**THE EFFECT OF MARITIME TRANSPORT INVESTMENT TO THE SOCIO- ECONOMIC GROWTH IN TANZANIA: A CASE OF THE LAKE VICTORIA ZONE**

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**2021**

**CERTIFICATION**

The undersigned certifies that he has read and hereby recommends for acceptance by The Open University of Tanzania a dissertation entitled; “*The Effects of Maritime Transport Investment to the Socio-Economic growth in Tanzania: A case of the Lake Victoria Zone”* in partial fulfilment of the requirements for the Degree of Master of Business Administration in Transport and Logistics Management of The Open University of Tanzania.

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Date

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DECLARATION

I, Patrick Machia Mipawa, declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people’s works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Master of Busness Administration in Transport and Logistics Management (MBA-T&L).

…..……............................................

Signature

…..…….........................................

Date

DEDICATION

This dissertation is dedicated to my family of Mr. and Mrs. Patrick Machia

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First and of the great important, I thank the God who makes me alive and with his power to accomplish this dissertation.

Also, I like to thank Dr. Raphael Gwahula, my dissertation supervisor for his support, motivation, constructive criticism, and patience during the process of writing this dissertation.

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ABSTRACT

The purpose of this study was to examine the effects of maritime transport investment on the socio-economic growth in Tanzania particularly in the Lake Victoria zone. The study adopted a cross-sectional design to collect data from a sample size of 140 respondents. Questionnaire was employed as a data collection instrument. Findings of the study revealed that, investment strategies imposed to stimulate maritime transportation in the Lake Victoria include; development of a skills roadmap focused on delivering long-term skills, advancement of marine technology and innovation techniques, identification of risks and opportunities from existing and emerging regulations, government support on maritime export trade, and use of offshore renewable energy resources and sharing of information on prospects. Findings suggest that, maritime transport investment is constrained by port inefficiency, insufficient cargo volume, inadequacy in human resource, and poor support for an integrated port information management system. The study findings also indicate that, there is a significant positive relationship between maritime transport investment’s measures of success and socio-economic growth. Measures of success including achievement of annual goals, return on investment, and technological infrastructure accounts for 16% of the improvement of socio-economic growth. The study recommends that, Tanzania Port Authority (TPA) in collaboration with Local Government Authority should focus more in investment of human capital and technological infrastructure since they add vital value in international competitiveness, which in return strengthen socio-economic growth.

Keywords: *Maritime, Transport, Investment, Socio- Economic.*

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LIST OF ABBREVIATIONS AND ACRONYMS

BMU Beach Management Unit

GDP Gross Domestic Product

GFP Global Facilitation Partnership for transportation and trade

IMO International Maritime Organization

MOT Ministry of Transport

MSCL Marine Service Company Limited

PMAESA Port Management Association of Eastern and Southern Africa

TASAC Tanzania Shipping Agencies Corporation

TPA Tanzania Port Authority

UNCTAD United Nations Conference of Trade and Development

VEO Village Executive Officer

WEO Ward Executive Officer

ZPC Zanzibar Ports Corporation

# CHAPTER ONE

# **INTRODUCTION**

## Background of the Study

Maritime transport or more commonly water transport refers to the transport of loads (freight) and people (passengers) by waterways such as oceans, seas, lakes, rivers and other navigable water bodies (Koukaki & Tei, 2020). Historically, maritime transport facilitated trade between continents. Despite of exchange rate fluctuation and fees imposed on top of freight charges for carrier companies, but still maritime transport remain the cheapest mode of transport and currently it accounts for nearly 80% of foreign trade, as opposed to other modes of transport (UNCTAD, 2020). The UNCTAD Review of Maritime Transport (2019), comprehend it as an input production factor which heighten the development of other economic activities such as trade, fishing, tourism and energy.

On World Maritime day 22 September 2016, UN Secretary-General Ban Ki‑moon’s reported that;

“*Maritime transport is a backbone of global trade and the global economy. We all benefit from maritime transport even though only few of us realize it. We ship much on what we consume in our daily life like raw material, technology, food, medicine, etc”* (Ban Ki‑moon’s, 2016).

As the number of people in the world increases an efficient and low-cost maritime transport is needed to fulfil a vital role in economic growth and sustainable development. The jobs and livelihoods of billions of people in the developing world, and standards of living in the industrialized and developed world, depend on ships and maritime transport (Froholdt, 2018).  The shipping industry has played an important part in the dramatic improvements in global living standards that have taken millions of people out of acute poverty in recent years (Sciberras & Silva, 2018).

The Maritime transport sector encourages the growth of trade and provides great number of employment when fully invested (Nita & Hrebenciuc, 2021). On 2014, the Singapore Ministry of transport reported that 130,000 ships drop anchorat their port annually which made maritime transport in Singapore to contribute 7% to the GDP and employ more than 170,000 people (MOT in Singapore, 2014). The concept of economies of scale is recently applied in maritime transport industry in which the maritime nations continue to invest in maritime transport infrastructures for instance the expansion of ports, construction of big sized ships and development of shipyards. South Korea became highly industrialized as a result of development of sea transport between 2002 -2017, and until 2018 the shipyard in South Korea built over 2119 ships for 324 ship owners from 52 countries (Mindur, 2019).

Africa is covered by Atlantic Ocean, the Indian Ocean, the Red Sea and the Mediterranean Sea but it contributes 5.7% of global maritime traffic which can be ascribed to less development and improvement of maritime transport infrastructures for instance ports, ships, intermodal connection and technology (Thierno, 2020). The East Africa countries (EAC) development in maritime transport sector is left behind as compared to other maritime countries in Africa, with a participation of 6% of maritime trade, although it has an extensive area of water bodies of Indian Ocean and other navigable water bodies as depicted in figure 1 below (UNCTAD, 2020).

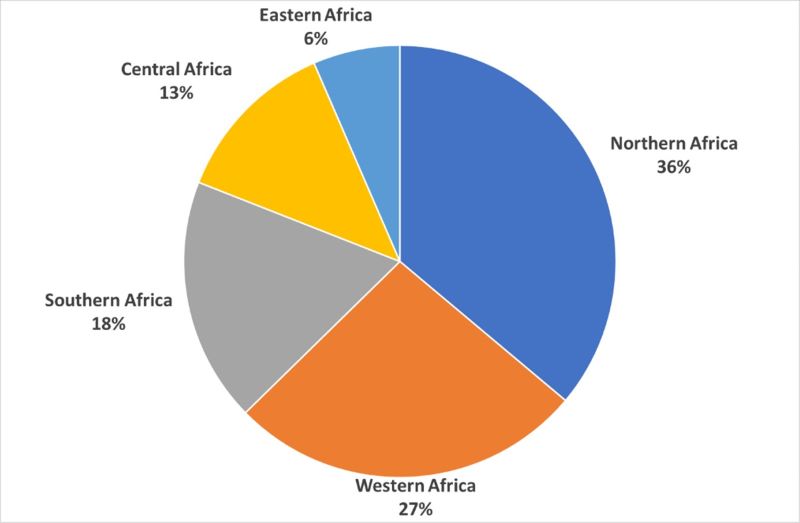


Figure 1.: Sub-Regional Participation in Africa’s Maritime Trade, 2019

Tanzania is endowed with plenty of water bodies compared to other East Africa countries. The water bodies include rivers and lakes and also the Indian Ocean which stretches from the north-eastern to the southern parts of Tanzania as shown in Figure 1.2 below. The rivers with maritime potentiality include Rufiji, Ruvuma, Pangani, Kagera, Mara, Malagarasi and Wami. The lakes are Victoria, Nyasa, Tanganyika, Rukwa, Eyasi, Manyara and Natron. Such waterbodies are used by people for fishing, transport, trade and other associated social activities (Sweya & Wilkinson, 2020).

Three East African Countries share the Lake Victoria, with the large portion owned by Tanzania which border five regions namely; Mara, Simiyu, Mwanza, Geita and Kagera (Mgaya & Mahongo, 2017). Lake Victoria plays a great role in social and economic development of people in Lake Regions. The key economic activities within Lake Victoria are fishing and industrial activities, other activities are transportation of people, goods and social services, agriculture, trade and tourism (Onyango, 2017). The Lake Victoria regions population was 10,298,049 people in the year 2012 according to National Bureau of Statistics(NBS) with a projection of 13,634,108 people on the year 2019 (NBS, 2019).

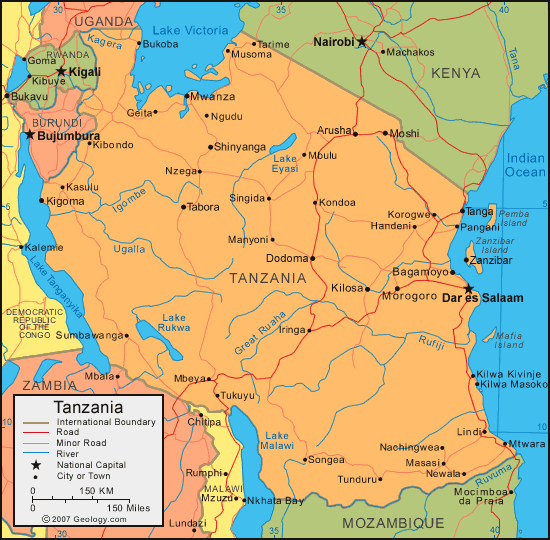


Figure 1.: Tanzania Areas of Navigable Water Bodies

The demand of safe and effective maritime transportation of people and cargo in Lake Victoria is increasing compared to the present supply of marine transport. While the maritime transport infrastructures or facilities remain the same, the population and economic activities in the lake regions are on increase (Thomas, 2020).

The investment in maritime transport refers to the strategically development of all the facilities or infrastructures which play part in enhancing the flow of goods and passengers through navigable water bodies (Mihayo, 2020). There is positive relationship between establishment and development of maritime transport infrastructures and social economic growth, for instance; investment in shipyard will employment many people in various activities such; shipbuilders, welders, painters, ship surveyors, ship inspectors, securities, and gate keepers (Etiegni, Irvine, & Kooy, 2020).It also provides indirect employment through provision of social services such as catering services, hotels and transport services. Therefore, the investment in maritime transport has got positive impact and multiplier effects in the social-economic development of the community (Agol *et al*., 2021).

The numbers of ships of more than 50 gross tonnages registered by TASAC in the year 2012 in Lake Victoria were 46 while in 2019 only 25 ships were in operation plying to major ports of Mwanza, Nansio, Kemondo and Bukoba, leaving more than 130 islands without safe and effective means of transport. Additionally, Marine Services Company Limited (MSCL), which has 9 ships in Lake Victoria in 1999 after dissolution of Tanzania Railway Corporation (TRC), currently has got only 3 ships in operation (TASAC, 2020). The underinvestment in Maritime transport remains a problem in the advancement of social-economic welfare of people in Tanzania.

## Statement of the Problem

Tanzania has great area of water bodies in both high Seas and inland water bodies, which could facilitate the high growth of social and economic activities when strategically invested (Nassali, Yongji, & Fangninou, 2020). In the Lake Victoria zone, for instance Mwanza, a region has been growing in terms of population and social-economic activities due to the number of economic activities taking place in Lake Victoria, of which fishing activities is a major one.

Therefore, the demand of safe and effective maritime transportation of people, cargo and services in Lake Victoria is increasing compared to the present supply of marine transport (Orina *et al*., 2021). Inadequate maritime transport investments in Lake Victoria limits the number people with their capital to invest in various economic activities in the Lake such as fishing activities, transportation of people, goods and social services, agricultural products, trade and tourism. The National Bureau of Statistics (2018) reported a constant contribution of transport sector (including Maritime Transportation) and storage to National GDP of 4.3% from 2012 to 2017.

Despite the positive effects of Maritime Transportation heavy investment as perceived from developed countries, such maritime transportation investment effects have not been studied and established in Tanzania particularly the social economic effect which likely to accrue in the Lake Victoria regions. Therefore, this study intends to analyse the effect of maritime transport investment on socio-economic growth in Lake Victoria zone.

## Research Objectives

### General Objective

The general objective of this research is to analyse the effect of maritime transport investment on the socio-economic growth in the Lake Victoria zone, Tanzania.

### Specific Objectives

1. To examine the investment strategies imposed on Lake Victoria maritime transport.
2. To identify challenges facing maritime transport investment in the Lake Victoria zone.
3. To analyse the relationship between maritime transports investment’s measures of success and socio-economic growth in the Lake Victoria zone.

## Research Questions

The following research questions will guide the study to attain research objective.

1. What are the strategies imposed to implement maritime transport investment in the Lake Victoria zone?
2. What are the challenges facing maritime transport investment in the Lake Victoria zone?
3. To what extent does maritime transport investment influence socio-economic growth?

## Significance of the Study

This study is expected to bring contributions to the expanding literature on subject matters linked to maritime transport investment and service. The researcher’s findings and recommendations will be useful to the government and all stakeholders in deciding the best ways for planning, investing, developing and implementing accurate strategies to enhance development of maritime transport sector in Tanzania specifically in Lake Victoria. Moreover, this study will also act as an important reference material to other researchers and academicians in the field of maritime investment and socio-economic aspects.

## Organization of the Research

This research comprised of six chapters, namely chapter one, chapter two, chapter three, chapter four, chapter five, and chapter six. Chapter one gives the brief introduction of the study, chapter two reviews the relevant study literature and chapter three provides the research methodology applied during the study. Chapter four presented the findings. Chapter five discussed the results and summarized the findings of this study, and finally chapter six provide conclusions and recommendations.

# CHAPTER TWO

LITERATURE REVIEW

## Chapter Overview

This chapter reviewed literature related to the problem under investigation. The review covers conceptual definitions, supporting theories which guide the study, empirical analysis of relevant studies, research gap, conceptual framework, and the chapter summary.

## Conceptual Definitions

### Maritime Transport

Maritime transport refers to the shipment of goods (cargo) and people by sea and other navigable water bodies (GFP, 2003). It is an integral part of international logistics and accounts 80% of the global trade (UNCTAD, 2013).

### Maritime Transport Infrastructures

Maritime transport infrastructure, as defined by Merchant Shipping Act of Tanzania (MSA, 2003), refers to all facilities in maritime transport including; ship/vessel, port and shipyard. Vessel refers to any ship, boat, sailing vessel, or other vessel of any description used in navigation (Merchant Shipping Act, 2003). House (2001), defines ship as a motor vessel with essential installed equipment to allow it make self-propulsion and ability to transport cargo, livestock, troops, passengers, gas, fluid, minerals etc.

The SOLAS Convention of 1974 categorized ships as the cargo ship or passenger ship. A port is a harbour where maritime terminal facilities are available (Port Act, 2004). This includes piers or wharfs where ships can berth while loading or unloading cargo, transit sheds and storage spaces where ships can discharge arriving cargo and warehouses where commodities can be stored for an extended length of time before being distributed (Mwaya, 2009). Ports are essential maritime transport infrastructures which act as an interchange between maritime transport and with intermodal facilities such as railway and road, they provide services to ships, distribution, logistics and production centres hence finally generates socio-economic prosperity (Bichou, 2009).

Shipyards are areas involved in the manufacture, repair, maintenance, and dismantling of vessels or ships (US NIOSH, 2020). Major activities in shipyard are the shipbuilding and repairs and it play an essential role in employment, for instance, in 2013 the USA private shipyards provided 110,390 employments (US MARAD, 2013).

## Critical Review of Supporting Theories

The relevant theories to abide with this study are the neo-classical, classical theories and the staple theory of economic growth and will be reviewed in this section.

### Neoclassical Economics Theory

Solow and Swan (1956) introduced the neoclassical growth theory. According to the theory economic growth is strongly related to three important factors namely; labour, capital and technology. The theory emphasises that investments play an important part in economic growth of a country and the use of technology may facilitates the increase of productivity and the GDP (Arnsperger & Varoufakis, 2006). Therefore, the theory is trying to explain the outcomes or the output likely to amass after the utilization of these three factors; labour, capital, and technology (Lawson, 2013).

The counter argument of this theory is that it does not clarify why countries have different levels of investment as percentage of GDP. Secondly, the theory does not address the fact that some developing countries don’t attract higher levels of investment because of structural problems such as corruption, lack of infrastructure. Lastly, the theory doesn’t explain how to improve rates of technological progress (Colander, 2000).

The neoclassical theory of economic growth is relating to this study because it emphasizes in important factors to consider when want to establish investment particularly the maritime transport investments. The effectiveness of neoclassical economic growth depends on the extent of application of the three factors in order to influence positively the economic growth likely to amass from investment in maritime transport.

### Classical Economics Theory

The classical economic theory was developed by Adam Smith in Wealth of Nations (1776). Smith (1776) argued and highlighted several factors which enable increased economic growth; Role of markets in determining supply and demand, the productivity of Labour, role of trade in enabling greater specialization, increasing returns to scale such specialization we see in modern factories and the economies of scale of increased production. Generally, the theory sound positive in relation to this study since the investment in maritime transport can be part of specialization it follows that the more, the country invests in the maritime transport, the more; it stimulates much of the output to the communities.

### The Staple Theory of Economic Growth

The staple theory of economic growth and development was first formulated by Watkins (1963) to explain the process of economic development in different aspects with a wealth of natural resources. The theory assumes that only through the export of basic goods and the import of industrial goods can a relatively high level of material well-being be achieved (Watkins, 1977). The success of a basic economy depends on its ability to convert basic products into exports at competitive prices, mainly through supply-side variables. The basic export sector can also lead to the growth process if, it is not the main economic sector, by linking to other parts of the economy, although its size depends on social and political factors such as international trade laws (Watkins,1963).

The staple theory of economic growth is relating to this study because it emphasizes trade between countries or parties. The effectiveness of staple economic growth will depend on the extent to which exchanges in the process of supply chain consider the benefits of maritime transport to the trading parties. Currently known as requisite in any international trade is very important and will make the relevance of the staple economy when the parties in the trade are well conversant with their applications

## Empirical Analysis of Relevant Studies

### Cross-Country Studies

Amin*et al*. (2021) examined the effectiveness of local ports and the influence of marine logistics on East Indonesia's small island economy. When measuring each port's performance, the survey and Stochastic Frontier Modelling were utilised. GRDP per capita was used as the outcome variable. The results demonstrate that loading and unloading fees and sea transportation expenses have a negative impact on the GRDP per capita of the different small island districts. According to other findings, inadequate port efficiency might cause problems with the delivery of products across islands, resulting in greater logistical costs.

Khalid, *et al*. (2009) study on the importance of the maritime sector in socio-economic development a case of South East Asian countries adopted mixed methods to collect both qualitative and quantitative data. The study revealed that much development of maritime transport infrastructures and services, improvement in multimodal links and in the logistic chain, macroeconomic policies, private sector development, international trade linkage and education and training were the determinant factors for performance. Also, outcome of the determinant performance factor was measured through; growing of living standard, jobs created, development of port cities and coastal communities, development of trade activities, improvement of transport services, and the turn of undeveloped areas into trade centres and industrialized zones.

Hutajulu and Ratang (2016) conducted analysis of sea transportation development to support National connectivity and economic growth of Papua-Province. The study applied qualitative approach and reviewed secondary data from sea transport sector. Although sea transport was observed to contribute high in GDP as compared to other mode, performance was limited by lack of maritime transport infrastructure, lack of maritime transport to connect small islands and the intermodal connection.

Thana (2013) conducted a study on maritime transport and tourism sustainable development. The study found that, sustainable development in maritime transport was among the reason for increase of revenue from tourism. Georgescu (2014) studied the role of maritime transport in the development of World economy. The study was qualitative and researcher had applied the International Conventions and treaties legal documents to analyse how maritime transport is essential in the development of the World economy considering the aspects of safely, timely and economically efficient freight transportation. Great availability of employments either direct or indirect was pointed out on this study as a major contribution of this mode of transport and modernizing of maritime transport infrastructures was highlighted as the general conclusion of the study.

Michael Igbokwe (2001) conducted a study on the importance of maritime transport in Nigeria economy. The study used qualitative approach and showed contribution of maritime in Nigeria economy in area such as employment, social-political harmony, development of related economic activities etc. The study concluded by advising on the monitoring and implementing the set goals in the maritime transport sector so that the mode of transport continue serving the economy.

Omondi (2019) studied the relationship between International trade and Infrastructure development in Kenya Maritime Transport. The researcher used open ended questions in the form of interview guide and conducted face to face interaction with Kenya Maritime Authority (KMA) top management, which was the only data collection method. The study faced a challenge of few respondents since only five responded out of a sample of six were used. The findings of the research effectively revealed that, there is a clear relationship between development of maritime transport infrastructure and international trade. Additionally, the use of IT, Public Private Partnership, training and capacity building were observed to influence the development relationship and plays a significant role in the maritime transport sector.

### Studies in Tanzania

Mvungi (2019) assessed the value of blue economy in employment creation in Tanzania with case study of Dar es Salaam port. Generally, the study intended to carry out an assessment of the value the shipping industry create employment or jobs in Tanzania with a consideration that shipping industry occupies the largest portion of a blue economy. The questionnaires and documentary tools were used for data collection and the data was analysed quantitatively using SPSS and the descriptive statistics. Additionally, the documentary data was analysed using Microsoft excels application. The findings revealed that shipping activities facilitate the growth of other sub sectors and in the essential area of employment creation. The general conclusion of the study based on showing the necessity of maritime transport to allow the access of other shipping activities to take place, development shipping infrastructure and the intermodal connection.

## Research Gap Identified

Based on literature review, there is a scarcity of empirical studies on the effects of maritime transport investment for the socio–economic growth in Tanzania particularly Lake zone. Most of the studies are from abroad-countries such as South East Asian countries (Khalid et al., 2009), Papua-Province (Hutajulu & Ratang, 2016), Europe (Thana, 2013), World economy (Georgescu, 2014), Nigeria economy (Igbokwe, 2001) and Kenya Maritime Transport (Omondi, 2019).

In Tanzania there are few studies concerning the effects of maritime transport investment to the socio-economic growth. Several studies that have been carried out for instance, were concerned with port congestion, Nyang’oro (2009), the role of seaport in facilitating growth of trade in Tanzania by Sintoo (2015), the regulation of ship safety by Bendera, 2006), analysis on the factors contributing to poor seaport performance (Mwendapole, 2015), contribution of Tanzania ports to the growth of its international trade (Abdulrahman, 2014), and critical analysis of ship registration system (Salum, 2019). It therefore calls for a concern to assess the effect of maritime transport investment on the socio–economic growth in Lake Victoria zone, given its significance in maritime transport sector.

## Conceptual Framework

Figure 2.1 demonstrate the conceptual framework of the study. It shows that the independent variables have an effect to the dependent variable. The social-economic growth depends on the investment done on maritime transport facilities including ports, ships, shipyards, docks and the performance and flexibility of the operators of those maritime facilities. Ports have direct influence on social-economic growth given that over 95% of Tanzania freight is passing through the port. Investment and development of ports will attract more ships to call/visit which in reality will results to the increase in trade, wider scope of tax and revenue collection, increase in level of employments, increase of GDP etc, development of social services, increase of standard transport services, increase people welfare, increase of number of passengers and cargoes which are the measures of social-economic growth.

The classical theory of economic growth, neo classical theory and the staple theory of economic growth are supporting the variables for this study.



Figure .: Maritime Investment on Socio-Economic Growth Conceptual Framework

Source: Researcher, 2021

## Summary

This chapter focused on definitions of the key terms, related theories, the cross countries and countries related past studies, identify the research gap, the conceptual and the theoretical frame of the variables patterning the study.

# CHAPTER THREE

**RESEARCH METHODOLOGY**

## Chapter Overview

This chapter provides a full overview of the processes that used to carry out the study. It contains the research philosophy, strategies, survey population, research area, sample design and processes, variables and measurement procedures, data collection techniques, data processing and analysis, and predicted study outcomes.

## Research Philosophy

According to Sounder and Thornhill (2007), research philosophy can be defined as the development of the research background, research knowledge and its nature.   
It is important to understand the philosophical position of research issues in order to understand the different combination of research methods.

### Positivism Philosophy

Positivism is inextricably linked to the concept of objectivism. In this philosophical approach, scientists provide their point of view to evaluate the social world using objectivity rather than subjectivity (Cooper & Schindler, 2006). The positivism was applicable on this study whereby a researcher streamlined on [data collection](https://research-methodology.net/research-methods/data-collection/) and [interpretation](https://research-methodology.net/research-methods/data-analysis/)  in an objective way and the findings were observable and quantifiable.

## Research Strategies

The study adopted a case study approach to analyse how the maritime transport investment in Lake Victoria brings a positive impact in social-economic development to the community of Lake Victoria regions and adopted both qualitative and quantitative approaches. As explained by Kothari (2004), a case study is an empirical investigation that explores a contemporary phenomenon within its real-life environment, particularly when the boundaries between phenomenon and context are unclear.

Furthermore, the case study method is one of various approaches of conducting social science research. Case studies, on the other hand, allow a researcher to maintain the holistic and significant qualities of real-life events. When the borders between phenomena and contexts are not obvious, an empirical inquiry analyses a contemporary phenomenon within its real-life setting. Therefore, a case study approach was applicable for this study.

### Survey Population

According to Kombo and Tromp (2006), population is a group of individuals, objects or items from which samples are taken for measurement. It refers to a group of people or elements that have at least one thing in common and include some of the overall demographics such as age, gender, class and education. The total number of 140 people was involved in this study from government institutions (TASAC, TPA, MSCL), ship-owners, small vessels owners, local government leaders (WEO/VEO/BMU), fishermen, transporters and shipyard/dock workers.

### Area of the Research

This study was particularly carried out in Lake Victoria regions which include; Mwanza, Kagera, Geita and Mara and focused on major and cluster ports and additionally included the islands located within the respective regions. This area was selected due to the fact that it is the largest inland water body compared to Lake Tanganyika and Nyasa with an increase of number of economic activities for instance the fishing activities. Also, there is high rate of population growth in Lake Victoria regions whereby Lake Victoria is considered a major factor.

Additionally, Lake Victoria is geographically located in economic zone since its location is bounded by neighbour countries such as Kenya and Uganda which can provide access through maritime transport to establish business relationship with Tanzania. Lake Victoria regions also have many business economic activities for instance the agricultural activities of crops such as coffee, bananas, cotton and sugarcane which can create a demand of maritime transport and intermodal transport to facilitate safe shipments.

## Sampling Design and Procedures

Sampling refers to the technique or procedures used by the researcher to choose objects for the sample (Kothari, 2004). It is a specific strategy for getting a sample from a given population. There are two types of sampling methods: probability sampling methods and non-probability sampling methods. Probability sampling is a type of sampling in which every member of the population has an equal chance of being included in the study.

Probability sampling can be employed if the goal of the study is to draw conclusions or make predictions that will affect the entire population (Kombo &Tromp, 2006). Non probability sampling, on the other hand, is a sampling strategy in which the researcher is interested in the representativeness of the concepts in their various forms. In other words, in non-probability sampling, the researcher selects the specific units of the universe that comprise a sample on the idea that a tiny mass selected from a large one will be typical or representative of the whole (Vehovar, Toepoel, & Steinmetz, 2016).

Purposive sampling was used in this study as a non-probability sampling technique. According to Kombo and Tromp (2006), purposive sampling is a non-probability sampling strategy in which the researcher selects a group of persons who are thought to be reliable for the study. The method was chosen because of the diversity of the samples in this study in terms of knowledge, employment position and type, as well as experience.

The sample size to be used in this study was 140 respondents drawn from the population of people as shown in Table 3.1 and calculated using Cochran’s formula: Cochran (1977) developed the formula to calculate a representative sample for proportions as shown in the formula:



Whereby:

n = sample size

z = value of the desired confidence level which has the constant value 1.96

p = the estimated proportion of an attribute that is present in the population, it is taken that the population is more heterogeneous thus the degree of variability is taken to be 60% or 0.6

As q = 1 – p = 0.4

e = desired level of precision which is selected to be ±8%=0.08

For this case, the degree of variability is equal to 60% (p =0.6) and the confidence level is 95% with ±8% precision, the result is 140.

These respondents were selected purposively from these categories; (TASAC, TPA, MSCL), Ship-owners, Small vessels owners, Local Government leaders (WEO/VEO/BMU), Fishermen, Transporters and Shipyard/dock workers. The researcher involved such all stakeholders under this part since are of very important to provide all necessary information of this study.

Table .: Sample Size Used in the Study

|  |  |
| --- | --- |
| **Description of respondents** | **Specific number of respondents targeted** |
| Government officers (TPA, TASAC, MSCL) | 10 |
| Ship and Small vessel owners | 39 |
| WEO/VEO/BMU | 15 |
| Fishermen | 50 |
| Transporters | 10 |
| Shipyard/dock | 12 |
| **TOTAL** | **140** |

**Source:** Researcher (2021).

## Primary and Secondary Data

Primary and secondary data were used. Primary data were gathered from respondents, while secondary data were gathered from both published and unpublished sources. Written books, essays, documents, and online excerpts, as well as journal articles, are examples of published materials (Kothari, 2004). Primary data is information that is obtained for the first time and hence has a unique nature. Data were gathered through the distribution of questionnaires.

The questionnaires were delivered to the respondents, who were requested to fill them out based on their opinions (Kothari, 2004). Structured Questionnaires were used for easy of respondents to fill them and thus collect data from the sample of 140 respondents. Secondary data refers to information that has previously been collected and statistically analysed by someone else. Secondary sources include both published and unpublished works such as textbooks, dissertations, theses, journals, articles, reports, and papers by renowned writers.

The research variables were measured by establishing the number and development levels of ports, shipyards and docks, construction of new standard ships, rehabilitation of existing ships, and developing skills of maritime staff. Social –economic growth will be measured by establishing the existence of the following; Increase in level of employment, Increase of GDP, development of social services, wider scope of tax and revenue collection, increase of standard transport services, increase people welfare, increase of trade, increase of number of passenger and cargoes.

## Methods of Data Collection

The study used both primary and secondary data. Primary data was obtained by using questionnaires with identified stakeholders in Lake Victoria regions. A questionnaire is a research instrument that consists of a series of questions and other prompts designed to elicit information from respondents. They are frequently intended for statistical analysis of answers (Kothari, 2004). Questionnaires have advantages over other types of surveys in that they are less expensive, involve less work than verbal or telephone surveys, and frequently feature standardized answers that make data collection straightforward. Questionnaires are also severely limited by the requirement that respondents be able to read and reply to the questions. Questionnaires for research were distributed both manually and by email.

The surveys gathered demographic information such as age, rank, gender, education, and years of service. The reason for using this strategy is because it is quicker and can save time. It is also private and allows individual viewpoints. Structured questionnaires were used to collect primary data. The questionnaires included both open-ended and closed-ended questions, allowing for both in-depth and broad data collection. Secondary data were collected by reviewing published material and information such as official reports, documents and statistics available on the maritime transport investments.

## Data Processing and Analysis

Data analysis is the process of computation of certain indices or measures along with searching for patterns of relationship that exist among the data groups (Kothari, 2004). Descriptive statistics were used to describe and summarize the data to enable meaningful description of the distribution of the scores or measurements. Data were analysed and synthesized for presentation using the Statistical Package for Social Scientists (SPSS 24th version). SPPS offers a powerful and easy ways to extract meaningful information from data (Kothari, 2004).

## Variable Measurement

The study involved three independent variables and one dependent variable to assess relationship between maritime transport investment and socio-economic growth. Independent variables were ordinal in nature whereas dependent variable was dichotomous. The relationship between the variable was measure using multiple linear regression, based on the following equation;

*From*



*Then,*



*Where*,

*Y = Socio-economic growth*

*α = Constant*

*X1=* Achievement of annual goals

*X2 =* Return on investment

*X3 =* Technological infrastructure

## Validity and Reliability

### Validity

The validity of the research decides whether it genuinely measures what was intended to be measured and how precise the measurement tools were. Validation was performed on data acquired from all reputable sources by questionnaire, interview, and documentary examination. According to Joppe (2000), validity establishes if the research genuinely measures what was intended to measure or the accuracy of the research outcomes. In other words, the research instrument must allow the researcher to hit "the target" of the research item.

Before conducting the study, a pre-survey study was undertaken to determine whether data collection devices were capable of gathering reliable information to address the study problem. The feedback received was utilized to alter data collection methods and tools to ensure that whatever information was collected was relevant to the study.

### Reliability

According to Joppe (2000), reliability is defined as the extent to which results were consistent over time, and an accurate representation of the total population under study was referred to as reliability, and if the results of a study were capable of being replicated under a similar methodology, then the research instrument was considered reliable.

Before the main study, pre-testing of questionnaires and interview questions was done with 15 respondents in a pilot study. This was done to ensure that the questions in the questionnaires and interview guides were interpreted correctly by the respondents. When this was completed, the researcher was in a position to administer to the respondents who liked the inquiries as they were comprehended. Cronbach's Alpha was also employed by the researcher to assess reliability. Results in Table 3.2 indicated that, the data instrument was reliable as the coefficient value was above 70%.

Table .: Cronbach’s Alpha Coefficient Showing Reliability Analysis

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Sample size** | **Cronbach’s Alpha** | **Number of items** |
| Demographic characteristics | 140 | 0.818 | 5 |
| Strategies | 140 | 0.891 | 5 |
| Challenges | 140 | 0.843 |  |
| Meas | 140 | 0.862 | 5 |

**Source:** research data, 2021

## Summary

The chapter detailed and supported the study methods utilized during data collecting and analysis in general. Furthermore, the chapter discussed how data analysis was carried out, as well as how the standards for the research design's reliability and validity were met. The following chapter focuses on research findings, analysis, and discussion.

# CHAPTER FOUR

**RESULTS AND DISCUSSION**

## Chapter Overview

This chapter elaborates on the research findings, the analysis of data and finally the discussion of the research findings. The findings of the study openly answered the research study objectives specified in chapter one of this study after collecting information from respondents using questionnaires.

## Socio-Demographic Characteristics

The study sought to summarise social features of the respondents to reflect general overview of the population at the study area. The socio-demographic characteristic which were taken into account included, sex, age, educational level, and working experience as depicted in Table 4.1.

Table .: Socio-Demographic Characteristics of the Respondents

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Category** | **Frequency** | **Percentage** |
| Sex | Male | 71 | 50.7 |
|  | Female | 69 | 49.3 |
| Age |  |  |  |
|  | 18-30 | 33 | 23.6 |
|  | 31-45 | 40 | 28.6 |
|  | 46-60 | 34 | 24.3 |
|  | Above 60 | 33 | 23.6 |
|  |  |  |  |
| Educational level | Primary | 42 | 30.0 |
|  | Secondary | 48 | 34.3 |
|  | College/ University | 50 | 35.7 |
| Working experience |  |  |  |
|  | 1-5 years | 41 | 29.3 |
|  | 6-10 years | 55 | 39.3 |
|  | Above 10 | 44 | 31.4 |

### Source: research data, (2021).

### Sex of the Respondents

As indicated in Table 4.1, 71(50.7%) of the respondents out of 140 participants were males. Whereas, 69(49.3%) of the respondents from the same total were female participants.

### Age of the Respondents

Respondents were asked to state their age based on age category among four classified categories as shown in Table 4.1. Results indicate that, 33(23.6%) of the respondents out of 140 participants were aged between 18-30 years old, 40(28.6%) were aged between 31-45 years old, and 34(24.3%) had age between 46 and 60 years. Also, 33(23.6%) of the respondents out of the same total were above 60 years of age.

### Educational Level of the Respondents

The study sought to summarise level of education of the participants. Three levels were considered; primary, secondary, and tertiary (college/ university) education. It was found that, majority 50(35.7%) out of 140 participants had tertiary education, 48(34.3%) from the same sample had secondary education, and the least 42(30%) of the respondents had primary education as shown in Table 4.1.

### Working Experience of the Respondents

The study also sought to summarise working experience of the respondents in maritime environment. As indicated in Table 4.1, majority 55(39.3%) out of 140 respondents had 6-10 years of experience, whereas, 44(31.4%) from the same total had over 10 years of experience, and the least 41(29.3%) of the participants had 1-5 years of working experience.

## The Investment Strategies Imposed on Lake Victoria Maritime Transport

The study assessed effectiveness of five investment strategies which have been imposed in Lake Victoria maritime transport. These include; development of a skills roadmap focused on delivering long-term skills, advancement of marine technology and innovation techniques, identification of risks and opportunities from existing and emerging regulations, government support on maritime export trade, and use of offshore renewable energy resources and sharing of information on prospects. Results are illustrated in Table 4.2.

Table .: Investment Strategies Imposed on Lake Victoria Maritime Transport

|  |  |  |
| --- | --- | --- |
| **Investment strategy** | **Frequency** | **Percentage** |
| Development of a skills roadmap focused on delivering long-term skills | 30 | 21.4 |
| Advancement of marine technology and innovation techniques | 32 | 22.9 |
| Identification of risks and opportunities from existing and emerging regulations | 27 | 19.3 |
| Government support on maritime export trade | 24 | 17.1 |
| Use of offshore renewable energy resources and sharing of information on prospects | 27 | 19.3 |
| Total | 140 | 100.0 |

**Source:** research data, (2021)

### Development of a Skills Roadmap

Respondents were asked to state their views regarding investment on personnel skills. As depicted in Table 4.2, 30(21.4%) of the respondents out of 140 participants suggested that, development of a skills roadmap focused on delivering long-term skills in maritime transportation industry.

### Advancement of Marine Technology and Innovation Techniques

The study sought to assess whether maritime investment strategies considered the aspect of technology and innovation. Results in Table 4.2 indicate that, 32(22.9%) of the respondents out of 140 participants claimed that there was strategic action on advancement of maritime technology and innovation methods.

### Identification of Risks and Opportunities

The study sought to assess whether the investment strategies in maritime transportation were concerned with risks and opportunities. Findings as shown in Table 4.2 revealed that, 27(19.3%) of the respondents out of 140 participants suggested that, there is an identification of risks and opportunities from existing and emerging regulations in maritime.

### Government Support on Maritime Export Trade

The study assessed whether government provides support on investment strategies to sustain the transportation sector. As demonstrated in Table 4.2, 24(17.1%) of the respondents out of 140 participants affirmed that government has a support on maritime export trade.

### Use of Offshore Renewable Energy Resources and Sharing of Information on Prospects

Respondents were asked to state whether investment strategies supported the use of offshore renewable energy resources. Findings revealed that, 27(19.3%) of the respondents out of the 140-sample size agreed that, there is exploitation of offshore renewable energy resources and sharing of information on prospects.

## Challenges Facing Maritime Transport Investment in the Lake Victoria Zone

Descriptive statistics were employed to examine challenges facing maritime transportation investment. Four challenges were identified based on respondents’ perspectives, that is; port inefficiency, insufficient cargo volume, inadequacy in human resource, and poor support for an integrated port management information system using ICT. Results are depicted in Table 4.3.

Table .: Challenges Facing Maritime Transport Investment in the Lake Victoria Zone

|  |  |  |
| --- | --- | --- |
| **Challenges** | **Frequency** | **Percentage** |
| Port inefficiency | 42 | 30.0 |
| Inadequate volume of cargo | 26 | 18.6 |
| Inadequacy in human resource | 34 | 24.3 |
| Poor support for an integrated Port Management Information System using ICT | 38 | 27.1 |
| Total | 140 | 100.0 |

**Source**: research data, (2021)

### Port Inefficiency

The study sought to examine whether the study area port was efficient. Results indicated that, 42(30%) of the respondents out of 140 participants claimed that, the port was inefficient demonstrated by longer container dwell time, delays in vessel traffic clearance, lengthy documentation processing, lesser container per crane hour.

### Inadequacy of Cargo Volume

The study examined whether volume of cargo suffice the full capacity of maritime transportation. As depicted in Table 4.3, 26(18.6%) of the respondents out of 140-sample size suggested that, there is not enough cargo volume to fully use marine transportation and its interconnected modalities.

### Inadequacy in Human Resource

The study sought to examine whether human resource to provide port performance that is competitive and of high quality. As shown in Table 4.3, 34(24.3%) of the respondents out of 140 participants claimed that, there is an insufficient number of human resources to maintain high-performance ports that can compete internationally.

### Poor ICT Support for an Integrated Port Management Information System

The study assessed whether port management system was effective and efficient. As demonstrated in Table 4.3, 38(27.1%) of the respondents out of 140 participants affirmed that, there is a poor ICT support for an effective and efficient integrated port management system.

## The Relationship Between Maritime Transport Investment and Socio-Economic Growth

This objective was analysed using multiple regression technique. Multiple regressions is a modelling technique for analysing relationship between two or more independent variable and one dependent variable. In this case, maritime transport investment’s measures of success (achievement of annual goals, return on investment, and technological infrastructure) were taken as independent variables whereas socio-economic growth as dependent variable. However, assumptions of multiple regressions were first checked before carrying out the multiple regression analysis.

### Assumptions of Multiple Regression

Five assumptions of multiple regression were performed prior the main modelling analysis. The assumptions include; linearity, normality, homoscedasticity, autocorrelations, and collinearity.

#### Assumption of Linearity

This assumption is used to check whether dependent and independent variables have linear nature of relationship. Pearson correlation technique was used to test this assumption. Results indicate that, dependent variable has a significant positive linear relationship with independent variables (*p*< =.05). hat is to say, socio-economic growthas a dependent variable significantly correlates with achievement of annual goals, *r*(140) =.21, *p*=.01, return on investment, *r*(140) =.17, *p*=.04, and technological infrastructure, *r*(140) =.39, *p*<.000, as illustrated in Table 4.4.

Table .: Linearity Assumption

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | **Achievement of annual goals** | **Return on investment** | **Technological infrastructure** | **Socio-economic growth** |
| **Achievement of annual goals** | Pearson Correlation | 1 |  |  |  |
| Sig. (2-tailed) |  |  |  |  |
| N | 140 |  |  |  |
| **Return on investment** | Pearson Correlation | .093 | 1 |  |  |
| Sig. (2-tailed) | .274 |  |  |  |
| N | 140 | 140 |  |  |
| **Technological infrastructure** | Pearson Correlation | .298\*\* | .443\*\* | 1 |  |
| Sig. (2-tailed) | .000 | .000 |  |  |
| N | 140 | 140 | 140 |  |
| **Socio-economic growth** | Pearson Correlation | **.210\*** | **.174\*** | **.389\*\*** | 1 |
| Sig. (2-tailed) | **.013** | **.040** | **.000** |  |
| N | 140 | 140 | 140 | 140 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | |
| \*. Correlation is significant at the 0.05 level (2-tailed). | | | | | |

#### Normality Assumption

This assumption whether value errors of a variable are distributed normally. Skewness and kurtosis coefficients were used to determine normality of the variables. Results as shown in Table 4.5, coefficients of skewness-kurtosis were within ±2.98, which indicate normal distribution.

Table .: Normality Assumption

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **N** | **Skewness** | | **Kurtosis** | |
| **Statistic** | **Statistic** | **Std. Error** | **Statistic** | **Std. Error** |
| Achievement of annual goals | 140 | **-.686** | .205 | **-.830** | .407 |
| Return on investment | 140 | **.626** | .205 | **-.745** | .407 |
| Technological infrastructure | 140 | **.121** | .205 | **-.969** | .407 |

**Source:** research data, (2021)

#### Homoscedasticity Assumption

Multiple regression assumes errors have equal variance across all independent variables level, which is referred as homoscedasticity. This assumption was performed by employing a scatterplot that demonstrate standardized residuals against dependent variable. Figure 4.1 depicts an even distribution of residuals indicating the assumption was met.

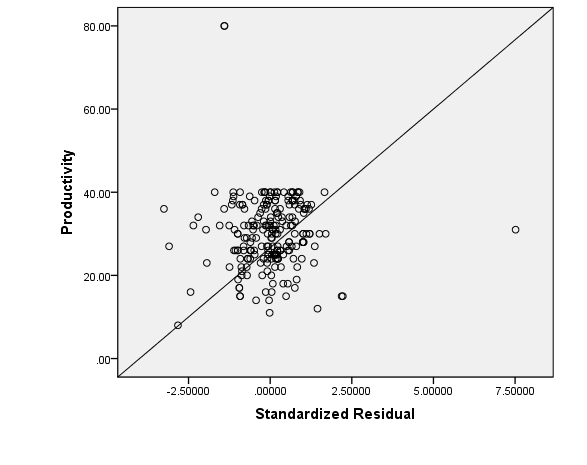


Figure .: Homoscedasticity Assumption

**Source:** research data, (2021)

#### Collinearity Assumption

Collinearity is used to check whether independent variables are not correlated since it helps to examine the effect size of each predictor has on dependent variable. Osborne and Waters (2002) recommend applying Variance Inflation Factor (VIF) and Tolerance Rate (TR) to test this assumption. Results revealed that, there was low multicollinearity since the coefficients of tolerance was high while VIF was very low ss indicated in Table 4.6.

Table .: Multicollinearity Test

|  |  |  |  |
| --- | --- | --- | --- |
| Model | | Collinearity Statistics | |
| **Tolerance** | **VIF** |
|  | Achievement of annual goals | .909 | 1.100 |
| Return on investment | .802 | 1.247 |
| Technological infrastructure | .737 | 1.357 |

**Source:** research data, (2021)

#### Autocorrelations Assumption

This assumption is used to check the presence of errors independence. Durbin-Watson was employed to assess whether variable errors are independent of one another. It was found that, Durbin-Watson, *DW* =1.8, which indicate low autocorrelation as shown in Table 4.7. The coefficient is deemed to evince acceptable level of autocorrelation when its value ranges between 1.5-2.5 (Field, 2009).

Table .: Autocorrelations Assumption

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Model** | **R** | **R Square** | **Adjusted R Square** | **Std. Error** | **Durbin-Watson** |
| 1 | .402 | .161 | .143 | 1.522 | 1.759 |

**Source:** research data, (2021)

## Multiple Regression Analysis

Multiple regression was performed after meeting the requirement of its five assumption. Results of the analysis indicated that, the regression model was statistically significant (*p*<.000). R Square was .161, which implies that, 16.1% of the model variations were explained by independent variables. Table 4.8 illustrates the findings.

Table .: Model Summary Showing Multiple Regressions Analysis

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | R | R Square | Adjusted R Square | Std. Error | Sig. |
| 1 | .402 | .161 | .143 | 1.522 | .000 |

**Source:** research data, (2021)

Furthermore, results of the regression coefficients indicate that, all independent variables were significant predictors (*p*<.05) of socio-economic growth. That is to say, one unit in achievement of annual goals explains increase in socio-economic growth by 0.1, one unit increase in return on investment explains 0.01 increases in socio-economic growth, and one unit increase in technological infrastructure explains 0.3 increase of socio-economic growth. Table 4.9 demonstrates the findings.

Table .: Regression Coefficients

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
|  | (Constant) | 1.843 | .424 |  | 4.347 | .000 |
| Achievement of annual goals | .087 | .069 | .104 | 1.257 | .011 |
| Return on investment | .005 | .077 | .006 | .071 | .044 |
| Technological infrastructure | .333 | .086 | .356 | 3.890 | .000 |

**Source:** research data, (2021)

Based on the regression coefficients results, the model equation was formulated as follows;

*From*



*Then,*



*Hence*,



*Where*,

*Y = Socio-economic growth*

*α = Constant*

*X1=* Achievement of annual goals

*X2 =* Return on investment

*X3 =* Technological infrastructure

# CHAPTER FIVE

DISCUSSION OF FINDINGS

## Chapter Overview

This chapter presents discussion of the findings in account of the study objectives. It also provides implications of the findings in respective to the reviewed empirical literature.

## Investment Strategies Imposed on Lake Victoria Maritime Transport

Findings of the study indicates that, investment strategies imposed to stimulate maritime transportation in Lake Victoria include; development of a skills roadmap focused on delivering long-term skills, advancement of marine technology and innovation techniques, identification of risks and opportunities from existing and emerging regulations, government support on maritime export trade, and use of offshore renewable energy resources and sharing of information on prospects. As regards to the findings, several implications were established.

First, the fact that, 21% of the respondents mentioned development of a skills roadmap as an investment strategy implies that, the current human resource still requires advancement of their career to deliver an outstanding output in a long-run of the sector. Second, 23% of the respondent suggested advancement of technology and innovation as an investment strategy. This gives an implication that, maritime transport is in need of sophisticated technology to add value on cost effectiveness, enhancement of productivity, and improvement of service quality. The present findings are aligned with Thana (2013) on the notion that, investment on maritime transport in terms of technology and human resource ensures an increase in productivity. Georgescu (2014) also concur with the current findings on the fact that, maritime investment stimulates compound annual growth and labour productivity.

## Challenges Facing Maritime Transport Investment in The Lake Victoria Zone

Based on the findings of the study, challenges facing maritime transport investment in the study area were; port inefficiency, insufficient cargo volume, inadequacy in human resource, and poor support for an integrated port management information system.30% of the respondents suggested maritime ports were inefficient, which implies that, features of current ports does not meet transportation demands such as vessel traffic clearance, container dwell time, and documentation processing.

Findings also indicate that, 19% of the respondents indicated insufficient cargo volume as a challenge facing maritime transport. This implies that, the size and capacity of the ports does not suffice the transported volume of cargo. Furthermore, 24% of the respondents indicated lack of human resource as another challenge. This provide an implication that, maritime transport requires an investment on human resource to ensure internationally competitive and high-quality port performance via efficient port administration and competent leadership. 27% of the respondents suggest that, poor integrated port information management system constrains maritime investment. It implies that, the contemporary ICT infrastructure is not effective to comprehend standard port information management system.

Kahyarara (2018) was in consistent with the present findings on the notion that, investing in port infrastructure is essential since the dwell time at African ports, or the period between when a container is offloaded and when it leaves a port, is up to four times longer than in developed countries.

## The Relationship Between Maritime Transport Investment’s Measures of Success and Socio-Economic Growthin The Lake Victoria Zone

Findings of the study indicate that, there is a significant positive relationship between maritime transport investment’s measures of success and socio-economic growth. Measures of success including achievement of annual goals, return on investment, and technological infrastructure accounts for 16% of the improvement of socio-economic growth. This means that, the need for marine transportation investment is a derived demand, meaning that it is desired to assist growth of other economic activities rather than for its own purpose.

Amin *et al*. (2021) was in harmony with the current findings. Their findings suggest that, performance of maritime transportation industry has a direct link with socio-economic growth, since the sector contributes significantly on Gross Domestic Product (GDP).

# CHAPTER SIX

**CONCLUSIONS AND RECOMMENDATIONS**

## Chapter Overview

This chapter presents the conclusions and suggestions. It draws conclusions from the study's major findings in connection to the objectives stated in chapter one, research implications, knowledge implications, policy implications, and also examines recommendations and recommendations for further research.

## Conclusions

Findings of the study affirm that maritime transport investment has a significant positive contribution on socio-economic growth in the study area. However, the current investment initiatives only accounts for 16% of the socio-economic activities’ growth. The measures of success in maritime investment were likely determined by achievement of annual goals, return on investment, and technological infrastructure. The study also attests that, there are several maritime investment strategies which have been implemented in Lake Victoria to uplift performance of the sector. These include skills development, technology advancement, government support, and risk assessments. However, success of these strategies is constrained by various challenges incorporating port inefficiency, insufficient cargo volume, and inadequacy in human resource.

The research results effectively demonstrated that the current investment in maritime transport in the Lake Victoria is not sufficient to the growth of social and economic of the communities in Lake Victoria regions. Nevertheless, Lake Victoria is well strategic located, investment in maritime transport still in minimum to accelerate the growth of social and economic of people living in Lake Victoria regions and a nation at large whereby improvement in port infrastructures and marine vessels could be among of the great catalyst of development within the respective regions.

## Research Implication

The study findings have different implications for different parties. All stakeholders should use this study for reviewing or assessing the importance of investing in maritime transport in Lake Victoria for the growth of economy and social well-being of people living in Lake Victoria regions. The knowledge gained also stimulates investors and other stakeholders to oversee the Lake Victoria as the potential area of huge investment which need of effectively utilization.

## Knowledge Implication

In the section on knowledge implication, other researchers should use the knowledge gathered from the study's findings and methodology to conduct studies that will further decrease gaps in the literature. This knowledge should also be used to design more valid and generalizable quantitative investigations, as well as more transparent, cohesive, and convincing qualitative studies in the future. Specifically, the research expertise was utilized to recommend future research subjects, as well as to assist other researchers in selecting variables and measures that may be appropriate for a specific topic area of research study

## Policy Implication

This section of policy implications, based on the study's findings, demonstrates that policymakers must identify gaps to the existing National transport policy and reviewing for policies to be amended such as introducing the Tanzania Maritime transport policy for better performance of the respective sector.

## Recommendations

The following strategies are recommended by researcher to mitigate all factors hindering the contribution of maritime transport in social-economic growth of Lake Victoria regions.

### Recommendations on Rehabilitation of Port Infrastructures

Port infrastructures includes all facilities for handling ships, and allowing safe loading and discharging of cargoes in/out marine vessels. TPA under the Tanzania Port Act 2004, has got major responsibility of ensure all ports in Tanzania are safe to handle ships and to allow safe loading and discharging of cargoes. TPA and other private port owners should make rehabilitation on ports on such areas as; dredging, renovate of quayside, facilities for loading and discharging of cargo and the use of ICT systems. Additionally, TPA in collaboration with Local Government Authority should construct more ports and terminals in Islands of Lake Victoria and in other usable landing site to allow safe access to marine vessels and safe loading/discharging of cargoes.

### Recommendations on Investing In Shipyards and Docks

Since the study revealed that there is highly shortage of shipyards and docks for construction of new ships and rehabilitation/maintenance of the existing ships, the Government should strictly invest in such facilities and in other way involve Private sector to invest much on the shipyards and docks to allow construction of more ships which will activate the safe transportation of passengers and cargoes in Lake Victoria.

### Recommendations on Construction of New Ships

The Government and Private sector should invest much on construction of new ships which are big in size to meet the demand. Additionally, Government and Private sector should also invest on construction of specialized marine vessels such as tanker ships, containerships, fishing and production ships and dredging vessels as to cope with the current demand of marine transport.

### Recommendations on Construction of New Ports and Terminals

TPA should construct new ports or terminals to accommodate the service of specialized and big vessels such as future container vessels, ro-on-ro-off vessels, tanker ships and big passenger and cargo ships. The Government has to involve private sector on construction of ports or terminals for marine vessels.

### Recommendations on Establishment of Routes from Main Ports to Islands and Landing Sites

Government, private sectors and other marine stakeholders should establish the marine vessels’ routes from major ports to islands and landing sites with in Lake Victoria to facilitate safe movement of passengers and cargoes in Lake Victoria regions.

### Recommendations on Training for Marine Professionals

Government and other stakeholders should train more personnel in maritime related professionals in such areas as naval architecture and ship buildings, ports and terminals operators, ship officers, and maritime and shipping management.

### Recommendations on Areas for Further Studies

In the future, the government should do a full assessment on the importance of investing in maritime transport in Tanzania through MOT and TPA.

REFERENCES

Abdulrahman, A. J. (2014). The contribution of Tanzania ports to the growth of its International trade: A case of Dar es Salaam port. Unpublished master dissertation, Mzumbe University, Morogoro, Tanzania.

Agol, D., Reid, H., Crick, F. & Wendo, H. (2021). Ecosystem-based adaptation in Lake Victoria Basin; synergies and trade-offs. *Royal Society open science*, *8*(6), 201847.

Amin, C., Mulyati, H., Anggraini, E. & Kusumastanto, T. (2021). Impact of maritime logistics on archipelagic economic development in eastern Indonesia. *The Asian Journal of Shipping and Logistics*, *37*(2), 157-164.

Arnsperger, C., & Varoufakis, Y. (2006). What is neoclassical economics. *Post-autistic economics review*, *38*(1), 33-42.

Ban, K. (2016). Maritime Transport is Backbone of Global Trade and the Global Economy, [Press Release](https://www.un.org/press/en/press-release) SG/SM/18129-OBV/1663-SAG/48622, September 2016, United Nation.

Bendera, I. M. (2006). The regulation of ship safety in Tanzania, a critical assessment of the law and practice, Assessment of Law, University of Dar es Salaam, Tanzania.

Colander, D. (2000). The death of neoclassical economics. *Journal of the history of Economic Thought*, *22*(2), 127-143.

Eltis, W. (2000). The Classical theory of Economic growth 2nd Ed., Hardcover: Palgrave Macmillan.

Etiegni, C. A., Irvine, K., & Kooy, M. (2020). Participatory governance in Lake Victoria (Kenya) fisheries: whose voices are heard? *Maritime Studies*, 19(4), 489-507.

Froholdt, L. L. (Ed.). (2018). *Corporate Social Responsibility in the Maritime Industry,* Paperback: Amazon.

Georgescu, C. (2014). The Role of Maritime transport in the development of World economy. *Christian University Bucharest,* 6(2), 177-184.

Hutajulu, H. & Ratang, W. (2006), Analysis of Sea transportation development to support National connectivity and Economic growth of Papua province. Conference Paper, International Conference on Social Science and Biodiversity of Papua and Papua New Guinea.

Igbokwe, M. I. (2001). The Importance of Maritime Transport in Nigeria economy, Unpublished Seminar Paper, Maritime Seminar, Apapa.

Kahyarara, G. (2018). Maritime transport in Africa: challenges, opportunities, and an agenda for future research. Under the framework of the IAME Conference 2018, Mombasa, Kenya.

Kombo, A. K. (2015). Analysing the impact of increasing maritime transport costs on price of imported goods, case for Zanzibar. Unpublished master dissertation, Open University of Tanzania, Dar es Salaam, Tanzania.

Kombo, D. K & Tromp, L. A. D (2006). *Proposal and Thesis writing.* Nairobi: An Introduction Paulines Publications Africa.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. Delhi: New Age International.

Koukaki, T. & Tei, A. (2020). Innovation and maritime transport: A systematic review. *Case Studies on Transport Policy*, *8*(3), 700-710.

Lawson, T. (2013). What is this ‘school’ called neoclassical economics? *Cambridge Journal of Economics*, 37(5), 947-983.

Lukmansyah, M. (1986). Role of the Sea transport in the economic development in Indonesia. Unpublished Master dissertation, World Maritime University, Malmö, Sweden.

MARAD, (2015). US Maritime Administration, The Economic Importance of the US Shipbuilding and Repairing Industry, final report, Maritime, Washington.

Mgaya, Y. D. & Mahongo, S. B. (Eds.). (2017). *Lake Victoria Fisheries Resources: Research and Management in Tanzania,* Vol. 93, Paperback: Springer.

Mihayo, I. Z. (2020). Role of policies in the sustainability of fish species in Lake Victoria: A pathway to the green economy in Tanzania. *International Journal of Agricultural Science*, *5*.

Ministry of Transport Singapore report, (MOT), (2014). Retrieved on 23rd March, 2021 from: [www.mot.gv.sg](http://www.mot.gv.sg).

Mvungi, J. M. (2019). Assessing the value of blue economy in employment creation in Tanzania, The case of Dar es Salaam port. Unpublished master dissertation, Mzumbe University, Morogoro, Tanzania.

Mwaya, A. S. (2009). The fundamental of Transport, National institute of transport, Tanzania. Unpublished master dissertation, Open University of Tanzania, Dar es Salaam, Tanzania.

Nassali, J., Yongji, Z. & Fangninou, F. F. (2020). A Systematic Review of Threats to the Sustainable Utilization of Trans boundary Fresh Water Lakes: A Case Study of Lake Victoria. *International Journal of Scientific and Research Publications (IJSRP)*, 10(02), 657-668.

National Bureau of Statistics, (2018). *Gross Domestic Product 2017, Ministry of Finance and Planning,* Dar es Salaam: NBS.

Nita, S. C. & Hrebenciuc, A. (2021). The Importance of Maritime Transport for Economic Growth in the European Union: A Panel Data Analysis. *Sustainability*, 13(14), 7961.

Omondi, M. A. (2019). The relationship between International trade and Infrastructure development in Kenya Maritime Transport, unpublished master dissertation, University of Nairobi, Kenya.

Onyango, P. O. (2017). Socio-economic characteristics of the Lake Victoria Fisheries. In *Lake Victoria Fisheries Resources,* (pp. 161-184). Cham: Springer.

Orina, P., Ogello, E., Kembenya, E., Muthoni, C., Musa, S., Ombwa, V., ... & Karoza, S. (2021). The state of cage culture in Lake Victoria: A focus on sustainability, rural economic empowerment, and food security. *Aquatic Ecosystem Health & Management*, 24(1), 56-63.

Samwels, W. J. (1990). *Neoclassical economic theory, 1870 – 1930.* Hardcover: Springer.

Sciberras, L. & Silva, J. R. (2018). The UN’s 2030 agenda for sustainable development and the maritime transport domain: The role and challenges of IMO and its stakeholders through a grounded theory perspective. *WMU Journal of Maritime Affairs*, 17(3), 435-459.

Sintoo, A. R. (2015). The role of Seaport in facilitating growth of trade in Tanzania, A case study of Dar es Salaam port. Unpublished master dissertation, Open University of Tanzania, Dar es Salaam, Tanzania.

Sounder, M. (2003). *Research Methods for Business students,* 7th Ed., London: Pearsons.

Sweya, L. N. & Wilkinson, S. (2020). A tool for measuring environmental resilience to floods in Tanzania water supply systems. *Ecological Indicators*, *112*, 106165.

Tanzania National Bureau of Statistics report (NBS), 2020)

Thana, E. (2013). Maritime transport and tourism sustainable development. *European Scientific Journal, ESJ*, 9(19), 1-12.

The Tanzania Merchant Shipping Act, 2003

Thomas, B. (2020). The Effectiveness of Monitoring and Evaluation Systems in Improving Safety of Water Transport: A Case of Lake Victoria Tanzania, unpublished Doctoral dissertation, The Open University of Tanzania, Dar es Salaam: Tanzania.

UNCTAD, (2019). Review of Maritime Transport, Retrieved 10th March, 2021 from: <https://unctad.org/topic/transport-and-trade-logistics/review-of-maritime-transport>.

UNCTAD, (2020). Review of Maritime Transport 2020. Retrieved on 21st March, 2021 from: <https://unctad.org/topic/transport-and-trade-logistics/review-of-maritime-transport>.

Vehovar, V., Toepoel, V. & Steinmetz, S. (2016). Non-probability sampling. *The Sage handbook of survey methods*, 329-345.

Watkins, M. (1977). The staple theory revisited. *Journal of Canadian Studies*, *12*(5), 83-95.

Watkins, M. H. (1963). A Staple Theory of Economic Growth Author(s): Source. *The Canadian Journal of Economics and Political Science/Revue canadienned' Economique et de Science politique*, 29(2), 141-158.

Zubeir, H. A. (2018). Challenges facing Maritime Passengers on service provision at Malindi port, Zanzibar. Unpublished master dissertation, Open University of Tanzania, Dar es Salaam, Tanzania.

# APPENDIX

Appendix : Questionnaire forms

This questionnaire is part of my research work on the “Effects of Maritime Transport Investment to Social - Economic Growth in Tanzania.” The objective is to find out the effects of investing in maritime transport in Tanzania particularly Lake Victoria regions. I would be grateful for your valuable contribution to this study if you could take time to complete the questionnaire. The information you provide will be kept strictly confidential and will be used only for academic purposes. Your names and personal information will remain strictly confidential and shall not be identified in any way. The researcher, Patrick Machia Mipawa is a student of Masters of Business Administration in Transport and Logistics Management at Open University of Tanzania (OUT) and can be reached through telephone number +255714867741/0766200421and email address machia.patrick@yahoo.com

**Questions**

Please put a tick mark on the correct answer bracket to the following statements.

1. Your gender:

(a) Male ( )

(b) Female ( )

2. Age group:

Below 30 yrs ( )

30- 39 yrs ( )

40- 50 yrs ( )

51-60 yrs ( )

3. Please state your education level.

Primary level……… ( )

Secondary level…….( )

Tertiary level……… ( )

Others: …………… ( ) specify……………………

**The questions were scaled from 1 to 5, whereby; 1- Strongly disagree, 2- disagree, 3 – Neutral, 4 – Agree, 5 – Strongly agree** to effects of maritime transport investments to the social-economic growth. (Table 4)

| No |  | 1 | 2 | 3 | 4 | 5 |
| --- | --- | --- | --- | --- | --- | --- |
| **Current situation of maritime transport investment and services** | | | | | | |
| 1. | Maritime transport in Lake Victoria cannot accommodate the users in Lake Victoria region |  |  |  |  |  |
| 2. | Few large ships available are only ply to major few ports of Mwanza and Kagera only |  |  |  |  |  |
| 3. | Most of the Islands in Lake Victoria do not have services from large ships |  |  |  |  |  |
| 4. | The only access maritime transport in Lake Victoria to minor ports/cluster ports and islands in Lake Victoria region is by small wooden boats |  |  |  |  |  |
| 5. | There are no safe and effective port facilities in islands of Lake Victoria to facilitate loading/discharging of cargo and passengers |  |  |  |  |  |
| 6. | The existing port infrastructural in Lake Victoria still do not have capacities and facilities to handle big ships and of specialized nature such as tankers and container ship |  |  |  |  |  |
| 7. | In Lake Victoria zone there are very few shipyard/docks to facilitate the ship constructions and repairs |  |  |  |  |  |
| 8 | In Lake Victoria zone the construction of new ships is heavily done by the Government of Tanzania |  |  |  |  |  |
| 9 | In Lake Victoria zone the rehabilitation of existing ships is done regularly |  |  |  |  |  |
| 10 | Maritime Staff are exposed to development skills and training regularly |  |  |  |  |  |
| **Contribution of maritime investment to Social and economic activities’ growth** | | | | | | |
| 11 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase fishing activities in Lake Victoria Regions |  |  |  |  |  |
| 12 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase industrial activities in Lake Victoria Regions |  |  |  |  |  |
| 13 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase agricultural activities in Lake Victoria Regions |  |  |  |  |  |
| 14 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase tourism in Lake Victoria region? |  |  |  |  |  |
| 15 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase transportation activities in Lake Victoria region? |  |  |  |  |  |
| 16 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase employment in Lake Victoria region? |  |  |  |  |  |
| 17 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase trading activities in Lake Victoria region? |  |  |  |  |  |
| 18 | The current investment in maritime transport in Lake Victoria is sufficient to increase revenue and favour the growth of GDP |  |  |  |  |  |
| 19 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase the number of passenger and cargoes in Lake Victoria region? |  |  |  |  |  |
| 20 | The current investment in maritime transport in Lake Victoria is sufficient to encourage and increase tax and revenue collection in Lake Victoria region? |  |  |  |  |  |

21. What is your comment on maritime transport investment in Lake Victoria regions?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. **The investment strategies imposed on Lake Victoria maritime transport**

*Pleaseindicateyouropiniononeachoftheitemwithatick“√”basedonscale1-5:*

*1=Very high,2=High,3=Moderate,4 =Low,5=Very low.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Variable** | **Response** | | | | |
|  |  | **5** | **4** | **3** | **2** | **1** |
| 1 | Development of a skills roadmap focused on delivering long-term skills |  |  |  |  |  |
| 2 | Advancement of marine technology and innovation techniques |  |  |  |  |  |
| 3 | Identification of risks and opportunities from existing and emerging regulations |  |  |  |  |  |
| 4 | Government support on maritime export trade |  |  |  |  |  |
| 5 | Use of offshore renewable energy resources and sharing of information on prospects |  |  |  |  |  |

**Challenges facing maritime transport investment in the Lake Victoria zone**

*Pleaseindicateyouropiniononeachoftheitemwithatick“√”basedonscale1-5:*

*1=Very high,2=High,3=Moderate,4 =Low,5=Very low.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Variable** | **Response** | | | | |
|  |  | **5** | **4** | **3** | **2** | **1** |
| 1 | Port inefficiency |  |  |  |  |  |
| 2 | Inadequate volume of cargo |  |  |  |  |  |
| 3 | Inadequacy in human resource |  |  |  |  |  |
| 4 | Poor support for an integrated Port Management Information System using ICT |  |  |  |  |  |
| 5 |  |  |  |  |  |  |

**Measures of success of maritime investment**

*Pleaseindicateyouropiniononeachoftheitemwithatick“√”basedonscale1-5:*

*1=Very high,2=High,3=Moderate,4 =Low,5=Very low.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **S/N** | **Variable** | **Response** | | | | |
|  |  | **5** | **4** | **3** | **2** | **1** |
| 1 | Achievement of annual goals |  |  |  |  |  |
| 2 | Return on investment |  |  |  |  |  |
| 3 | Technological infrastructure |  |  |  |  |  |
| 4 | Productivity |  |  |  |  |  |