from the date of completion of discharge of the carrying vessel to the date of delivery. Rent days on export containers shall be computed from the date of receipt to the port to the date of loading onto the carrying vessel (GPHA Tariff, 2015). Below is an illustration showing cargo flow to the transit shipper.
Figure 2.2 Sub processes of cargo throughput, from a commodity-flow point of view to the Transit Shipper at the Port of Tema.

**Major actors**

![Diagram of actors]

**Other service providers**

Source: adapted from Meersman et al (2009)

### 2.6.4 Stevedoring.

Stevedoring work is the loading and unloading of ship’s cargo. For export cargo it includes picking up cargo from a shed or from storage on quay, transporting it to ship’s side, loading it onboard the ship and finally stowing it on board. Included in the stowing work is securing and lashing cargo and handling dunnage. These activities of handling of cargo might be carrying out with machines (use of lifters) or by human labour hence over time charges are considered.

There is also receipt and delivery charges, charges are levied per metric ton, cubic meter, freight ton and TEU (twenty feet equivalent unit). At the Port of Tema, stevedoring activities are also carry out by a private operator.
In Conclusion, there are also some minute charges which are not mentioned above like hiring of cargo, handling equipment (craft), fees and port due for small craft and supply/support vessels, repackaging, water and electricity supply, telephone, garbage collection and security night men. It should be noted that all these charges are not homogeneous, it varied from port to port depending on the objectives, efficiency of services in the port and the authorities involved.

The table below gives a clear view on the various activities which takes place at the port and the authorities in charge.
Table 2.3: Various Services provided to the users by both Private Sector and the GPHA.

<table>
<thead>
<tr>
<th>SERVICE GROUP</th>
<th>COMPONENT/TYOE OF SERVICE</th>
<th>RATE</th>
<th>CHARGING SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>BASIC</td>
</tr>
<tr>
<td>Vessel handling</td>
<td>Pilotage</td>
<td>$</td>
<td>Size of ship</td>
</tr>
<tr>
<td></td>
<td>Towage</td>
<td>$</td>
<td>Size of ship</td>
</tr>
<tr>
<td></td>
<td>Mooring/unmooring</td>
<td>$</td>
<td>Size of ship</td>
</tr>
<tr>
<td></td>
<td>Harbour rent</td>
<td>$</td>
<td>LOA of ship</td>
</tr>
<tr>
<td>Cargo handling</td>
<td>Stevedoring</td>
<td>$</td>
<td>Containers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Conventional &amp; bulk cargo</td>
</tr>
<tr>
<td></td>
<td>Shore-handling/receipt delivery service provider</td>
<td>CH¢</td>
<td>Containers</td>
</tr>
<tr>
<td></td>
<td>Storage</td>
<td>CH¢</td>
<td>containers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>conventional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vehicle</td>
</tr>
</tbody>
</table>

Source: Port of Tema tariff 2015

2.7 SECTION B: TRANSIT TRADE IN WEST AFRICA

West Africa comprises 16 countries of which, thirteen have direct access to the sea while only three countries (Burkina Faso, Mali and Niger) do not have as seen on the map below (Luguje, Michael Achagwe, 2004). Five road corridors and one rail corridor link Abidjan to Ouagadougou. Before the outbreak of political instability in Côte d'Ivoire in 2003, TT through its corridors was the most active one in the sub region. (UNCTAD, 2007). The main coastal
states in West Africa which benefit from Transit Trade are Ghana, Cote d’Ivoire, Benin, Togo, and Senegal (UNCTAD, 2007). The three land-locked countries now have a task to decide which coastal states will be favourable to trade with.

These LLC’s of West Africa portray features of poor climatic conditions characterized by desert and semi desert which therefore lead to less agricultural activities. Furthermore, industrialisation is low due to their economic conditions (Luguje, Michael Achagwe, 2004). These factors account for the reason why these LLC’s focus more on exportation of primary products such as cotton, livestock, precious minerals, groundnuts and timber, and imports goods like consumer goods, equipment, and industrial machines (Luguje, Michael Achagwe, 2004).

According to information from UNCTAD (2007) Tema and Abidjan ports have goods corridor roads which at time favour Transit Trade when compare with other corridors of the sub region. Notwithstanding, there are also several problems facing Transit Trade in West Africa such as poor nature of the linking highways with other neighbouring countries, slow and poor implementation of decision agreed upon like the issue of axle load which is still not yet implemented in most transit corridors in West Africa (Meyer, N., Fenyes, T., Breitenbach, M., & Idsard, E. 2010).
Map 2.1 Map Portraying Some Countries In West Africa.

Source: adapted ShortURL https://cpj.org/x/1ee9

April 11, 2000 8:17 PM ET

2.7.1 TRANSIT TRADE IN GHANA

Ghana is one of the coastal countries in West Africa which is exposed to the sea. Its geographical nature position the country as a transit state used by the LLC’s and even other coastal states.
Map 2.2 indicating Port of Tema and Trading with the Landlocked Countries of West Africa

Source: (www.ghanaports.gov.gh)

2.7.2 CONVENTIONS ON TRANSIT TRADE IN GHANA

Ghana as a nation is attached to so many multilateral, regional and bilateral agreements on issued of TT. But there is no unified law which governed the aspect of TT amongst nations (Kofi Mbiah, 2006).

2.7.2.1 Multilateral Conventions

The three most important multilateral transit agreements in West Africa are the Inter State Road Transport Convention (IST), the Inter-State Road Transit Convention (ISRT) and the agreement on the West African Brown Card insurance scheme (UNCTAD, 2007 p,10).

UNCTAD (2007) in one of it Preamble of the New York Convention emphasizes precisely on “the recognition of right to every LLC’s to free access to the sea constitutes a principle indispensable for the expansion of international trade and economic development”. It also prohibits transit States from taking advantage of their geographical position to imposed duties and taxes on goods in transit hence exempting transit goods from customs duties. This is also in line with Article 127 of UNCLOS, but emphasis is laid on the fact that during transit period payment are made for services rendered by the transit state to help in keeping the port up to date. Furthermore, Article 5 of the GATT also states that traffic in transit should not be subjected to unnecessary delays and restrictions (Uprety, Kishor, 2006, p 121). Article 128-129 of the same document required that transit states and the LLC’s must put in place the necessary facilities to facilitates the process of the transit trade. A practical example of this requirement is seen in the case of Ghana and Burkina Faso coming together and funding the construction of a transit warehouse to accommodate Burkina Faso’s transit goods (Francise Michael Pobee-Mensah, 2014).

United Nations convention on the Law of the Sea, gave the Rights and Access to Land-locked States to and from the Sea and Freedom of Transit. This General Transit Rights is related to transit rights, Article 125(1) of the UNCLOS III which is clear and self-explanatory. Land locked states shall have the right of access to and from the sea for exercising the rights provided for in this Convention including those relating to the freedom of the high seas and the common heritage of mankind.
As a result, land-locked states shall enjoy freedom of transit through the territory of transit states by all means of transport (World Bank, transit regime for land locked state, n.d.).

As codified by UNCLOS, all coastal states are therefore, obliged to open their ports to be used by LLC’s and make sure they control the transaction of the land-locked countries. However, beyond this legal obligation on coastal countries to their landlocked neighbours are “commercial, diplomatic and socio-cultural benefits that such trading partners stand to enjoy” (Luguje, Michael Achagwe, 2004).

2.7.2.2 Regional Conventions on Transit Trade in Ghana

Ghana is a member of Economic Community of West Africa State (ECOWAS) and Africa Economic Community (AEC) amongst others. This made the government to adjust its trade policy, making it to be unanimous and harmonized its external tariff with other member states (GPHA, n.d.). It has over the years been revising and progressively moderating its imports quotas, tariffs and export licensing to meet with that of other members hence trying to gain the market since she is in a competitive zone. The government of Ghana together with other private maritime sectors in Ghana is a member of Maritime Organization of West and Central Africa (MOWCA). This organization include landlocked and transit countries which discuss issues relating to trade in goods and services, access to seaports, transit transport, and the harmonization of documents, taxes, duties as well as safety and security (UNCTAD, 2007).

USAID in its report on West Africa Hub provide technical assistance to ECOWAS and Union Economique et Monetaire Ouest Africaine (UEMOA).

This is to Improve Road Transport Governance (IRTG) initiative which was aimed at examining the issues on road barriers, delays and bribes incurred by truck drivers along major
West Africa corridors including the Tema-Ouagadougou corridor. This led to a report in 2010 on “Transport and Logistics costs on the Tema-Ouagadougou Corridor” (USAID, 2012, p. 11).

The President of the Borderless Alliance Mr Ziad Hamoui in an international conference with Dr Kofi Mbiah, Chief Executive Officer of the Ghana Shippers Authority emphasized the need for the private sector and public agencies to work together to remove the barriers hindering trade in West Africa. This was welcome by the US Ambassador Gene A. Cretz, who encouraged the private sector and the Borderless Alliance in their efforts to improve the business environment in West Africa (Borderless Alliance, 2013 p. 4). It was in line with this idea that GPHA (Government) with the private sector had to invest in West Africa Transport and Transit Facilitation Projects; which is designed to benefits countries like Burkina Faso, Niger and Mali (Borderless alliance, 2013).

2.7.2.3 Bilateral Agreement

Bilateral agreement is an arrangement or covenant between two parties. The Government of Ghana under the Ghana Shippers’ Authority had signed a Memorandum of Understanding with Shippers’ Councils from Burkina Faso, Mali and Niger to facilitate the movement of Transit cargoes through the Ghanaian corridor (Ghana New Agency, 2012). Furthermore, GPHA also signed an agreement to give a piece of land to the Burkinabe government to construct a storage space for their Transit cargo (GPHA, 2014).

2.8 THE TREND OF TRANSIT TRADE IN TEMA WITH THE LLC’S OVER THE PAST SEVEN YEARS.

According to statistic from GPHA indicates that Transit Trade has been on a decrease for the past 5 years it started in 2009 when the country loss great amount of revenue from the continues drop in Transit Trade to about 40% from more than 840000 tonnes in 2007 to 520000 tonnes
in 2014, which was beneficial to its neighbouring west Africa ports (Ghana news agency 2015). Recently, information from GSA 2015 shows that 152022 tonnes of cargo owned by transit traders of Burkina Faso, Mali, and Niger indicates a 36% dropped as compared to the statistic of 2014 as seen on the table and graph below (GPHA, n. d.). The main transit routes linking the Port of Tema and its LLC’s are

- Tema-Kumasi-Tamale-Paga
- Tema-Kumasi-Tamale-Hamile
- Aflao-Accra-Takoradi-Elubo

Transit operators are advised not to divert from these main routes and to keep the customs seals or tracking devices intact to avoid tax evasion (customs guide 2011). Below is a table showing statistics on port performance at the Port of Tema with its LLC’s countries.

### Table 2.4 Tema Port Transit Trade performance

<table>
<thead>
<tr>
<th>Years</th>
<th>Mali</th>
<th>Niger</th>
<th>Burkina Faso</th>
<th>Others</th>
<th>Total volume of Transit Trade (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>227,787</td>
<td>118,112</td>
<td>489,320</td>
<td>8,437</td>
<td>843,653</td>
</tr>
<tr>
<td>2009</td>
<td>124,346</td>
<td>45,697</td>
<td>258,829</td>
<td>80,252</td>
<td>509,124</td>
</tr>
<tr>
<td>2010</td>
<td>55,153</td>
<td>76,036</td>
<td>257,552</td>
<td>58,329</td>
<td>447,071</td>
</tr>
<tr>
<td>2011</td>
<td>53,155</td>
<td>65,727</td>
<td>426,502</td>
<td>68,694</td>
<td>614,078</td>
</tr>
<tr>
<td>2012</td>
<td>44,550</td>
<td>51,722</td>
<td>370,325</td>
<td>63,860</td>
<td>530,053</td>
</tr>
<tr>
<td>2013</td>
<td>49,606</td>
<td>47,974</td>
<td>464,104</td>
<td>58,984</td>
<td>620,668</td>
</tr>
<tr>
<td>2014</td>
<td>26,449</td>
<td>50,217</td>
<td>463,339</td>
<td>37,222</td>
<td>577,227</td>
</tr>
<tr>
<td>2015</td>
<td>44,024</td>
<td>26,469</td>
<td>596,277</td>
<td>55,738</td>
<td>722,508</td>
</tr>
</tbody>
</table>

Source: Author construction from past statistics, (GPHA, n.d.)
Figure 2.3 Transit Traffic through the Port of Tema from 2003 To 2015

Source; adopted from (GPHA, n. d.)
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This section outlines the methodology employed for the research. This will ease understanding of the research in addition to the results presented in the subsequent section. This part of the work covers research design, population, sampling procedure and sample size, research instruments, data collection procedure, data analysis method and study area. There are two groups to be involved with in this study; we have the services providers made up of GPHA’s, MPS, clearing agents (freight forwarders) and the users of port facilities and services (shipping agents and transit shippers).

3.2 RESEARCH DESIGN

The research design to be adopted for this study is descriptive research. The descriptive survey tries to assess that which exists in relation to elements or circumstances in a situation. According to Creswell (2003) a descriptive survey essentially explores norms. It is chosen because the cost effectiveness of the design and the quick turnaround in information gathering. It is easy to recognize qualities of a big number of people from a minor group of individuals. Again, there is no administration or control of treatment as found in experimental research (Babbie, 1990).

The study deployed an amalgam of qualitative and quantitative approaches. The choice of the combined approach using quantitative and qualitative methods for this research was based on the fact that the researcher sought to discover the research questions from two diverse viewpoints that will lead to a wide-ranging comprehension of issues concerning subject. The use of the qualitative technique, along with the quantitative approach, this was put forth
because it facilitated the exploration of the research questions from the viewpoint of port stakeholders which in turn leads to broader understanding of issues relating to the topic.

Saunders et al. (2003) posited that qualitative research relates to the method of gathering variety of empirical data through introspection, individual opinions, interviews and observation to understand the subject under study or views of peoples on the subject under study.

Similarly, the usage of a questionnaire requires that questions are asked using questionnaire to extract the needed data for the purposes of increasing the trustworthiness of the results and achieving the research objectives. The quantitative approach was also employed particularly to examine the impact of port pricing on transit traffic. Bryan and Bell (2007) referred to quantitative design as “a research strategy that emphasises quantification in the collection and analysis of data” (Bryan and Bell, 2007, pg. 24). Also, Martins (1996) stated that quantitative research is an “inquiry into a social or human problem based on testing a theory composed of variables, measured with numbers, and analysed with statistical procedures, to determine whether the predictive generations of the theory hold true” (Martins (1996; pg. 32). Saunders et al (2003) posited that qualitative research relates to the method of gathering variety of empirical data through introspection, individual opinions, interviews and observation to understand the subject under study or views of peoples on the subject under study. Based on the strengths of both methods it was deemed relevant to deploy them together to achieve the objectives of the study.

3.3 THE STUDY POPULATION

According to Burgess (2001), the study population is that group of people in which the researcher will like to interact with or is interested in hence refer to as “liable population” for the researcher (p.12). Furthermore, study population may be seen as individuals, groups,
organizations, human products and events or the conditions to which they are exposed (Cooper and Emory, 2001, p.769).

With regards to this study the target population will include all members of the port community at the Port of Tema both government and private sectors which are some personnel from GPHA, Custom Division of Ghana Revenue Authority, some stakeholders, some MPS officials, Ghana shipper’s council, clearing agents and providers of transit services.

3.4 STUDY AREA

Ghana has two seaports which are; the Port of Takoradi and the Port of Tema. The Port of Takoradi is use mostly for the export of Ghana’s seaborne trade. The main exports commodities which pass through the Port of Takoradi include commodities such as forest products and agricultural product such as cocoa beans timber. The Port of Tema is the most important entry port in Ghana, it mostly receives petroleum products, wheat, clinker and containerized goods (GPHA, 2014) into the county thus, it handles around 70% of Ghana's total maritime cargo with a surface area of 3.9 million square meters, 12 cargo berths with draught from 8.0 to 11.5 and with two dry docks surrounded by an industrial city. It is located at the point 28km East of Accra, at 5’3’N & 0’01’E of the equator. This port receives an average of over 1650 vessels call per year which are container vessels, general cargo, tankers, Ro-Ro and cruise liner amongst many others. It exports include cocoa, cotton, frozen fish, fruits, nuts and petroleum products. While it imports include alumina, caustic soda, cement, clinker, crude oil consumer goods, fish machinery and tallow. The Port of Tema was ranked 1st in term of efficiency in West Africa with an average score of 91% (GPHA, 2014n.d.). Around the port area are Inland containers deports (ICD’s), warehousing/logistics-based platform, banks such as Ghana Commercial bank (GCB) Ecobank, Western Union (WU) and adb bank, transporter trucks and companies and other related services centers. All these services contribute in one way of the
other in facilitating the importation and exportation of goods at the ports of Tema. This area also enhances a lot of activities resulting from shipping lines and terminal operators like Maersk Line, Mediterranean shipping company (MSC), Delmas (CMA-CGM), P&O Nedloyd Hanjin, MPS, APM and others. Also, there are a lot of clearing and forwarding companies present.

Due to the numerous activities taken place at this port, there was a need of an expansion since the port also served the landlocked countries; Niger, Burkina Faso and Mali especially in 2003 when during the post electoral violence in neighbouring Cote d’Ivoire, where many LLC’s have to shift from the port of Abidjan to Tema and others hence adding to the total throughput at Ghanaian ports (Modern Ghana, 2014). This encourage the expansion project which aimed at increasing it capacity from 1 million 20-foot equivalent containers (TEUs) to 3.5 million TEUs, all designed to 2015 standards.

3.5 SAMPLE SIZE

Since port pricing is mostly being enforced by top ranking officials in an administration like senior and assistant managers, they were the one been focus on due to their experience and knowledge concerning port pricing. Area to research on was classified as follows; GPHA those working in Golden Jubilee Terminal, 5 questionnaires were administered there, terminal one or the operations department 5, monitoring department 2, public relation department 3, custom service and market/finance department 10, to make a total sample population of 25. And 10 questionnaires went to the shipping companies or agents (4) to be sample and 10 for MPS and (7) were sample and lastly 10 for Ghana shipper’s authority (4) were sample, 30 questionnaires were administered from the three LLC’s for which (20) were sampled making a grand total of 80 questionnaires administered and 60 of them were the sample size as seen on the table below.
3.6 SAMPLING PROCEDURE

This research will be carrying out using simple random sampling method aided by quota sampling technique with an added feature which is dividing the population into strata (subgroups) to ensure representativeness (Saunders et al 2007). Due to the heterogeneous nature of the sampling population, there all have diverse interest and functions at the port hence differences in the view on port charges. Since determine the reaction of Port Users to changes in prices, is one of the objectives, when looking at how future prices can affect the transport sector, economic and growth in the transit trade.

Table 3.1: Population, Sampling Procedure and Research Instruments

<table>
<thead>
<tr>
<th>Target population</th>
<th>Sample size</th>
<th>Sample techniques</th>
<th>Research instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Officer Of GSA and other staffs 10</td>
<td>1</td>
<td>Purposive</td>
<td>Interview</td>
</tr>
<tr>
<td>Transit Trade Shippers for 3 LLC’s 50</td>
<td>4</td>
<td>Simple random</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Ghana Shipping Agents 12</td>
<td>20</td>
<td>Simple random</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Niger Shippers’ Association</td>
<td>4</td>
<td>Simple random</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>GPHA Finance Department and other Workers 80</td>
<td>1</td>
<td>Simple random</td>
<td>Interview</td>
</tr>
<tr>
<td>MPS Operation Manager and other Workers 40</td>
<td>25</td>
<td>Simple random</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Freight Forwarder</td>
<td>1</td>
<td>Purposive</td>
<td>Interview</td>
</tr>
<tr>
<td>Burkina Faso Chamber of Commerce And industry</td>
<td>1</td>
<td>Purposive</td>
<td>Interview</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: author’s own compilation
3.7 DATA COLLECTION

Data for this research involve both primary and secondary sources, which are: using questionnaires interviews and the information from books, journals, audio-visual materials and materials from the Web. Sampling is the main method used in obtaining information using questionnaires. Sampling is the process of selecting a portion of the population to represent the entire population. The population should be selected based on what will enable the researcher to answer the research question(s) (Johnstone, P, 2004). Notwithstanding this work also uses data obtained from field survey, interviews of some top officials of the organization like directors, managers, and officers and from GPHA website. Before the questionnaires were being administer on the field, the researcher did pilot testing of the questionnaires in class since most of his classmates are workers from the maritime industries like freight forwarder, shipping lines, Ghana Maritime Authority (GMA), GPHA, logistics personnel’s, MPS and a lot more. The only group absent to complete this pilot testing was the transit shippers. However, only questionnaires for Port Users were tested in class while those for transit shipper were tested on the field. After this session of pilot testing the researcher now goes on the large scale after some research questions were restructured to bring in vital information needed in this work. Later on questionnaires and interview were administered as indicated on the table below.

On the part of interview, the researcher organized face to face interview with the help of an interview guide prepared by him with prominent members of the organization where focus questions were asked, and responses recorded both on tape and in writing. These responses were later analysed by the researcher in the subsequent chapters. Below is a summary table showing how questionnaires and interview were organized with the relevant techniques targeting the population sizes.
3.8 STUDY VARIABLES

A variable is liable to or capable of changing. According to Kreuger and Neuman (2006) a variable is also a concept that changes taking on two or more values, it should be noted that variables help in moving a research from a conceptual view point to an empirical one using variables as essential elements of the research question and objectives.

3.8.1 Description of Research Variables

The variables to be used in this research were made up of dependent and independent variables.

Dependent Variable

To determine the impact of port pricing on transit trade at the Port of Tema, transit trade will be the dependent variable.

Independent Variables

The most important explanatory variables (charges) employed in this research are vehicle handling, storage facility and cargo handling.

3.9 METHODS FOR DATA ANALYSIS

After gathering the data, a computerized statistical analysis of the data was used to describe and interpret the data that was obtained. This was done using Statistical Package for The Social Sciences. The study employed the Ordinary Least Square (OLS) technique to estimate the relationship between bank intermediation and economic growth using STATA.

3.9.1 Model Specification

The equation is as follows:

\[ T_{trade_t} = \beta_0 + \beta_1 VH_{charge_t} + \beta_2 S_{charge_t} + \beta_3 CH_{charge_t} + e_t \]

Where:

\[ T_{trade_t} = \text{Transit trade} \]

\[ VH_{charge_t} = \text{Vehicle handling} \]
\text{Scharge}_t = \text{Storage facility}

\text{CHcharge}_t = \text{Cargo handling}

\epsilon_t = \text{Error term.}

\textbf{Error Term/Stochastic Disturbances}

The stochastic disturbances are those variables which can also influence transit trade.

3.10 \hspace{1em} \textbf{RELIABILITY AND VALIDITY OF INSTRUMENTS}

3.10.1 Validity: this is the quality of having legal face or effectiveness of measuring instruments. The validity of a measuring instrument is the extent to which the instrument measures exactly what is needed to be measure (Leedy and Ormrod, 2005, p. 28). Leedy, (1999) also said several validity types exist amongst them are:

- \textit{Face validity} relies on the objective to be examined by the researcher. The researcher has to ensure that the questions are relative to the subject being investigated.
- \textit{Criterion validity} is determined by relating performance of one measure to the performance on another measure.
- \textit{Content validity} is the accuracy in which an instrument measures the factors being investigated.
- \textit{External validity} is based on whether the conclusions reached in the study can be generalized.
- \textit{Construct validity} observes the honesty of the data collected.
- \textit{Internal validity} which focuses on the conclusion of the study free of bias

The data collected are valid since they are from official documents like journals and books. Those received from respondents are also valid since most of them are workers, managers and
directors of organization concerned with the port industry, these groups of people have good knowledge on port pricing in the maritime field. (p. 33)

3.10.2 Reliability:

This is the quality of being dependable. Leedy and Ormrod (2005) looked at reliability as the “changes that occurs when a measuring instrument portrays a particular result when the parameter being measured has not being changed and it can be established using several means which includes internal consistency, equivalent forms and test and retest reliability” (p.29,93). The accuracy of the research data can be determined only when its consistency can also be measured (Ahmed Yakubu Salifu, 2013, p. 43).

For the research questions and objectives to be well answered the questionnaires should be well structure to produced goods results if not leading to the popular saying “rubbish in and rubbish out”. Saunders et al (2000), mention that for a fact to be valid and reliable it has to go through the following stages

- The researcher must be clear about the information and then design the question.
- Thereafter the respondent decodes the question in the way the researcher intended.
- Then the respondent answers the question.
- Lastly the researcher decodes the answer in the way the respondent intended

The important issues of this questionnaires are that, the responses given helped in analysing and addressing the main issues outline in this research study. Before administering the questionnaires, there was a pilot testing to test the validity of the measuring instruments on a small scale before doing it on s large scale. (p.290). The reliability was ensured using the Cronbach’s alpha.
3.11 FIELD CHALLENGES:

Despite the enormous efforts put in place by the researcher to overcome the problems faced on the field some were proven very challenging or difficult to overcome such as;

Difficulties in getting appointments despite the numerous letters written and the personal visits made. Not every interview carryout gave satisfactory responses to the questions being asked. Also, respondents took much time in answering the questionnaires; hence the researcher had to follow up some of the respondents before they could answer the questionnaires. One of the reasons for this is due to the busy schedules of some of the respondents to retrieve questionnaires on time.

Authorities, personnel in charge of port pricing and statistics were unwilling to realize some information needed to carry out this research even though the purpose of this research study were made known to them that it was going to be used strictly for academic purpose, some still doubted the intension of the researcher since the data for port pricing is confidential. Their doubts are justified by the fact that there is keen competition which amongst ports, especially neighbouring ports. They are reluctant to divulge information in order not to expose their strategies to competitors. Hence tact needed to be taken when administering questionnaires. The bureaucratic nature of the port at times makes it very difficult to acquire quick information and a reliable one from the authorities in charge.

Difficulties was faced when written literature review especially on port pricing in West Africa Sub-region since little material is documented or published regarding this region (West Africa).

However, in the present of all these challenges encountered, the purpose of this study was fully attained. This research will continue with the proceeding chapter which is the presentation of findings which deals with data collected on the field by the researcher.
CHAPTER FOUR

RESEARCH RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter presents the findings from the field survey which was made possible by the use of questionnaire administered to personnel from GPHA, Custom Division of Ghana Revenue Authority, some stakeholders, some MPS officials, Ghana shipper's council, clearing agents and providers of transit services. Results obtained from the survey are summarized in the form of tables and charts. In order to assess the Port pricing policy and its impact on Transit Trade at the Port, the study proceeded in three ways. The first part examined the port pricing approaches at the Port of Tema. The second part examined the impact of port pricing on Transit Trade at the Port of Tema and the third part examined the factors hindering Transit Trade at the Port of Tema. The first and third part will be analysed using descriptive statistics mainly percentages and mean whiles the second part will be analysed using regression analysis.

4.2 DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

4.2.1 Sex Distribution of Respondents

Table 4.1 Sex Distributions of Respondents

<table>
<thead>
<tr>
<th>Sex</th>
<th>Port Users</th>
<th>Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Male</td>
<td>25</td>
<td>62.5%</td>
</tr>
<tr>
<td>Female</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

The sex distribution of respondents is shown in Table 4.1 and Figure 4.1. The results indicate that for port users, 62.5% were males and 37.5% were females. The result also shows that, for service providers, 75% were males and 25% were females. The results have thus shown that,
majority of respondents in this study are males. This may be because of the fact that more males are involved in transit trade at the Port of Tema.

**Figure 4.1 Shows the Various Sex Distributions of Respondents**

4.2.2 Age Distribution of Respondents

Looking at the age distribution, it will be a good basis in asking certain information in regarding the past.

**Table 4.2 Indicates Age Ranges of Respondents**

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Port Users</th>
<th>Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>20-29</td>
<td>8</td>
<td>20%</td>
</tr>
<tr>
<td>30-39</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>40-49</td>
<td>12</td>
<td>30%</td>
</tr>
<tr>
<td>50+</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.
Table 4.2 above and Figure 4.2 below show the age distribution of respondents. The results show that for port users, 20% were between the age ranges of 20-39, 37.5% were between the ages 30-39, 30% were found within the ages 40-49 and (12.5%) were 50 years or more. The results also show that, for service providers, 15% were between the age group 20-39, 35% were between the age group of 30-39, 40% were between the age group 40-49 and (10%) were 50 years or more.

The results have shown that, for both port users and service providers, majority of them were between the age group 30-49 years which implies that people involved in Transit trade are relatively matured given the majority age range.

Figure 4.2 Age Distribution of Respondents

4.2.3 Country of Origin of the Participant

This question was to find out which country using the Port of Tema is having the highest port users and service providers
Table 4.3 Respondents Country of Origin

<table>
<thead>
<tr>
<th>Origin</th>
<th>Port Users</th>
<th>Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Ghana</td>
<td>16</td>
<td>40%</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Mali</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>Niger</td>
<td>7</td>
<td>17.2%</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

Table 4.3 above and Figure 4.3 below show the country of origin of our respondents. The results indicate that for port users, 40% from Ghana, 25% were from Burkina Faso, 12.5% were Mali, 17.3% were from Niger and 5% were from other countries that is not from the three landlocked countries mention above, they used Port of Tema as a transshipment port while the landlocked countries of Burkina Faso, Mali and Niger use it for transit of their goods. The result further indicates that for service providers, 85% were from Ghana, 10% were from Burkina Faso and 5% were from Mali. It should be noted that some of these landlocked countries provide some transit services like storage of goods, trucks for transportation and financial assistant like loan to the shippers, which is one of the reasons why the Chamber for Commerce for Burkina Faso was created to solve some of problem faced by their importers and exporters.

This result has shown that maritime activities at the Port of Tema are dominated by Ghanaians. This may be as a result of the fact that the Port is located in Ghana.
4.2.4 Level of Education of the Respondents

It was necessary to find out the level of education obtained by the participant since it will go a long way to influence their responses.

Table 4.4 Level of Qualification obtained by Respondents

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Port Users</th>
<th>Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Diploma</td>
<td>14</td>
<td>35%</td>
</tr>
<tr>
<td>First Degree</td>
<td>15</td>
<td>37.5%</td>
</tr>
<tr>
<td>Master Degree</td>
<td>1</td>
<td>2.5%</td>
</tr>
<tr>
<td>PHD Degree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Others less than Diploma</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.
The educational levels of respondents are presented in Table 4.4 above and Figure 4.4. below the results show that for port users, 35% of Diploma, 37.5% had first Degree, 2.5% had Master’s Degree and 25% had other qualifications. For service providers, 20% of Diploma, 40% had first Degree, 30% had Master’s Degree and 10% had PHD. The results have shown that majority of port users had qualification up to first degree with only 2.5% having master degree and no port user had a PHD. For service providers, majority had educational level up to Master’s degree indicating that they have higher levels of education as compare to port users.

**Figure 4.4 Level of Qualification obtained by Respondents**

<table>
<thead>
<tr>
<th>Level of Qualification</th>
<th>Service Providers</th>
<th>Port Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>First Degree</td>
<td>40%</td>
<td>37.50%</td>
</tr>
<tr>
<td>Master Degree</td>
<td>30%</td>
<td>2.50%</td>
</tr>
<tr>
<td>PHD Degree</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>Others less than Diploma</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**4.2.5 Length of Services for Respondents or Working Experience**

It was necessary for the researcher to find out about the experience of the participants so the question on the length of time which the participants had been in service was asked
Table 4.5 Number of years of work

<table>
<thead>
<tr>
<th>Years</th>
<th>Port Users</th>
<th>Service Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>0-4</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>5-9</td>
<td>13</td>
<td>32.5%</td>
</tr>
<tr>
<td>10-14</td>
<td>10</td>
<td>25%</td>
</tr>
<tr>
<td>15-19</td>
<td>5</td>
<td>12.5%</td>
</tr>
<tr>
<td>20+</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

Table 4.5 above and Figure 4.5 below present the number of years respondents have been working in the maritime industry. The results show that for port users, 25% had worked from between 0-4 years, 32.5% had from between 5-9 years, 25% had worked from between 10-14 years, 12.5% had worked from between 15-19 years and 5% had worked for 20 years or more. Also, for service providers, 25% had worked from between 0-4 years, 15% had from between 5-9 years, 35% had worked from between 10-14 years, 10% had worked from between 15-19 years and 15% had worked for 20 years or more. This result has shown that majority of both port users and service providers have been working in the maritime industry from between 0-14 years. This implies that, they are very experienced when it comes to what goes on at the Port of Tema.
Figure 4.5 Number of years of work

4.3 THE PORT PRICING APPROACH AT THE PORT OF TEMA

The results of the awareness of the port pricing approach at the Port of Tema are presented in Table 4.6. Majority responses to each variable indicate awareness level of the various pricing approaches. The result shows that 60% of respondents are aware that the Port of Tema uses Cost-based pricing and 55% of respondents are strongly aware that the Port of Tema uses market-based pricing. The result also indicates that 75% of respondents were not aware that Port of Tema uses social optimal pricing, 52.5% were not aware that the Port of Tema uses import capacity utilization, 87.5% were not aware that the Port of Tema uses discriminatory pricing and 62.5% were not aware that the Port of Tema uses strategic pricing. The result has shown that apart from cost-based pricing and market-based pricing, majority of respondent are not aware of other forms of pricing approaches at the Port of Tema.
Table 4.6 Awareness of Pricing Approaches by Port Users

<table>
<thead>
<tr>
<th>Statement</th>
<th>Fully aware</th>
<th>Aware</th>
<th>Neutral</th>
<th>Not aware</th>
<th>Not at all aware</th>
<th>Majority Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost-based pricing</td>
<td>24 (60%)</td>
<td>16 (40%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Market based pricing</td>
<td>22 (55%)</td>
<td>10 (25%)</td>
<td>8 (20%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Social optimal pricing</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>5 (12.5%)</td>
<td>30 (75%)</td>
<td>5 (12.5%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Import capacity utilization</td>
<td>0 (0%)</td>
<td>5 (12.5%)</td>
<td>10 (25%)</td>
<td>21 (52.5%)</td>
<td>4 (10%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Discriminatory pricing</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>35 (87.5%)</td>
<td>5 (12.5%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Strategic pricing</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (5%)</td>
<td>25 (62.5%)</td>
<td>13 (32.5%)</td>
<td>Disagree</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

Table 4.7 presents the level of applicability of the pricing approaches at the Port of Tema. The result indicates that, 75% of respondents said the cost-based pricing is highly applicable at the Port of Tema and 52.5% mentioned that the market-based pricing is highly applicable. The result also shows that 62.5% of respondents said social optimal pricing is not applicable, 62.5% said import capacity utilization is not applicable, 75% said discriminatory pricing is not applicable and 55% said strategic pricing is not applicable. This result has clearly shown that apart from the cost-based pricing and market-based pricing which is applicable at the Port of Tema, other pricing approaches such as social optimal pricing, import capacity utilization, discriminatory pricing and strategic pricing are not applicable at the Port of Tema.
Table 4.7 Level of Applicability of Pricing Approaches

<table>
<thead>
<tr>
<th>Statement</th>
<th>Highly Applicable</th>
<th>Applicable</th>
<th>Neutral</th>
<th>Not applicable</th>
<th>Highly not applicable</th>
<th>Majority Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost-based pricing</td>
<td>30 (75%)</td>
<td>10 (25%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>Highly applicable</td>
</tr>
<tr>
<td>Market based pricing</td>
<td>21(52.5%)</td>
<td>15(37.5%)</td>
<td>4(10%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>Highly applicable</td>
</tr>
<tr>
<td>Social optimal pricing</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>5(12.5%)</td>
<td>25(62.5%)</td>
<td>10(25%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Import capacity utilization</td>
<td>0(0%)</td>
<td>5(12.5%)</td>
<td>3(7.5%)</td>
<td>25(62.5%)</td>
<td>7(17.5%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Discriminatory pricing</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>30(75%)</td>
<td>10(25%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Strategic pricing</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>3(7.5%)</td>
<td>22(55%)</td>
<td>15(37.5%)</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

Table 4.8 presents the pricing objectives at the Port of Tema. The result show that 55% of respondent strongly agree that the pricing objective is to recover investment, 65% strongly agree that the pricing objective is to cover operational cost and 65% strongly agreed that the pricing objective is to achieve a higher return on investment. The result further shows that majority of respondents disagreed that the pricing objective is to compete with rival ports, attract specific types of cargo, import capacity utilization and to promote regional economic development. The results have therefore demonstrated that, the main objectives of pricing at the Port of Tema is to recover investment, cover operational cost and achieve higher return on investment.
Table: 4.8 Port Pricing Objectives

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Majority Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recover investment cost</td>
<td>11 (55%)</td>
<td>6(30%)</td>
<td>3(15%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Compete with rival ports</td>
<td>0(%)</td>
<td>0(0%)</td>
<td>1(5%)</td>
<td>16(80%)</td>
<td>3(15%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Attract specific types of cargo or port users</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>2(10%)</td>
<td>15(75%)</td>
<td>3(15%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Import capacity utilization</td>
<td>0(0%)</td>
<td>3(15%)</td>
<td>0(0%)</td>
<td>12(60%)</td>
<td>2(10%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Cover the operational cost</td>
<td>13(65%)</td>
<td>5(25%)</td>
<td>2(10%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Promote regional economic development</td>
<td>(0%)</td>
<td>0(0%)</td>
<td>2(10%)</td>
<td>11(55%)</td>
<td>8(40%)</td>
<td>Disagree</td>
</tr>
<tr>
<td>Achieve higher return on investment</td>
<td>13(65%)</td>
<td>5(62.5%)</td>
<td>2(10%)</td>
<td>0(0%)</td>
<td>0(0%)</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

Source: Field Data, 2017.

4.4 THE IMPACT OF PORT PRICING ON TRANSIT TRADE AT THE PORT OF TEMEA

In this section, data are presented, analysed and interpreted. The results of the regression are presented in tabular STATA outputs.

4.4.1 The Impact of Vehicle Handling Charges on Transit Trade

Test of Hypothesis 1

H0: There is no significant impact of Vehicle handling charges on Transit Trade.

HI: There is significant impact of Vehicle handling charges on Transit Trade.
The model is specified as:

\[ T_{trade_t} = f(V_{hand}) \] .................................................................1

\[ T_{trade_t} = \beta_0 + \beta_1 V_{hand_t} + \epsilon_t \] .................................................................2

*When the P value is greater than 0.05 that is 5% significant level we accept the null hypothesis and reject the alternative hypothesis*

From STATA, the obtained model is:

**Table 4.9 The relationship between Vehicle Handling Charges and Transit Trade**

| Ttrade  | Coef.    | Std. Err. | t    | P>|t|   | [95% Conf. Interval] |
|---------|----------|-----------|------|-------|---------------------|
| VHcharge| 125.6351 | 85.85776  | 1.46 | 0.240 | -147.6026 - 398.8728|
| _cons   | 194518.9 | 286748.8  | 0.68 | 0.546 | -718043.7 - 1107082 |

The relationship between Vehicle Handling Charges and Transit Trade is presented in table 4.1. The results show that the vehicle handling charges have a coefficient of 125.6351 and P-value of 0.240. Since the p-value is greater than 0.05 significance level, we fail to reject the null hypothesis and conclude that vehicle handling charges has no significant relationship with Transit trade.

This demonstrates that even though vehicle handling charges has a positive relationship with Transit trade, it does not have any significant impact on Transit Trade.
4.4.2 The Impact of Storage Charges

Test of Hypothesis 2

H0: There is no significant impact of storage charges on Transit Trade

HI: There is significant impact of storage charges on Transit Trade as:

$$T_{trade_t} = f(S_{charge})$$ ......................................................... 3

$$RGDP_t = \beta_0 + \beta_1S_{charge_t} + e_t$$ ........................................... 4

From STATA, the obtained model is:

<table>
<thead>
<tr>
<th>Table 4.10 The relationship between Storage Charges and Transit Trade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ttrade</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Scharge</td>
</tr>
<tr>
<td>_cons</td>
</tr>
</tbody>
</table>

The relationship between Storage Charges and Transit Trade is presented in table 4.2. The results show that storage charges have a coefficient of -252.1618 and P-value of 0.925. The implication of this result is that, even though storage charges has negative relationship with Transit trade, it does not have any significant impact on Trade because the P-value of 0.925 is greater than the 0.05 significance level. We therefore conclude that storage charges have no effect on Transit trade at the Tema port.
4.4.3 The Impact of Cargo Handling Charges on Transit Trade

Test of Hypothesis 3

H0: There is no significant impact of cargo handling charges on Transit trade

HI: There is significant impact of cargo handling charges on Transit trade

The model is specified as:

\[ T_{\text{Trade}_t} = f (\text{CHcharge}) \]………………………………………………………5

\[ T_{\text{Trade}_t} = \beta_0 + \text{CHcharge}_t + e_t \]………………………………………………..6

From STATA, the obtained model is:

**Table 4.11 Shows the Relationship between Cargo Handling Charges and Transit Trade**

| Ttrade | Coef.    | Std. Err. | t      | P>|t|   | [95% Conf. Interval] |
|--------|----------|-----------|--------|--------|---------------------|
| CHcharge | 2272.443  | 1584.494  | 1.43   | 0.247  | -2770.125    7315.011 |
| _cons  | 236807.8  | 263199.3  | 0.90   | 0.435  | -600809.8    1074425 |

The relationship between Cargo Handling Charges and Transit Trade is presented in table 4.3.

The results indicate that the Cargo handling charges have a coefficient of 2272.443 and P-value of 0.247. This means that even though Cargo handling charges has a positive relationship with Transit Trade, it does not have any significant impact on Trade because the P-value of 0.247 is greater than the 0.05 significance level. We therefore conclude that Cargo handling charges has no effect on Transit trade at the Port of Tema.
4.4.4 The Impact of Port Pricing on Transit Trade

\[ T_{\text{trade}} = \beta_0 + \beta_1 V_{\text{hand}} + \beta_2 S_{\text{fac}} + \beta_3 C_{\text{hand}} + e_{ij} \]

The model is specified as:

\[ T_{\text{trade}} = f (V\text{Hcharge}, S\text{charge}, C\text{Hcharge}) \] ………………………………7

Thus, the equation is written as below in line with the objectives of this study.

\[ T_{\text{trade}} = \beta_0 + \beta_1 VH_{\text{charge}} + \beta_2 S_{\text{charge}} + \beta_3 CH_{\text{charge}} + e_{ij} \] …………………….8

From STATA, the obtained model is:

|          | Coef.    | Std. Err. | t     | P>|t|  | [95% Conf. Interval] |
|----------|----------|-----------|-------|-------|----------------------|
| VHcharge | 7170.698 | 4817.206  | 1.49  | 0.377 | -54037.71 - 68379.11 |
| Scharge  | 5182.831 | 3697.102  | 1.40  | 0.394 | -41793.3 - 52158.97 |
| CHcharge | -127837.2| 87482.84  | -1.46 | 0.382 | -1239412 - 983737.7 |
| _cons    | -3872040 | 2750606   | -1.41 | 0.393 | -3.88e+07 - 3.11e+07 |

Since port pricing is a complete system, it was necessary to test the impact of all the components of pricing on Transit Trade. But looking at the vehicle, storage, and cargo handling charges which are the main components of pricing, this will enable the researcher to figure out the impact of total port pricing on Transit trade at the Port of Tema. The result of the regression analysis of Transit trade and total port pricing is presented in Table 4.4. The result show that vehicle handling charges and storage charges has positive but insignificant impact on Transit trade whiles cargo handling charges has negative but insignificant impact on Transit trade. We can therefore conclude that port pricing at the Port of Tema does not have any significant effect on Transit trade at the Port of Tema in Ghana.
4.5 FACTORS HINDERING TRANSIT TRADE AT THE PORT OF TEMA

Table 4.10 shows the ranking of factors hindering transit trade at the Port of Tema. The factors are arranged according to their severity from the highest mean to the lowest mean and each accompanied with its standard deviation.

The Table shows that the top five most severe factors that hinders transit trade at the Port of Tema are the implementation of axle load regulations, the insistence by government that phytosanitary certificates be issued locally, the bureaucracy of the customs clearance system, the unauthorized detention of vehicles in transit and the extortion of money from drivers and the high number of unauthorized police check points for transit vehicles.
Table 4.13 Ranking of Factors Hindering Transit Trade at the Port of Tema

The problems facing Transit Trade in Ghana can be traced from the Port of Tema through the Corridors to the LLC’s.

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>The implementation of axle load regulations</td>
<td>40</td>
<td>3.633</td>
<td>.843</td>
<td>1</td>
</tr>
<tr>
<td>The insistence by government that phytosanitary certificates be issued locally.</td>
<td>40</td>
<td>3.512</td>
<td>.934</td>
<td>2</td>
</tr>
<tr>
<td>The bureaucracy of the customs clearance system</td>
<td>40</td>
<td>3.503</td>
<td>.856</td>
<td>3</td>
</tr>
<tr>
<td>The unauthorized detention of vehicles in transit and the extortion of money from drivers</td>
<td>40</td>
<td>3.342</td>
<td>.734</td>
<td>45</td>
</tr>
<tr>
<td>The high number of unauthorized police check points for transit vehicles</td>
<td>40</td>
<td>3.102</td>
<td>1.023</td>
<td>5</td>
</tr>
<tr>
<td>The port agreement with Safe Bond Company</td>
<td>40</td>
<td>2.920</td>
<td>.916</td>
<td>6</td>
</tr>
<tr>
<td>The lack of other means of transportation apart from roads</td>
<td>40</td>
<td>2.804</td>
<td>1.041</td>
<td>7</td>
</tr>
<tr>
<td>The annual incremental increase in port charges.</td>
<td>40</td>
<td>2.632</td>
<td>.948</td>
<td>10</td>
</tr>
<tr>
<td>The rent-free period at the port in comparison with the rent-free period at competing ports</td>
<td>40</td>
<td>2.547</td>
<td>.832</td>
<td>11</td>
</tr>
<tr>
<td>The lack of covered storage at the port (90 percent of transit traffic is bagged cargo)</td>
<td>40</td>
<td>2.511</td>
<td>1.022</td>
<td>12</td>
</tr>
<tr>
<td>Inefficient cargo handling services leading to congestion and delays at the Port of Tema</td>
<td>40</td>
<td>2.413</td>
<td>.783</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Field data, 2017.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter summarizes the main findings and conclusions that can be drawn from all the various findings as far as this study is concern. It concludes with recommendations to policy makers, port authorities and users of the ports. The main objective of the study was to identify the pricing policy and its impact on Transit trade at the Port of Tema. The specific objectives were to examine the port pricing approaches at the Port of Tema, examined the impact of port pricing on Transit Trade at the Port of Tema and to examine the factors hindering Transit Trade at the Port of Tema. To achieve these objective, the study made use of survey research design by way of administering research questionnaire. The data collected was subjected to statistical analyses so that valid deduction could be made from it.

5.2 SUMMARY OF KEY FINDINGS

The first objective of the study was to examine the port pricing approaches at the Port of Tema. The study revealed that the main pricing policy at the Port of Tema is cost-based pricing and market-based pricing as majority of respondent were aware about it existence and applicability at the Port of Tema. The results also indicated that other pricing approaches such as the social optimal pricing, import capacity utilization, discriminatory pricing and strategic pricing are not only unknown to port players but it is also not applicable at the Port of Tema.

The second objective of the study was to examine the impact of port pricing on Transit Trade at the Port of Tema. This was carry out by examine the relationship between Transit trade and Vehicle handling charges which reveal that, there exist a positive but insignificant relationship between Transit Trade and Vehicle Handling charges. The study therefore reveals that, there is
no significant relationship between Transit trade and Vehicle handling charges at the Port of Tema.

The relationship between Transit Trade and Storage charges revealed that Transit Trade has a negative but insignificant relationship with storage charges. Transit trade was therefore found to have no significant relationship with storage charges at the Port of Tema.

The relationship between Cargo Handling Charges and Transit Trade also revealed that, there exist a positive but insignificant relationship between Transit Trade and Cargo handling charges. Cargo handling charges was therefore found not to have any significant relationship with Cargo handling charges.

The overall relationship between Transit trade and all the three component of port pricing revealed that, there is no significant relationship between Transit trade and all the three component of port pricing at the Port of Tema.

The third objective of the study was to examine the factors hindering Transit Trade at the Port of Tema. The study found that the top five most severe factors that hinders transit trade at the Port of Tema are the implementation of axle load regulations, the insistence by government that phytosanitary certificates be issued locally, the bureaucracy of the customs clearance system, the unauthorized detention of vehicles in transit and the extortion of money from drivers and the high number of unauthorized police check points for transit vehicles.
5.3 CONCLUSIONS

This study investigated the impact of port pricing policy on transit trade at the Port of Tema. Based on the findings of the study, the researcher concludes that the two pricing approaches used at the Port of Tema (Ghana) are cost based pricing and market-based pricing. The study also concludes that, there is no significant relationship between the individual port pricing components on Transit Trade. The study also concludes that port pricing at the Port of Tema has no relationship with Transit trade instead other factors as enumerated below play a great influence on transit trade.

The study further concludes that the five most dangerous obstacles impeding transit trade at the Port of Tema include implementation of axle load regulations, the insistence by government that phytosanitary certificates be issued locally, the bureaucracy of the customs clearance system, the unauthorized detention of vehicles in transit and the extortion of money from drivers and the high number of unauthorized police check points for transit vehicles. The study finally concludes that port pricing has no impact on Transit trade at the Port of Tema in Ghana. This study also shows that the port charges at the Port of Tema do not take into consideration the origin of the trade in setting its prices, all vessel calling at the port be it a coastal vessel or a sea going vessel coming into the port is subjected to the same port charges.

It came to light that some transit shippers have been cut off from doing business at the Port of Tema to neighbouring ports due to difficulties the encountered at the port and along the Ghanaian corridors and this is likely to continue if immediate actions are not taken by the port authority and the government.
5.4 RECOMMENDATIONS

Based on the findings and conclusions of this study, the researcher proposes the following recommendations on the situation of port pricing and Transit trade and to deal with the obstacles hindering Transit trade at the Port of Tema. The study recommends that, port authorities should ensure that the pricing method of the port is designed in such a way that will achieved the long term (future) objectives and not only the short term (present) pricing objectives at the Port of Tema. The port authorities should consider their strategic position and ensure that it does not lose its competitive advantage through inefficient pricing.

Since pricing is part of an organizations strategic plan, for it to survive in a competitive environment, the study recommends that all major stakeholders in the port should be consulted during tariffs review. They should also be informed on the benefits that Transit Trade could bring to the port and to the economy. The study recommends that, port authorities should not depend on cost alone especially when using accounting-based cost in determining the tariff levels. They should consider a pricing method that incorporates other objectives. Since port performance can serve to improve port productivity without heavy capital investment, the study recommends that port authorities should employ pricing methods that applauds performance in order to serve future investments.

Transit Trade for the previous years has being on a decline, even though recently there have been some slide increase. This increase can be maintained or tripled if strategic and antagonistic marketing system with varieties of highly specialize services meant specifically for Transit Trade are implemented.

The Port Authority should be able to give a goods feedback of Transit Trade information to the government to assist in adopting special measures when considering policies implemented which affects transit shippers at the Port of Tema. It will also be a good base for the government
to collaborate with the LLC’s in solving some of the problems encountered by Transit Trade shippers in doing business at the Port of Tema

The study recommends that, port authorities together with the ministry of Agriculture should review the axle load policy and its general implementation or enforcement. The study also recommends that, port authorities together with the ministry of Agriculture should review the policy to issue phytosanitary certificates locally. The study also recommends that, port authorities should review their annual automatic incremental increase in port charges to reflect the economic reality.
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APPENDIX I

QUESTIONNAIRE FOR PORT USERS

I am a student of Master of Arts in Port and Shipping Administration in the Department of Port and Shipping, Faculty of Maritime Studies, Regional Maritime University Accra (Ghana). As a partial fulfilment for the award of the M.A degree, I am researching on the topic

“Assessment of Port Pricing Policy and its Impact on Transit Trade at the Port of Tema.”

It will be of great pleasure to me if you could assist by answering this questionnaire. It is strictly for academic exercise so whatever answers you give shall be confidential and use for academic purpose only. Also, your identity will not be disclosed for any reason and you have the right to ask for an interpretation of any question if not well understood.

Thanks for your cooperation.

✓ Instruction: Please place a tick [ ] in the box space and briefly explain where appropriate.

The questionnaire is for both port user and services provider but there are specific questions patterning to each of them

- Respondents’ Socio Demographic Information.

- Sex; (a) male           (b) female
- Age (years) (a) < 20            (b) 20-29            (c) 30-39            (d) 40-49             (e) 50+
- Country of origin (a) Ghana            (b) Burkina Faso            (c) Mali           (d) Niger

(e) Others
- Level of education (a) HND Diploma            (b) First degree            (c) Master’s degree

(d) PHD                  (g) others
- Position you occupy (a) transit importers              (b) transit exporters             (c) others
- Years of working experience (a)0-4

(b) 5-9            (c) 10-14            (d) 15-19

(e) 20+
APPENDIX II

QUESTIONNAIRE FOR SERVICE PROVIDERS

I am a student of Master of Arts in Port and Shipping Administration in the Department of Port and Shipping, Faculty of Maritime Studies, Regional Maritime University Accra (Ghana). As a partial fulfilment for the award of the M.A degree, I am researching on the topic

“Assessment of Port Pricing Policy and its Impact on Transit Trade at the Port of Tema.” It will be of great pleasure to me if you could assist by answering this questionnaire.

It is strictly for academic exercise so whatever answers you give shall be confidential and use for academic purpose only. Also, your identity will not be disclosed for any reason and you have the right to ask for an interpretation of any question if not well understood.

✓ Thanks for your cooperation.

Instruction: Please place a tick [ ] in the box space and briefly explain where appropriate.

The questionnaire is for both port user and services provider but there are specific questions patterning to each of them

• Respondents’ Socio Demographic Information.

  • Sex; (a) male (b) female

  • Age (years) (a) < 20 (b) 20-29 (c) 30-39 (d) 40-49 (e) 50+

  • Country of origin (a) Ghana (b) Burkina Faso (c) Mali (d) Niger

   (e) Others
• Level of education (a) HND Diploma (b) First degree (c) master’s degree (d) PHD (g) others

• Position you occupy (a) Senior manager (b) Assistant manager (c) normal workers

• Years of working experience (a) 0-4 (b) 5-9 (c) 10-14 (d) 15-19 (e) 20+

• The Various Element Constituting Port Pricing at the Port of Tema

• Do you have an idea of the port charges and tariffs paid at the Port of Tema? (a) Yes (b) No

• If yes who sets the charges (a) GPHA (b) Ministry of transport (c) Provider of the service (d) provider of the service and regulated by GPHA

• What are the various charges you know are levied at the port?

• What are the various tariffs you know are levied at the port?

• Which Port Pricing Approach (es) Is or Are Being Implemented at The Port of Tema
Port Pricing Knowledge

C1. This section includes information on your awareness of port pricing approaches, the pricing approaches currently adopted by your port. Please rate how well you are aware of the following pricing approaches.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Fully Aware</th>
<th>Aware</th>
<th>Neutral</th>
<th>Not aware</th>
<th>Not at all aware</th>
<th>Majority Response</th>
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<tbody>
<tr>
<td>Cost-based pricing</td>
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<td>Market based pricing</td>
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<td>Social optimal pricing</td>
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<td>Discriminatory pricing</td>
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<td>Strategic pricing</td>
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Source: Field Data, 2017.

C2. Please rate the level of applicability of the above pricing approaches to your port’s current infrastructure tariffs.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Highly Applicable</th>
<th>Applicable</th>
<th>Neutral</th>
<th>Not applicable</th>
<th>Highly not applicable</th>
<th>Majority Response</th>
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<td>Cost-based pricing</td>
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<td>Strategic pricing</td>
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</table>

Source: Field Data, 2017.
C. Port Pricing Objectives

This section requests information on the port infrastructure tariff objectives of your ports. Please rate the level of agreement on the following objectives of your port’s infrastructure tariff design.

Indicate the extent to which you agree or disagree with the statements.

**SA: Strongly Agree=1 A: Agree=2 U: Undecided=3 D: Disagree =4 SD: Strongly Disagree**

Table: Port Pricing Objectives

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Majority Response</th>
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<tbody>
<tr>
<td>Recover investment cost</td>
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<td>Compete with rival ports</td>
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<td>Attract specific types of cargo or port users</td>
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<td>Import capacity utilization</td>
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<td>Cover the operational cost</td>
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<td>Promote regional economic development</td>
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<td>Achieve higher return on investment</td>
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</table>
Factors hindering transit trade at the Port of Tema

Indicate the extent to which you agree or disagree with the statements.

**SA:** Strongly Agree=1  **A:** Agree=2  **U:** Undecided=3  **D:** Disagree =4  **SD:** Strongly Disagree=5

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<tr>
<th>Statement</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
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<td>The insistence by government that phytosanitary certificates be issued locally.</td>
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<td>The unauthorized detention of vehicles in transit and the extortion of money from drivers</td>
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<td>The high number of unauthorized police check points for transit vehicles</td>
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<td>The port agreement with Safe Bond Company</td>
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<td>The implementation of axle load regulations</td>
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<td>The annual incremental increase in port charges.</td>
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<td>The rent-free period at the port in comparison with the rent-free period at competing ports</td>
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<td>The lack of covered storage at the port (90 percent of transit traffic is bagged cargo)</td>
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<td>Inefficient cargo handling services</td>
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<td>Limited (SCL) and arrangements with the oil companies</td>
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<td>The bureaucracy of the customs clearance system</td>
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</table>

Thank You.