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Economic factors affecting the performance of paper industry in Kenya.

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ECONOMIC FACTORS AFFECTING THE PERFORMANCE OF PAPER INDUSTRY IN KENYA.

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Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

Victor Mwangi Kogi

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Abstract

The Paper industry in Kenya has declined over the years despite having a high growth potential. There are many factors stunting the growth of the sector which was once flourishing. This study was undertaken to establish the economic factors affecting the performance of paper industry in Kenya. The specific objectives of the study were to determine the effect of taxation, import logistics, production cost and technological changes on the performance of the paper industry in Kenya. The study aggregated the variables of import duty and taxation, import logistics, production costs, and technology. There was an assessment of which factors affect the paper industry the most and quantify the outcome. The study adopted a descriptive design in its approach. Descriptive statistics helped to develop a better understanding of the data collection in the research investigation and simplify large amounts of data sensibly. The target population for the study was the paper manufacturing firms and those enterprises involved in the paper industry value chain. The study targeted the enterprises in Nairobi region and its outskirts. The study targeted a total population of 81 and achieved 61, representing a 75% response rate. The heads of businesses of the enterprises were targeted in the study. The study revealed that only production costs were found to have a positive and significant effect on company performance. This is a result of a general global decline in the supply of wood bi-products, of which the paper commodity falls under this category and which impacts on availability of the materials, and their affordability. The study revealed that taxation and technology had a negative and insignificant impact, while imports logistics had a positive and insignificant impact on company's performance. Taxes are statutory payments and are mandatory, meaning businesses do not have leeway to negotiate amounts payable or when to pay. Trading is not significantly deterred by higher transport costs and Kenyan companies have no option than to import all their required raw material. Hence companies will still import paper whether there is an increase in import logistics costs or not. Size of the firm and scale of production are the key determinants of a firm's performance and not technology. To enhance the performance of the paper industry in Kenya, the recommendation from the study is to have interventions to lower production costs. This research focused on specific factors that can impact business performance i.e., taxes, import logistics, production costs, and technology. However, there could be other intervening factors, e.g., market accessibility, social factors, and legislation, among others, that can affect business performance. Future research can include other intervening factors to assess their effect.

Dedication

I dedicate this work to my lovely wife Doris Wairimu Mwangi, who has supported me every stretch of the way during my studies. Her encouragement to be the best at whatever I set my heart to accomplish in life is tremendous. Thank you for the continuous support. God bless you.

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I would like to thank the Almighty God for enabling me to write my thesis. The successful completion of this study will only be possible through the help of my creator.

I honor my supervisor Dr. Muli Maingi who guided me through and dedicated his precious time and efforts to ensure this study sails through to the end. His thoroughness was the pillar to the successful completion of this thesis.

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List of Abbreviations

AFPA	-	American Forest and Paper Association
ANCOVA	-	Analysis of Covariance
ANOVA	-	Analysis of Variance
CEC	-	China Engineering Corporation
CET	-	Common External Tariff
EAC	-	East African Community
FTA	-	Free Trade Agreement
IDF	-	Import Declaration Fees

Definition of terms

Agglomeration forces: This are market forces used to describe customer-supplier interactions and labor pooling.

Anaerobic technology: Describes the technology used to treat industrial wastewater

Tabulation: means recording, counting, or listing data systematically

Fluctuation: is an irregular rise and fall in amount or numbers

Excise Duty: This is a type of tax imposed on goods produced within the country

Airfreight: means to carry goods using an aircraft

Tariffs*:* are taxes or duty paid on a particular class of imports or exports.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The digital transformation is changing the world into a paperless ecosphere, with many industries eliminating paper-reliant processes. The justification for replacing paper with digital options is enhancing efficiencies of operations and better accessibility of services (Dhumne, 2017). The change is a bonus to environmental sustenance. The fewer paper products used; the fewer trees cut for raw materials for paper production. However, it is impossible to totally eliminate paper production because of other irreplaceable paper uses. Such uses include – packaging, decorations, cleaning, wallpapers, book covers, among other applications. The continued use of the commodity spurs the paper industry and harbors a growth potential.

The paper industry consists of companies participating in production, manufacturing, and distribution of paper and paper products. The value chain players use pulp, paper, paper board, and other cellulose-based products as a raw material and convert it to make paper and paper-based products. The paper sector performance refers to revenue generation in the industry amongst its players. The current production level of the Paper Manufacturing companies in Kenya is less than 20 percent. Economic Survey (2022) data indicates that a year earlier, the paper and paper products sub-sector recorded a growth of 10.4 percent because of an increase in volumes of cartons, boxes, and cases by 4.8 percent and exercise books by 24.6 percent. The paper industry in Kenya has experienced significant growth and transformation in recent times. Historical Background: The paper industry in Kenya has a long history, dating back to the colonial era. The first paper mill, Pan African Paper Mills (E.A) Ltd., was established in 1971 in Webuye, Bungoma County. It initially focused on producing paper from bagasse (sugarcane waste), but later expanded to wood pulp-based production. Secondly, the paper industry in Kenya has grown steadily over the years, driven

by population growth, urbanization, and increasing literacy rates. The industry comprises several major players, including East African Paper Mills, Chandaria Industries Limited, Bags & Balers Manufacturers (K) Limited, East African Packaging Limited and Dodhia Packaging Kenya Limited.

Initially, the industry relied heavily on imported wood pulp for paper production. However, in recent years, there has been a shift towards using locally sourced raw materials, such as waste paper and agricultural residues like bagasse and wheat straw. This shift aligns with the country's emphasis on environmental sustainability and reducing dependence on imported inputs. The paper industry in Kenya produces a wide range of products, including writing and printing paper, packaging materials, tissue papers, and stationery items. There has been a growing demand for tissue papers and packaging materials due to changing consumer preferences and increased commercial activities. The industry has witnessed technological advancements and modernization efforts to improve efficiency and product quality. Paper mills have invested in state-of-the-art machinery and equipment, adopting advanced manufacturing processes and automation.

The paper industry in Kenya has increasingly focused on environmental sustainability. Efforts have been made to promote responsible sourcing of raw materials, minimize waste generation, and implement eco-friendly production practices. Some mills have achieved international certifications for their sustainable practices. The paper industry in Kenya faces various challenges. These include the high cost of energy and raw materials, limited access to affordable financing, inadequate infrastructure, foreign exchange volatility and competition from imported paper products. Additionally, fluctuating market demand and digitalization have posed challenges to certain segments of the industry.

International Trade Administration (2021) reveals that Kenya applies tariffs based on the international harmonized system (HS) of product classification and applies duties and charges of the East African Community (EAC) Common External Tariff. Customs duties are subject to rates between zero percent and 100 percent, with an average of 25 percent. Excise duties depend on whether the imported item is excisable or not. The rates are prescribed under the Excise Duty Act 2015. Imports into Kenya are subject to a standard VAT rate of 16 percent,

levied on the sum of the CIF value, duty, and other applicable taxes. An additional import declaration fee of 3.5 percent and a railway development levy of 2 percent also apply.

In addition to import duty tax, there are also transportation costs to contend with when moving the raw materials. The freight costs are sensitive to international advisories, demand factors, movement restrictions, among other factors. In recent times, transportation costs have risen due to restrictive factors. Mwita (2021) reveals that international freight charges have gone up by between 20–25 percent, signaling an imminent rise in the cost of goods in the country.

Statista (2021) reveals that the global production of paper and cardboard totals more than 400 million metric tons each year. The most produced type of paper is packaging paper and board, which has been growing in demand due to the online shopping boom. The two largest paper-producing countries globally are China and the United States. The developed countries employ advanced technologies in paper production to manufacture efficiently and massively. An example of such know-how is the Smart Process Optimization which can reduce energy consumption by about 25 percent in full-scale testing compared to current technology in paper mills (Engstrand, 2017). Energy is a critical cost in paper production and, its savings lead to cheaper production processes.

The paper industry structure has experienced changes due to the shifting of paper use patterns. Berg and Lingqvist (2019) elaborate on some of the pertinent changes. The authors aver that at the aggregate level, the world's highest paper and forest-products companies have not grown much, if at all, and several of them have reduced in size. However, concentration levels in specific segments have generally, if not universally, increased. In some categories like North American containerboard and coated fine paper, ownership concentration is mostly by traditional approaches to drawing segment boundaries. In such cases, the industries grow to levels where it would be difficult for companies to find further acquisition opportunities that competition authorities can approve.

In Africa, paper mills produce tissue, board, fluting & liner, writing, printing and newsprint papers. The countries with the highest paper production include: Algeria, Egypt, Kenya, Morocco, Nigeria, Tunisia, Tanzania, and South Africa. Small-scale producers include

Ghana, Madagascar, Uganda, Zambia, and Zimbabwe. In North Africa, Egypt holds the highest number of Paper Mills and machines and is currently operating at 8 Tissue Mills with 14 machines and more than 38 Paper Mills with 50 machines (Pulp and Paper Africa, 2020).

In Kenya, the paper industry has issues concerning general manufacturing industries and those unique to paper mills. Kenya's manufacturing sector is a significant contributor to the GDP at 10%. The sector includes - agro-processing, garments, the assembly of automotive components and electronics, plastics, paper, chemicals, pharmaceuticals, metals, and engineering products for domestic and export markets. Data from the Ministry of Industrialization, Trade and Enterprise Development (2015) shows that the sector has stagnated for the past ten years and, there is an ambitious 10-year plan to revive it. The Kenya Association of Manufacturers (2022) shows that there are approximately 81 paper manufacturing firms in Kenya.

Amariati (2010) enumerates various financial factors that influence the profitability of manufacturing firms in Kenya. Factors like fluctuation of the exchange rate, interest rates, and inflation affect the cost of production and raw material cost. With the high production overheads, there are low profits in manufacturing firms. Were (2016) elaborates on salient issues in the manufacturing sector in Kenya. The author avers that in the formal sector manufacturing, the sectors identified as the most challenging have complex manufacturing processes. The subsectors include - vehicle assembly, electronics, and other technology-related manufacturing. The most common challenges in manufacturing relate to high electricity tariffs, which increase the cost of making goods, leading to a heightened price of the end product. Further, power outages mean manufacturers have to buy generators adding cost in purchases and operations.

The paper manufacturing industry in Kenya is within the technology-related subsector of the industry and suffers particular setbacks mostly related to economic aspects. A once thriving paper manufacturing company in Kenya, the Pan Africa Paper Mill in Webuye declined to oblivion due to the economic and technological challenges hitting the subsector. As revealed by Otieno (2020), in 1976, Pan Africa Paper was vibrant, producing the unbleached Kraft paper and bleached grades of writing papers. The factory manufactured its raw materials from

plantations grown from pines and cypress and eucalyptus. The initial installed annual capacity was 45,000 tonnes, but following two types of modernization, it increased to 66,000 tonnes and was poised to reach 96,000 tonnes in early 1991. The Pan Paper collapsed in 2009 and closed its doors resulting in a dampening effect to the economy of Webuye town that was dependent on the factory operations (Otieno, Matheka, and Nyakwaka, 2020).

In Kenya, the country relies on imports in the paper industry. Trading Economics (2021) reveals that the Kenya paper imports from India include - paper and paperboard, articles of pulp, paper and board, which were US$36.57 Million in 2020, according to the United Nations COMTRADE database on international trade. Trend Economy (2021) further reveals that the value of the uncoated kraft paper and paperboard, in rolls or sheets, from Kenya was equal to $1.73 million in 2020. Sales of the commodity group from Kenya went up by 257% in 2020, compared to 2019. The exports went up by $ 1.25 million (cumulative exports of the commodity group from Kenya were $486 thousand in 2019).

Like other companies in the manufacturing industry in Kenya, the paper sector faces high taxation. According to the Kenya Revenue Authority (n.d.), the import tax rates vary between 0 percent, 10 percent, and 25 percent provided by the East Africa Community Common External Tariff (CET). However, Sensitive items attract a duty higher than 25 percent.

1.2 Statement of the Problem

Many manufacturing industries in Kenya rely on paper as an essential input into their final product. Paper packaging plays a huge role in the service industry. Most manufacturing companies depend on paper packaging for complete product finishes for delivery to customers. The various packaging paper on-demand in Kenya include – paperboard boxes, polybags, corrugated boxes, rigid boxes, and chipboard packaging. Since the country is heavily reliant on paper imports, the manufacturing enterprises have to contend with the importing costs for the commodity from overseas markets (Amariati, 2010).

Despite the demand for paper products in the country, the local industry has not thrived. An example is Pan Africa Paper Mill in Webuye, which collapsed due to the economic and technological challenges hitting the subsector. The Pan Africa Paper was vibrant, producing the unbleached Kraft paper and bleached grades of writing papers. The factory manufactured its raw materials from plantations grown from pines, cypress and eucalyptus (Otieno, 2020).

The paper industry in Kenya lost its local raw material producer with the collapse of the key provider of the input. The industry has to rely on imports for factory operations. The cost of packaging paper is high and, the situation is worse because of the imminent global shortage of the significant raw material for paper bags, the sack kraft paper. Increased tax, freight, and other costs affect the manufacturing sector, denting its contribution to the economy in the country. It is essential to analyze the economic factors affecting the paper industry establishing which aspects have a more severe impact on the sector. Such an outcome will inform the interventions needed to bolster the sector-wide fortune and enhance its economic contribution.

Several studies (Deardorff, 2014; Soderholm, 2011; Esaku, 2021) reveal the challenges of the paper industry, locally and globally. Numerous challenges emerge like taxation, freight costs, costly production of raw materials, reduction in supplies, environmental restrictions, among others. However, no study focuses on establishing the severity of each challenge compared to the next. This study develops each of the attributes separately to investigate how they compare. Most of the researches have an independent focus on one or two aspects of the setback. This study discerned independent impact of import duty and taxation, freight/transportation costs, production cost, and technological changes.

1.2 Research Objectives

1.2.1 General objective

The overall objective of the study was to assess the economic factors affecting the paper industry in Kenya.

1.2.2 Specific objectives

The research objectives of the study were as follows:

I. To determine the effect of taxation on the performance of the paper industry in Kenya
II. To establish the influence of import logistics on the performance of the paper industry in Kenya
III. To assess the effect of production cost on the performance of paper industry in Kenya
IV. To evaluate the effect of technological changes on the performance of paper industry in Kenya

1.3 Research Questions

The research questions to be answered by the study were as follows:

I. Does taxation affect the performance of the paper industry in Kenya?
II. Does import logistics affect the performance of the paper industry in Kenya?
III. Does the production cost affect the performance of the paper industry in Kenya?
IV. Does technology affect the performance of the paper industry in Kenya?

1.4 Scope of the Study

The study analyzed the performance of the paper industry in Kenya. There was an assessment of the factors that drive performance or lack thereof of the stagnating paper industry. The sub factors for analysis included taxation, import logistics, production cost, and technology.

The paper industry consists of companies participating in production, manufacturing, and distribution of paper products. Performance refers to Annual Turnover of companies in the paper industry in Kenya.

The study was a cross sectional one targeting manufacturing firms in the value chain of the paper industry. The research focused on enterprises located in Nairobi and its outskirts. To participate in the survey, the firms must have been in existence for five years and above. The period of operations was put in place to ensure that the companies participating in the study have adequate data necessary for insights in response to the survey objectives.

1.5 Significance of the Study

The study findings will be critical for policy interventions to revamp the paper manufacturing industry. The study will showcase the cost drivers of the sector that inhibit its performance. The study findings will benefit stakeholders in the paper industry as follows:

1.5.1 Government Policy Makers

The study will inform relevant policymakers in the government of the concessions (tax, excise duty, among other costs) needed to keep the overheads at manageable levels for the industry players. The government will be aware of tax subsidies necessary to revamp the industry and spur its growth.

1.5.2 **Potential Investors in the Paper Industry**

The study can also build a case for revamping raw material paper production. Such an endeavor will result in a win-win situation in which paper raw materials costs reduce, and the industry experiences growth through job creation and increased internal trade. Such a scenario will attract investors to the sector and attract foreign direct investment.

1.5.3 **Paper Industry Manufacturers**

The paper manufacturing firms will also benefit from the study findings by discerning the cost drivers in their enterprises, hence making prudent decisions on investments in their businesses. The information will be critical in driving the performance of the firms.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review consists of the theoretical framework of the study and also the empirical review. The theoretical framework section is an elaboration of theories underpinning the economic factors affecting industry growth. The empirical review is a compilation and assessment of various studies undertaken on the subject of paper industry growth and the factors impacting the sector. The section culminates in a conceptual framework that reveals the variables of the study.

2.2. Theoretical Review

2.2.1 Excess Burden of Taxation Theory

Hines (2007) elaborates on the Excess Burden of Taxation Theory which was introduced in 1920 by Arthur C. Piguo which reveals the efficiency cost, or deadweight loss, associated with taxation. In countries where taxation is high and there is no enabling environment to promote businesses, the citizens feel burdened by costs associated with taxation. The manufacturing firms produce expensive goods, ultimately transferring the costs to the citizens. The enterprises have to absorb high overhead costs of operations because of costly production inputs. Typically, there is multiplicity of taxation where one company can pay several types of taxes to legalize its operations. A tax system that produces a higher level of economic welfare might have a greater measured excess burden than an alternative that raises the same revenue. If excess burden is to have impact in the evaluation and formation of tax policies, it is necessary that the measure correspond, at least approximately, to the economic

cost of taxation – and assign greater excess burden to tax systems that are in fact more burdensome.

A manufacturing firm that relies on imports for its supplies and uses advanced technology to make its operations efficient suffers the impact of multiple taxation. There is taxation imposed on the manufacturing inputs and technology used in production. When importing the necessary supplies, the enterprises have to deal with transport/logistics taxation. The result of all the taxation is that many companies in the paper industry struggle with obtaining reasonable margins and profitability.

The theory of excess burden, or deadweight loss, can be applied to analyze the performance of the paper industry in Kenya in relation to taxation and government policies. Taxation: if the paper industry in Kenya faces high taxes, such as excise taxes or import duties on raw materials, it can lead to higher production costs. This can result in reduced production and consumption of paper products, as well as a decrease in investments and employment within the industry. The distortionary effect of taxes can create an excess burden by reducing economic efficiency and hindering the growth of the industry.

Firstly, inefficiencies in the paper industry, such as inadequate infrastructure, limited access to finance, or bureaucratic hurdles, can contribute to an excess burden. These factors can increase production costs, reduce productivity, and limit the competitiveness of the industry both domestically and in the international market. Secondly, the paper industry is often subject to environmental regulations aimed at promoting sustainable practices and reducing pollution. While these regulations are important for environmental protection, they can also impose additional costs on the industry. If the regulatory burden becomes excessive or disproportionate, it may hinder the growth and competitiveness of the industry, leading to a deadweight loss. On the other hand, government subsidies or support programs provided to the paper industry can also create an excess burden. If these policies distort market forces and lead to inefficient allocation of resources, they can result in deadweight loss by subsidizing activities that would not have been undertaken in the absence of such support.

The criticisms associated with the excess tax burden in relation to the performance of the paper industry include: Firstly, the theory of excess tax burden primarily concentrates on the negative effects of taxation on economic efficiency. While taxes can indeed create distortions and inefficiencies, it overlooks the broader factors that impact the performance of the paper industry. The industry's performance is influenced by various factors such as technological

advancements, changing consumer preferences, market dynamics, environmental considerations, and government policies beyond taxation alone.

Secondly, Insufficient consideration of externalities: The theory of excess tax burden does not adequately account for externalities, which are costs or benefits that affect parties not directly involved in a transaction. In the case of the paper industry, environmental externalities such as deforestation, pollution, and waste generation have significant implications. Taxation can be used as a tool to internalize these external costs and promote more sustainable practices within the industry. Ignoring the positive effects of taxation in addressing externalities can provide an incomplete assessment of its impact on the industry's performance.

Thirdly, neglect of industry-specific characteristics: The paper industry has its unique characteristics, such as raw material availability, infrastructure requirements, and market demand dynamics. The theory of excess tax burden does not sufficiently account for these industry-specific factors. Tax policies that may be detrimental to one industry might be more suitable for another. A more comprehensive analysis should consider the specific challenges and opportunities of the paper industry in Kenya to understand the effects of taxation accurately.

Fourthly, the theory of excess tax burden focuses primarily on efficiency considerations and assumes that the burden of taxation is evenly distributed across society. However, tax policies can have differential impacts on different segments of the population, including various actors within the paper industry. Small-scale producers, for instance, may be more vulnerable to the negative effects of taxes due to their limited resources and inability to absorb additional costs. The theory's neglect of distributional concerns can obscure important equity considerations.

Lastly, lack of empirical precision: Calculating the exact magnitude of excess tax burden is challenging and relies on various assumptions and estimation methods. The theory requires precise information about consumer and producer behavior, which may be difficult to obtain. Empirical studies on the specific impacts of taxation on the paper industry in Kenya are necessary to provide more accurate insights.

2.2.2 Logistics Theory

Wang, Ma, Huang, and Yan (2008) posit the logistics theory, elaborating the impediments of logistics cost in a firm. The logistics cost adds to the cost of material because of its movement from the supplier to the manufacturing firm. The management of logistics in a firm includes the whole process of material procurement, transport, store, portage, etc. For a cost-effective operation, the manufacturer has to control the material costing sufficiently. The cost management involves the whole process of the material procurement and assessing which costs are reducible and which ones remain constant. Achieving harmony is rarely an easy task because specific costs are beyond the control of the firm. Such costs are like transport taxes and other regulatory costs. For operations to be sustainable, costs have to remain at their lowest possible state. In some instances, manufacturers have to select their materials carefully to get a balance between cost effectiveness and quality.

Several authors suggest that business may be more costly only on the obvious measurable costs of transportation. If that is the case, trade patterns increase due to trade costs like production costs. Even production costs may matter differently for a country trade when the relevant comparison is not to the world, but only to those countries that are somehow close enough for business with them to be most feasible (Deardorff, 2014). The Kenya paper industry relies heavily on imported supplies, enhancing the cost of materials through transportation and other associated costs like taxation.

When analyzing the performance of the paper industry in Kenya through a logistics lens, several key aspects come into play. These include transportation, warehousing, inventory management, and supply chain optimization.

Firstly, efficient transportation is crucial for the paper industry as it involves the movement of raw materials, such as timber, and finished paper products. Logistics theory emphasizes the need for reliable transportation networks, proper route planning, and appropriate modes of transport. In Kenya, the paper industry relies on road, rail, and sea transport. Evaluating the performance of transportation infrastructure, the availability of well-maintained roads, railways, and ports, and the accessibility of transport services are vital factors in assessing the industry's logistics efficiency.

Secondly, warehousing plays a critical role in the paper industry's performance by providing storage facilities for raw materials and finished products. Logistics theory emphasizes efficient warehouse design, layout optimization, and inventory management practices. Effective warehousing ensures timely availability of raw materials for production and enables the industry to meet customer demand by storing finished paper products efficiently. Evaluating the availability and capacity of warehouses, their proximity to production facilities, and the adoption of modern warehousing techniques contribute to assessing the industry's logistics performance.

Thirdly, inventory management is another important aspect of logistics theory that directly affects the paper industry's performance. Efficient inventory management practices aim to balance the availability of raw materials and finished products while minimizing carrying costs and stockouts. In the context of the paper industry, optimizing inventory levels of raw materials such as pulp, chemicals, and timber, as well as managing finished product inventories, helps maintain a smooth production flow and meet customer demands in a timely manner. Evaluating the industry's inventory turnover ratio, stockout rates, and inventory holding costs provides insights into its logistics efficiency.

Lastly, under supply chain optimization; logistics theory emphasizes the importance of optimizing the entire supply chain to achieve overall efficiency. In the paper industry, this involves coordinating various stakeholders, including suppliers of raw materials, manufacturers, distributors, and retailers. Effective supply chain management ensures timely availability of inputs, reduces lead times, minimizes costs, and enhances customer satisfaction. Evaluating the industry's supply chain integration, collaboration with suppliers and customers, and the adoption of technologies for information sharing and coordination can provide insights into its logistics performance.

When analyzing the performance of the paper industry in Kenya through the lens of logistics theory, one should consider the efficiency and effectiveness of transportation, warehousing, inventory management, and supply chain optimization. Assessing these aspects can help identify areas of improvement, enhance operational efficiency, and ultimately contribute to the industry's overall performance.

While logistics theory provides valuable insights into supply chain management and can be applied to various industries, including the paper industry, it is important to acknowledge certain critiques and limitations. When considering the performance of the paper industry in

Kenya, the following critiques of logistics theory can be raised; i.e., contextual factors, and cultural and Social Considerations.

Firstly, logistics theory often assumes a standardized and predictable operating environment. However, the paper industry in Kenya may face unique challenges and contextual factors that can significantly impact its performance. Factors such as political instability, regulatory complexities, infrastructure deficiencies, and regional disparities can influence logistics operations and may not be adequately addressed by logistics theory alone.

Lastly, logistics theory tends to focus on technical and operational aspects, often overlooking cultural and social dimensions. In Kenya, cultural norms, labor practices, and social dynamics can have implications for logistics operations in the paper industry. For instance, local customs and labor practices may impact workforce productivity, collaboration among stakeholders, and decision-making processes, which may not be adequately accounted for in logistics theory.

To comprehensively assess the performance of the paper industry in Kenya, it is essential to consider these critiques and complement logistics theory with a contextual understanding of the industry's unique challenges.

2.2.3 Disruptive Innovation Theory

Disruptive technology was a term coined by Harvard business professor Clayton Christensen in his book Innovators Dilemma (Terry, 2020). The theory refers to a disruption (mostly in technology) that transforms the operations of a particular industry or sector. The disruption typical enables better access to markets by providing cost-efficient products and services. However, the new technology often catches the users of the older one unexpectedly and they usually have to adapt fast or become irrelevant in their industry. Productive, successful companies can make a critical error by neglecting to keep up in a rapidly changing marketplace. The error becomes costly because the business operations become inefficient and unsustainable compared to the peers that have adopted the new way of doing things. A new technology that produces a lesser product that does not represent competition can evolve and compete with established high-quality products. The new product starts slowly, typically marketing to a different consumer base.

The Paper industry in Kenya is not any different from many other industries affected by technological disruption. There have been two types of disruption. The first is the advent of digital technology with the world going paperless hence reduced demand for paper. Secondly, is the technology used in paper production. Inventions in the paper processing seek to keep costs of production low and enhance efficiency in the process. Failure to use such technology means the output of the manufacturing process is not competitive compared to the firms that use the technology. The technology of paper production in Kenya is not as advanced as that of the Western world, giving it a disadvantage in competing in the markets globally.

The theory of disruptive innovation can be applied in the performance of paper industry in Kenya through the following ways: Firstly, disruptive innovations often arise in response to changing consumer preferences and demands. In the case of the paper industry, there has been a global shift towards digitalization and electronic communication, resulting in reduced demand for traditional paper-based products. Disruptive innovations such as electronic documents, online publications, and digital communication platforms have challenged the dominance of paper products. This shift in consumer preferences can negatively impact the performance of the paper industry in Kenya.

Secondly, disruptive innovations often involve the adoption of new technologies that enable more efficient and cost-effective production processes. In the context of the paper industry, digital technologies have facilitated the development of paperless workflows, digital publishing, and online document management systems. These innovations have reduced the need for physical paper and streamlined processes, leading to increased efficiency and reduced costs. However, the paper industry in Kenya may face challenges in adopting and integrating these technologies, which could further impact its performance.

Thirdly, disruptive innovations can disrupt existing market dynamics and introduce new competition. In the case of the paper industry, digital alternatives and substitutes pose a competitive threat. Companies that adapt to the changing landscape by diversifying their product offerings or leveraging digital technologies may be better positioned to withstand the disruptive forces. However, businesses in the paper industry that fail to adapt or innovate may face declining market share and financial performance.

Fourthly, the paper industry has faced increasing scrutiny regarding its environmental impact, including deforestation, water usage, and waste generation. Disruptive innovations focused on sustainability, such as recycled paper products or alternative materials, have emerged as potential substitutes. As environmental concerns gain prominence, consumer preferences may shift towards eco-friendly alternatives, further challenging the traditional paper industry.

When considering the relation of the disruptive innovation theory in relation to the performance of the paper industry, the following criticisms can be raised: Firstly, the theory of disruptive innovation tends to prioritize technological advancements as the primary drivers of disruption. However, in the case of the paper industry, disruption may not be solely attributed to technological innovations. Changing consumer preferences, environmental concerns, and shifts in market dynamics play significant roles in shaping the industry's performance. Focusing solely on technological disruption may overlook these broader factors.

Secondly, disruptive innovation theory often implies that incumbents in an industry are unable to respond to disruptive forces due to organizational rigidities or a lack of foresight. However, established paper companies in Kenya may possess valuable knowledge, resources, and capabilities that can be leveraged to adapt to changing market conditions. Dismissing their ability to respond to disruption overlooks the potential for incumbents to adapt and innovate.

Lastly, the theory of disruptive innovation often frames disruption as a binary outcome, where incumbents are either disrupted or completely displaced. However, in reality, disruption can manifest in various degrees. Rather than a complete replacement of paper products, the industry may witness a gradual decline or transformation. The theory's binary perspective may not fully capture the nuanced dynamics and potential coexistence of traditional and disruptive players.

2.2 Empirical Review

The empirical review includes a compilation and analysis of similar studies in the subject matter. The section reviews publications, reports, and primary studies by various authors/researchers, on the paper industry locally and globally. The exercise culminates in establishing a research gap of the studies that inform the aspect of focus for this study. The section splits into thematic areas based on the study objectives, i.e., import duty and taxes impact, import logistics, production costs of paper, and technological changes.

2.2.1 Taxation and Business Performance

Import duty and fees have a significant bearing on the local industry relying on imports to run their factories in Kenya. Esaku (2021) carried out a quantitative study to assess the impact of taxes and import duty on trade in Uganda. In his study, he found that a one-unit reduction in import duties as a percentage of total imports significantly increases firm-level productivity in the manufacturing sector by 5.7 percent. Examining the effect of increased productivity on the firm's share of exported output, it is evident that lowering of import duties significantly increases the output share exported by 0.7 percent. Further, examining the effect of import duties on industrial performance, there is a negative and statistically significant relationship in some industries. The study results show the heterogeneous impact of reducing import duties on industrial performance. Not all industries benefit from lowering import duties, especially the food, bakery, and garment industry, where productivity did not increase. The research gap emerging was lack of delineation of import duty impact in all the industries.

Another study by Lileeva and Trefler (2007) was carried out to assess impact of tariffs on import competition in Massachusetts. The study reveals that lowering output tariffs increases productivity by stimulating tougher import competition. A case elaborating the scenario is the effect of the United States of America (USA) and Canadian tariff cuts on the productivity dynamics of firms. The output of the tariff cuts indicates increased exit rates among low

productivity firms and resource reallocation from low productivity firms to high productivity firms. Furthermore, new export entrants receive higher productivity improvement due to reducing import tariffs on their raw materials. An impact of Canada-U.S. Free Trade Agreement (FTA) reveals evidence of within-plant labor productivity in Canadian manufacturing. In addition, there is a reshuffling of resources from low productivity firms to high productivity firms. The firms with better access to international markets show promising signs of engaging simultaneously in exporting and investing in technology. The authors contend that for manufacturing industries to thrive, the government should lower products imports tax, enhance subsidy on remanufacturing firms, and issue favorable tax policies. However, the study does not eliminate other non-tariff factors affecting import competition which is an emerging aspect for further research.

Vlasova, Laskina, and Musalimova (2015) did a study to investigate the impact of taxation on sustainability indicators, targeting machine building enterprises in Estonia. The findings show that there is an inverse relationship between tax leverage and tax sustainability of enterprises, where the correlation coefficient is -0.77. The tax leverage is associated with a company's sustainability whereby the higher the taxes, the less likelihood of survival of the companies in the long term.

A study was carried out by Baptista et al., (2021) to analyze the effect of corporate income taxation (tax effect) on return on equity (ROE) of listed companies of eurozone stock markets. The data was collected from listed companies' financial statements in the Eurozone during 2018 (Orbis database). The final sample was based on 750 listed companies from several activity sectors and located in different Eurozone countries. The research results were obtained using the Ordinary Least Square (OLS) regression method. The return on equity average is approximately 12,7%. The tax effect average is approximately 71,4% (i.e., 28,6% in terms of effective tax rate). Therefore, the influence of the tax effect is significant. The results suggest that for the companies listed in the Eurozone stock market, a variation of 1% in the fiscal effect generates a 1,243% variation in the same direction of the ROE. The relationship is positive, as was expected.

2.2.2 Import Logistics and Business Performance

Freight and transportation costs for imports are significant overheads for importers needing to ferry paper raw materials from the overseas market. The manufacturers rely on the raw materials for their production, making the cost a significant feature in their expenditure. The costs vary depending on the mode of transportation used, i.e., air or water transport. Attributes like weight, dimensions, the value of goods, liabilities, fuel surcharge determine the cost of transporting the commodity. Desk research by Russel, Coyle, Ruamsook, and Thomchick (2014) in a survey to establish impact of transportation costs to import/export firms reveal an increasing cost. Freight movement in most modes remains largely dependent on ever-more expensive and finite fossil fuels, primarily diesel fuel. The demand-supply imbalance of freight transport services, is a repercussion of trade growth that has outpaced the availability of transport services to such an extent that it has led to serious issues of congestion and capacity constraint in the United States. However, the authors admit that other factors like import restrictions would impact on the transport costs but such factors were not measured by the research to determine the actual impact.

Gollin and Rogerson (2014) in his study to assess impact of transportation cost to agricultural enterprises in the sub-Saharan Africa finds that transportation costs are quantitatively important in the productivity of a firm. The study included three types of transportation costs- the ones involved in transporting manufacturers to rural areas as both a consumption good and an intermediate input in the production in modern agriculture, and those involved in transporting the agricultural good from the rural to the urban areas. The steep cost of transport influences other factors like availability of skilled labor in remote rural operations.

The transport cost is a deterrent to the paper manufacturing industry in Kenya because of the heavy influence the overhead has on the overall cost of overheads in enterprises. A quantitative study by Martinez-Zarsoso and Suarez-Burguet (2007) to assess impact of transport costs on trade aver that higher distance and poor importer infrastructure notably increase transport costs. A higher volume of trade has the opposite effect on freight costs. Furthermore, trading is significantly deterred by higher transport costs and fostered by cultural similarities. However, the study did not address impact of each of the factors to determine severity of the transport costs over other factors like infrastructure.

Camisón-Haba and Clemente (2020) carried out a study to determine the cost drivers of international freight. 583 personal interviews were conducted over the course of 2019 with producing companies that ship goods and with the logistics operators. As a result, 305 routes between the Valencian Community and Europe were identified, from which 6390 observations were obtained. The results show that distance is a determining factor in the cost of transport, notwithstanding the infrastructure coverage and improvements in quality. At the same time, the analysis confirms that transport cost is more sensitive to the degree of competition on the route, the volume of freight on the route and the volume of goods shipped on the route by the exporting company, the configuration of the supply chain, the company strategy and the coverage and quality of transport infrastructure.

2.2.3 Production Cost and Business Performance

Demand and supply factors affect the cost of commodities. In the global supply chain characterized by larger markets, attributes play a critical role in determining the prices of goods. Baldwin (2012) contends that the fundamental trade-off in supply chain fractionalization is between specialization gains and production costs. The compromise in supply chain dispersion is between dispersion and agglomeration forces. Supply-chain trade should not shake off the perception of standard trade-in parts and components rather than final goods. Production sharing has linked cross-border flows of goods, investment, services, know-how, and people in novel ways. Manufacturers incur high production overheads to churn out quality goods that compete in the global markets.

There is a general decline in the supply of wood bi-products, of which the paper commodity falls under the category. Wear, Prestemon, and Foster (2016), from their quantitative study to assess production costs of paper, reveal that the US global share of industrial roundwood peaked at 28 percent in 1999 but by 2013 was at 17 percent, with the decline attributable to a combination of cyclical factors and long-run trends. Wood products output declines are linked to low construction levels, whereas paper supply decline results from the offshoring of US manufacturing and growth in electronic media. Prospects are for increased use of wood in construction as the housing market returns to long-run averages in the coming years.

However, the paper sector is unlikely to recover to its 1990s levels of output, implying that it is not likely that the United States will return to its historical highs in global market share of industrial roundwood production. The research gap revealed from the study was that technology was a key factor to production costs and it ignored the cost of raw materials.

Even though there is an overall decline in paper supply, there is increased demand for particular paper types. Recycled paper and those environmentally friendly types experience higher demand even though they are more costly than other paper types. Hujala, Puumalainen, Tuppura, and Toppinen (2010) and Pekka (2008) contend that the global demand for recycled paper in paper and board production has continuously grown during the past decades. Regionally, the growing demand for paper and paperboard is shifting from Europe and North America to Asia, causing changes in national-level utilization of recovered paper. Global production increase of wood pulp has during the 2000s not matched that of paper and paperboard (over 15 percent change between 1999 and 2006), reflecting gains in rates of paper recycling and the continuing rise in the use of recovered fiber and decreasing new wood fiber in paper production.

The ultimate solution to overall paper supply decline globally is to have a vibrant local paper milling company in the region. Pulp and Paper Africa (2019) reveal that East African largest paper mill is under construction in Ethiopia. As a result of the agreement signed between Yekatit Pulp and Paper and China Engineering Corporation (CEC), 70,000 tons of packaging paper and 15,000 tons of tissue paper will result from the new facility. The paper miller has the challenge of meeting high production overheads to produce quality paper that meets global standards. Choices made to invest in African paper mills must offer a true value proposition to stand out in most of the continent's nascent markets.

A study by Koksal and Kettaneh (2011) to interrogate challenges experienced by high and low performing manufacturing companies reveal production cost related-factors as a major cost driver. A structured questionnaire was applied to 144 Turkish companies and 71 Lebanese companies through the mail. The response rate was 20 percent for the Turkish sample and 23 percent for the Lebanese. Some differences were identified between high- and

low-performing Turkish and Lebanese manufacturing companies regarding the perception of export problems. The differences were grouped and discussed under internal and external export problems. Highlighted effects of such internal export problems were insufficient production capacity, packaging, and exporting being difficult and costly; and external problems were the imposition of high-tariff/non-tariff barriers by foreign countries.

2.2.4 Technology and Business Performance

The technology used in the Paper industry is correlated to the cost of production. The Paper industry is intensive in overheads and has a high cost of the raw materials required for the final products. Many firms, specifically small enterprises, find the input cost of the commodity to be high, affecting their profitability levels. The scenario repeats itself in many industries globally experiencing similar challenges. Kumar and Bhaskar (2019) contend that the Paper industry is a material-intensive industry where different material types in large quantities are applicable. According to the American Forest and Paper Association (AFPA), the material accounts for more than 50 percent of the total cost of production. The industry input (raw materials and chemicals) and the output (paper as a finished good) require special attention. For a continuous operation of each system and seamless production process, it is necessary to supply raw material without any break at any stage.

Bajpai (2017) in his research on various paper technology, compares the conventional and modern methods of manufacturing paper. The research is quantitative targeting paper production firms in the UK. The study establishes that the application of anaerobic technology in pulp and paper industry is gaining acceptance as a cost-effective treatment alternative. Compared to conventional aerobic methods, the anaerobic wastewater treatment concept provides many critical benefits. The benefits include lower energy requirements and operating costs as well as production of a useful energy by-product in the form of methane gas. Additionally, anaerobic treatment systems reduce, to a great extent the volume of excess sludge produced due to the low cell yields of anaerobic bacteria. The low excess sludge production makes anaerobic treatment methods particularly attractive since waste sludge disposal is becoming a major problem for aerobic treatment systems. The study was limited

to the production process and did not focus on machinery which could also impact on the overhead costs of manufacturing paper.

The choice of the paper type also determines the demand because some paper costs are steep depending on the materials used. Unfortunately, the cheapest paper is not always the best for many industries. Li and Rabnawaz (2018), from their research on paper quality and demand provide insights on the types of affordable paper that are not the most suitable for use hence requisite technology needed to produce the paper. The authors elaborate that paper, paperboard, and corrugated board are widely used materials in the packaging and distribution sectors due to their numerous advantages, including their low cost, reliance on renewable feedstocks, and biodegradable nature. Specialized technology is required in the production of the paper. According to the US Environmental Protection Agency, there were approximately 40 million tons of paper and paperboard in 2014 in the US produced. Out of the production, 75.4 percent were recycled and composted in the United States. Despite the low cost and environmental benefits of paper and paper-based materials, the commodities have limited applicability due to poor water resistance.

The paper manufacturing firms in Kenya continue to stumble over the exorbitant costs of raw materials stunting the industry growth. Paper technology in Kenya is not as advanced as in the Western world and the cost of manufacturing remains high. Ngui, Chege, and Kimuyu (2016) on their research focusing on growth of the paper industry in Kenya aver that Kenyan manufacturing has suffered poor productivity growth. There are numerous reasons for the faltered growth. Limited investment takes place, either at the firm or national level. The public sector emphasizes academic rather than technical education that tends to have a higher impact on overall productivity. Kenya does not have an adequate supply of infrastructure and, many firms feel compelled to self-provide for water, power, and security. Firms do not always focus on their core business because of the failures in the market, for example, transport services. Most firms spend their resources on providing services that are accessible more cost-effectively through outsourcing. However, the research does not quantify the effect of each of the factors that would be subject for further research.

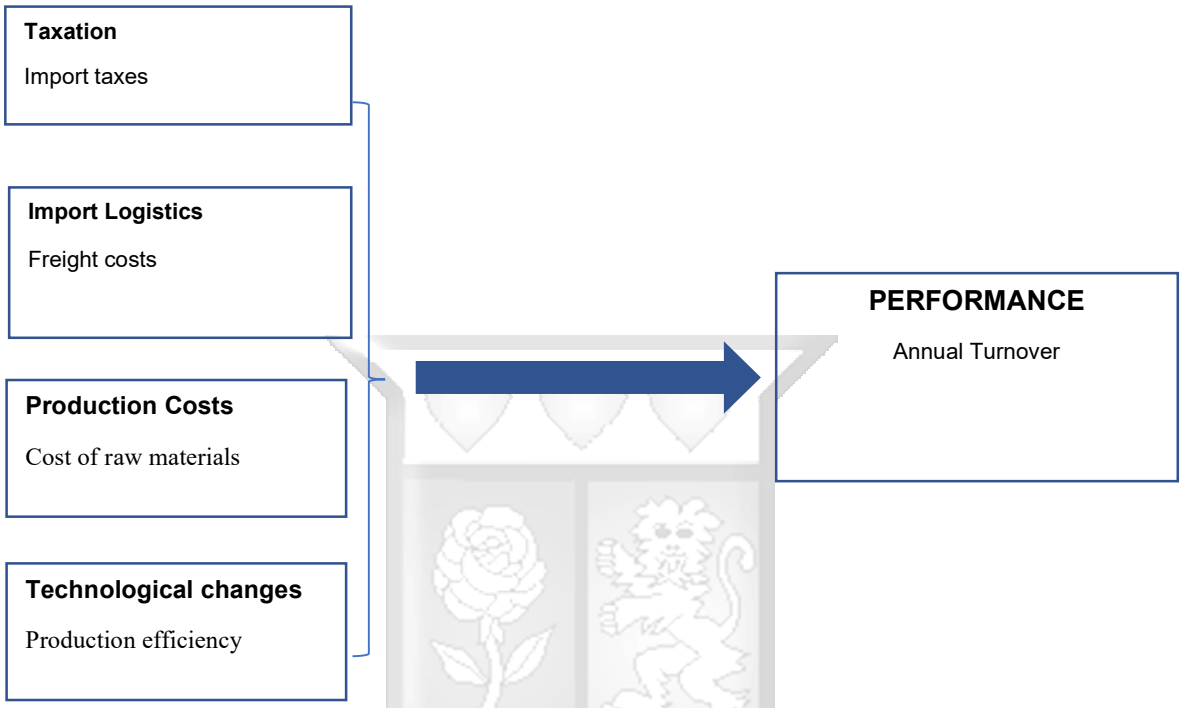
A study by Gonzalez (2005) shows that three sets of interrelated factors prevent but also stimulate the widespread adoption and diffusion of clean technology: these are factors external and internal to the firm, conditions of the potential adopters and characteristics of the environmental technology. These factors are included in the so-called 'triangular model', which is further applied to the analysis of clean technology adoption in the pulp and paper industry in Spain. The empirical study shows that clean technology adoption decisions are the result of an interaction between these factors, often involving contradictory signals for the potential adopter. The paper closes with some public policy recommendations for the effective and efficient promotion of clean technology diffusion.

2.3 Research Gap

Several studies focus on the challenges of the paper industry, locally and globally. Numerous challenges emerge like taxation, freight costs, costly production of raw materials, reduction in supplies, environmental restrictions, among others. Various authors reveal the severity of the setbacks in specific geographical regions. However, no study focuses on comparing the many challenges against each other. This study has specific measurement variables for each challenge and a comparative analysis against each of them. Most of the researches have an independent focus on one or two aspects of the challenges and measure the extent of the drawback. The study aggregated the variables of import duty and taxation, import logistics, production costs, and technology. There was an assessment of which factors affect the paper industry the most and the outcome was quantified.

2.4 Conceptual Framework

The conceptual framework of the study is as presented in the figure below.



Source (Author, 2023)

Independent variables: The study involved investigating to what extent the taxes and import duty, import logistics, production costs, and technological changes affects the growth of the paper industry.

Dependent variable: The growth of the Paper industry was measured by the company performance impacted by the independent variables. The performance had one sub-variables, i.e., Annual Turnover.

2.5 Summary of the identified research gaps

The following table represents the summary of the identified research gaps of the study, reflected in Table 2.5 below:

Variable	Research objectives	Findings	Gap
Taxation	To determine the effect of taxation on the performance of paper industry In Kenya	Esaku (2021) found out that one unit reduction in import duties as a percentage of total imports significantly increases the firm level productivity in the manufacturing sector by 5.7 percent.	The study results show the heterogenous impact of reducing import duties on performance though not all industries benefit from lowering import duties. The gap emerged from lack of delineation of import duty impact on all industries
Import Logistics	To establish the influence of import logistics on the performance of paper industry in Kenya	Gollin and Rogerson (2014) contends that transportation costs are quantitatively important in the productivity of the firm. The Steep cost of transport influences other factors like the availability of skilled labor in remote rural operations.	The study didn't address impact of each of the factors to determine severity of the transport costs over other factors like infrastructure and import logistics
Production Cost	To assess the effect of production cost on the performance of paper industry in Kenya	Baldwin (2012) contends that the fundamental trade-off in supply chain fractionalization is between specialization gains and production costs.	The research gap revealed from the study was that technology was a key factor to production costs and it ignored the cost of raw materials.
Technology	To evaluate the effect of technological changes on the performance of paper industry in Kenya	Bajpai (2017) noted that the application of anaerobic technology in pulp and paper industry is gaining acceptance as a cost-effective treatment alternative. Compared to conventional aerobic methods, the anaerobic wastewater treatment concept provides many critical benefits.	The study was limited to the production process and did not focus on machinery which could also impact on the overhead costs of manufacturing paper.

Source (Author, 2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Philosophy

The study adopted positivism research philosophy. The positivism research philosophy provides the approach a study uses in the methodology, data analysis, and interpretation of results. Holden and Lynch (2004) contend that methodological choice should be consequential to the philosophical stance and the social science phenomenon to be investigated. Several philosophical approaches are possible in the science of research, but there is the perception that extreme methods can be delimiting.

The goal of positivist research is to study patterns and relationships between factors, which can help researchers make accurate predictions about specific changes in a phenomenon. According to positivists, this is best done through quantitative methods which this study has adopted. This study needed to exhaustively cover all main factors contributing to growth of paper industry in Kenya hence the choice of this research philosophy. Only an intermediate logical design achievable through positivism research allows the researcher to match philosophy, methodology, and the research problem.

3.2 Research Design

The study adopted a descriptive correlational design in its approach. Dudovskiy (2018) explains that descriptive studies are applicable in describing various aspects of a phenomenon. In its popular format, descriptive research describes the characteristics or behavior of a sample population. Descriptive studies are closely associated with observational studies, but they are not limited to the observation data collection method. Case studies and surveys are also discernible as popular data collection methods used with descriptive studies. The study used inferential statistics to estimate the variables in the study. Inferential statistics

is a branch of statistics which the researcher uses to draw inferences about a given phenomenon in a population (Mugenda, 2003).

3.3 Population and Sampling

The target population for the study was the paper manufacturing firms and those enterprises involved in the paper industry value chain. The Kenya Association of Manufacturers (2022) reveals that there are 81 manufacturers in the paper industry in Kenya. The study targeted the enterprises in Nairobi region and its surrounding areas where all the 81 enterprises have their headquarter/branch offices.

The study adopted a census approach. The study had a total population of 81 and therefore the researcher attempted to reach all the available respondents within the period of the study. All the 81 companies have their headquarters or branch offices in Nairobi and its outskirts. The heads of businesses of the enterprises were targeted in the study. There was one person per enterprise targeted by the study.

3.4 Data Collection

There was a pre-designed questionnaire used for the primary data collection. The researcher utilized interviews to collect data, guided by a questionnaire. The questionnaire had closed and open-ended questions to elicit quantitative and qualitative data appended to this report for reference.

Before the commencement of the data collection, there was a pilot study done by the researcher. Questionnaires were issued to 10 companies that were randomly selected, out of which 7 responded. The response that was obtained helped to refine the questionnaire to enhance its effectiveness. Piloting is critical for testing the study tool and validating it. Pilot studies are essential in checking the ability of the study tool to respond to the survey objectives and collect critical information necessary for the success of the field data

collection phase. The researcher revised the questionnaire after piloting to enhance its effectiveness.

The data collection phase relied on a purposive approach to identify the survey respondents. In each sampling unit (organization), the researcher targeted a specific individual for the study. The researcher adopted this data collection technique because the specific respondents of the study were known at the onset of the survey.

The researcher targeted the CEOs/designates in the study firms. In each company, there was one interview carried out and all available firms at the time of the survey were targeted for interviews. Officials like CEO, administrative managers, operations managers, etc., were targeted. The researcher took the respondent through an interview process guided by the questionnaire. In case some of the respondents were not readily available for interviews during the study period, the researcher used self-administered questionnaires for such respondents. In such cases, the questionnaires were dropped off at the respondent's location and collected later after completion.

3.4.1 Validity of data collection instruments

The validity of the data collection instrument was checked through a pilot study prior to the commencement of the study. From the result of the pilot study, the researcher determined if the study tool is measuring the variables it intended to measure. The research selected a few organizations and administered the questionnaire to test its ability to respond effectively to the survey objectives. Adjustments were made to the questionnaire after the pilot study.

3.4.2 Reliability of data collection instruments

The researcher made use of Cronbach coefficient to test the reliability of the findings. Cronbach's alpha is a statistic commonly used by researchers to demonstrate that tests and scales that have been constructed or adopted for research projects are fit for purpose. The coefficient alpha ranges from 0 to 1, with higher values indicating greater reliability. In many fields, a commonly accepted threshold for acceptable reliability is a Cronbach's alpha of 0.70 or above. This threshold suggests that at least 70% of the variance in the observed scores can be attributed to the true scores, while the remaining variance is due to measurement error.

The overall Cronbach's Alpha for this research study was 0.702 which is within the acceptable threshold. In this case, the scales of Paper Industry Performance in Kenya, Import Logistics, Production Cost have relatively higher Cronbach's Alpha values indicating good internal consistency. On the other hand, the scales of Taxation and Technological Changes have lover Cronbach's Alpha value suggesting lower internal consistency among the items within these scales.

Table 3.4.2: Cronbach's Alpha

Scale	Cronbach's Alpha
Paper Industry Performance in Kenya	0.716
Taxation	0.505
Import Logistics	0.721
Production cost	0.786
Technological changes	0.602
Overall	0.702

Source (Author, 2023)

3.5 Data Analysis

In quantitative data, there was coding of responses and input into the analysis software. Data cleanup was essential for identifying any inconsistencies in readiness for analysis. There was correlation and regression analysis on the data to determine the extent of the effect of the independent variables on the dependent variable. The researcher utilized the analysis outcome to answer the survey objectives.

In qualitative data, there was content analysis of the verbatim responses from the questionnaire. The researcher discerned thematic insights from the qualitative data and utilized the information to validate the quantitative output. The data analysis culminated in drawing interpretations and deductions of the study outcome.

There was a descriptive analysis of data. There was a summary of data points using techniques like constructing tables of quantiles and means, measures of dispersion such as variance or standard deviation, and cross-tabulations or crosstabs. The study used the following ordinary least squares regression model to estimate the relationship between the economic factors and paper performance of the industry in Kenya.

$$\mathbf{Y = \beta 0 + \beta 1\ X_1 + \beta 2\ X_2 + \beta 3\ X_3 + \beta 4\ X_4 + e}$$

Where:

Y = Paper Industry Performance in Kenya

{βi; i=l, 2, 3,4} = The coefficients for the various independent variables

X_1 = Taxation

X_2 = Import Logistics

X_3 = Production cost

X_4 = Technological changes

e = error term

3.6 Research Quality

The research quality control procedures include guidelines for following to ensure the integrity, quality, and reliability of the research data. The researcher authenticated all survey respondents before interviewing them and conducted checks to establish the firm legitimacy before inviting them to participate in the survey. All collected survey data was 100 percent

checked for the validity of responses. Any inconsistencies found were eliminated from the raw data before entry to the analysis software.

3.7 Ethical Issues in Research

The purpose, benefits and expected outcomes of the study were fully disclosed to the participants to ensure there is informed consent. The right to protection and privacy was achieved by ensuring confidentiality, anonymity, freedom to participate and withdraw at any stage of the process by the participants. All response data were managed in compliance with ethical practices of storage and destruction of information.

Ethical approval was sought from Strathmore University Institutional Ethics Review Committee. Participants were notified that they are free to contact Strathmore Business School for further information concerning the researcher, purpose of the research and to make a complaint regarding any matter relating to the research.

The researcher ensured that the research was conducted in an ethical manner by considering all ethical considerations.

CHAPTER FOUR

PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the findings and analysis of the data to answer the objectives of the study. The section is organized according to the thematic research objectives with a prelude to data characteristics. There is a sub-section on the demographic profile of the companies where data was collected, taxation effect on paper performance, import logistics influence, production cost effect, and technological changes effect.

4.2 Response Rate

A total of 61 organizations participated in the survey out of a target of 81 companies representing a response rate of 75.30%. Fincham (2008) contends that in general, response rates should ideally be greater than sixty or seventy percent, with fifty percent being the lowest acceptable value. The survey response rate at 75.30% meets the threshold standards.

4.3 Company Profile

The demographic profile of the firms includes the company size, annual turnover, and type of company.

4.3.1 Company Size

The research sought to explore the size of the respondent's companies. The findings have been presented in the table 4.3.1 below.

Table 4.3.1: Company Size

Company Size	Frequency	%
Large (100 and above employees)	26	42.6
Medium (50-99 employees)	29	47.5
Micro (less than 10 employees)	3	4.9
Small (10-49 employees)	3	4.9
	61	**100.0**

Source (Author, 2023)

The firms mostly consist of medium (50-99 employees) and large-size (100 and above employees) entities. The micro and small-sized companies are lesser represented. The firm-size indicate an industry with large-scale activity, and matured operations. The fewer small-sized firms could also be indicative on non-survival of smaller companies that do not grow into bigger firms.

4.3.2 Annual Turnover

The research further examined the respondent's annual turnover profile, and the results are presented in table 4.3.2 below

Table 4.3.2: Annual Turnover

Annual Turnover	Frequency	%
Above KSH 800M	23	37.7
KSHS 100M – 800M	18	29.5
KSH 5M - 100M	14	23.0
KSHS 500,000 – 5M	5	8.2
Less than KSH 500,000	1	1.6
Total	**61**	**100.0**

Source (Author, 2023)

Most of the companies have an annual turnover of Ksh.5million and above. The majority have a higher annual turnover than Ksh.800million. The turnover matches the sizes of the companies of which most are medium to large-sized. Fewer companies have less than Ksh.500,000 annual turnover, indicative of the matured state of the industry.

4.3.3 Type of company

The research further to explore the type of the respondent's companies. The findings have been presented in the table 4.3.3 below.

Table 4.3.3: Type of Company

Company Type	Frequency	%
Limited Liability Company	31	50.8
Partnership	21	34.4
Family business	9	14.8
Total	**61**	**100.0**

Source (Author, 2023)

Most of the firms are limited liability companies (50.8%) followed by partnership type of companies (34.4%). The minority are the family business type of firms (14.8%). The company type is indicative of the formal-business type of company set-up that have probably graduated from sole entrepreneurship or family-type businesses.

4.4 Descriptive Analysis

The descriptive analysis is a summation of the survey responses and characteristics. The findings are divided into the variables of the survey, i.e., taxation, import logistics, production cost, and technology.

4.4.1 Taxation

The first independent variable was taxation on the performance of the paper industry in Kenya, and the results are presented in the table below.

Table 1.4.1: Descriptive Results for Taxation

	Mean	Std. Deviation	N
The import taxes and duty cost of the business affects its performance	4.23	1.152	61
The import taxes and duty increase at a higher rate than other operational costs/overheads of the business	4.19	1.039	61
The business does not benefit from bulk imports when paying for the import taxes and duty	4.12	0.711	61
Without the high import taxes and duty charges, the company would grow at a higher rate	4.01	0.654	61

Source (Author, 2023)

The results suggested that respondents perceive import taxes and duty costs to have an impact on business performance. The mean rating of 4.23 indicates a moderate agreement among the participants regarding this impact. The standard deviation of 1.152 suggests some variability in the responses, indicating that opinions on the extent of the impact may differ among the respondents.

The findings implied that the respondents were asked to rate their agreement on import taxes and duty costs increasing at a higher rate compared to other operational costs or overheads of the business. The mean rating of 4.19 indicates a moderate agreement among the participants regarding this perception. The standard deviation of 1.039 suggests some variability in the responses, implying that opinions on the rate of increase for import taxes and duty costs may differ among the respondents.

The results addressed the perception that businesses do not benefit significantly from bulk imports when it comes to paying import taxes and duty. The mean rating of 4.12 indicates a moderate agreement among the respondents regarding this perception. The standard deviation of 0.711 suggests relatively low variability in the responses, indicating a more consistent opinion among the participants.

The results suggested that the company's growth rate would be higher if it did not have to bear high import taxes and duty charges. The mean rating of 4.01 indicates a moderate agreement among the respondents. The standard deviation of 0.654 suggests some variability

in the responses, implying that opinions on the growth impact of high import taxes and duty charges may differ among the participants.

Overall, the data indicated that the respondents generally agree, to a moderate extent, that import taxes and duty costs had an effect on business performance, increase at a higher rate compared to other costs, do not provide significant benefits from bulk imports, and affect the growth rate of companies. The standard deviations suggest that there was some variation in opinions among the participants for each response.

4.4.2 Import Logistics

The second independent variable was Import Logistics on the performance of the paper industry in Kenya, and the results are presented in the table below.

Table 4.4.2: Descriptive Results for Import Logistics

	Mean	Std. Deviation	N
The freight and transport cost of the business affects its performance	3.85	1.138	61
The freight and transport increase at a higher rate than other operational costs/overheads of the business	4.07	1.209	61
The business does not benefit from bulk imports when paying for the transport and freight	4.05	0.845	61
Without the transport and freight charges, the company would grow at a higher rate	4.18	0.922	61

Source (Author, 2023)

The findings implied that from the respondent's perspective freight and transport cost of the business affects its performance. The mean score for this statement is 3.85, indicating that, on average, the participants somewhat agree that freight and transport costs have an impact on the business's performance. The standard deviation of 1.138 suggests that there is some variability in the responses, with some participants strongly agreeing or disagreeing while others have a more neutral stance.

The results indicate that freight and transport increase at a higher rate than other operational costs/overheads of the business. The mean score for this statement is 4.07, suggesting that, on average, the participants somewhat agree that freight and transport costs increase at a higher rate compared to other operational costs or overheads of the business. The standard deviation

of 1.209 indicates some variability in the responses, with some participants strongly agreeing or disagreeing while others have a more neutral stance.

The results suggest that business do not benefit from bulk imports when paying for the transport and freight. The mean score for this statement is 4.05, indicating that, on average, the participants somewhat agree that the business does not derive benefits from bulk imports when it comes to paying for transport and freight. The relatively lower standard deviation of 0.845 suggests that the responses are less varied compared to the previous statements.

The findings implied that without the transport and freight charges, the company would grow at a higher rate. The mean score for this statement is 4.18, suggesting that, on average, the participants somewhat agree that if the transport and freight charges were eliminated, the company would experience higher growth rates. The standard deviation of 0.922 indicates some variability in the responses, with some participants strongly agreeing or disagreeing while others have a more neutral stance.

In summary, based on the provided data and ratings, it can be concluded that there is a general agreement among respondents that freight and transport costs have an impact on the business's performance and that they tend to increase at a higher rate compared to other operational costs or overheads. Additionally, respondents also believe that the business does not benefit significantly from bulk imports when paying for transport and freight, and without these charges, the company's growth rate would be higher. However, it's important to note that there is some variability in individual opinions, as reflected by the standard deviations.

4.4.3 Production Cost

The third independent variable was Production Cost on the performance of the paper industry in Kenya, which was operationalized using cost of raw materials. The results are presented in the table below.

Table 4.4.3: Descriptive Results for Production Cost

	Mean	Std. Deviation	N
Suppliers always have the materials we need	4.08	1.053	61
The paper raw materials are affordable	2.21	1.253	61
The cost of the raw materials greatly affects profitability	4.26	0.929	61

Source (Author, 2023)

The results implied that suppliers always have the materials that business need. The mean rating of 4.08 indicate a moderate agreement that suppliers consistently have the materials the business needs. The standard deviation of 1.053 suggests a significant variability in individual opinions, implying that some respondents strongly agree while others may strongly disagree on consistent supply of raw materials by suppliers.

The study indicates a relatively low agreement that paper raw materials are affordable, as noted by a mean of 2.21. The low mean rating suggests a disagreement that the raw materials are not affordable. The high standard deviation of 1.253 indicates a considerable range of opinions among respondents, meaning some may find the materials affordable while others do not.

The findings indicate a strong agreement amongst the respondents that the cost of raw materials has a significant impact on business performance, with a mean rating of 4.26. This reveals that the cost of the raw materials greatly affects business performance. The higher mean rating suggests a relatively higher level of agreement compared to the previous statements. The standard deviation of 0.928 suggests some variability in individual opinions on the effect of cost of raw materials on the business performance.

Overall, the data indicate that there is a moderate agreement among respondents that suppliers generally have the materials the business needs. However, there is variability in

individual opinions. On the other hand, there is a lower agreement that paper raw materials are affordable, with some respondents perceiving them as expensive. Finally, respondents generally agree that the cost of raw materials has a significant impact on business performance. There was variability in responses, as indicated by the standard deviations, which suggests that opinions may vary among the respondents for each response.

4.4.4 Technology

The fourth independent variable was Technology on the performance of the paper industry in Kenya, and the results are presented in the table below.

Table 4.4.4: Descriptive Results for Technology

	Mean	Std. Deviation	N
The technology is easily available locally	4.07	0.655	61
The technology used determines the efficiency of the production process	4.38	0.879	61
The technology used determines the profitability of the process	4.33	0.701	61
The firm is using the latest available technology in the paper industry	4.52	0.808	61

Source (Author, 2023)

The study reveals that technology is easily available locally, with a mean rating of 4.07. This indicate a moderate agreement that technology is easily accessible locally. The relatively low standard deviation of 0.655 suggests a relatively narrower range of opinions among respondents, with a general consensus that technology is readily available locally.

The study suggests that the technology used determines the efficiency of the production process, as shown by a mean of 4.38. The study further indicates a stronger agreement that

the technology used has a significant impact on the efficiency of the production process. The higher mean rating suggests a relatively higher level of agreement among respondents. The standard deviation of 0.879 indicates some variability in individual opinions, but it is still relatively moderate.

The results suggested that technology used determines the profitability of the process, with a mean rating of 4.33. The mean indicates a similar level of agreement that the technology used plays a significant role in determining the profitability of the process. The relatively moderate standard deviation of 0.701 suggests some variability in individual opinions. Adoption of technology in the production process enhances profitability through product diversification and innovation, energy and resource management, supply chain optimization, quality control and product traceability.

The findings showed that firms were using the latest available technology in the paper industry, as shown by a mean rating of 4.52. This indicates on average, a moderate to strong agreement that the firms are utilizing the latest available technology in the paper industry. The higher mean rating suggests a relatively higher level of agreement among respondents. The relatively moderate standard deviation of 0.808 indicates some variability in individual opinions.

Overall, from the data it can be concluded that there is a moderate to strong agreement among respondents regarding the availability and impact of technology in the paper industry. Respondents believe that technology is easily accessible locally, and its usage significantly affects both the efficiency and profitability of the production process. Furthermore, there is a moderate to strong agreement that the firm is using the latest available technology in the industry. The standard deviations indicate some variability in opinions but generally reflect a consensus on the importance of technology in the paper industry.

4.5 Correlational Analysis Summary

The study made use of Pearson Correlation to determine the effect of independent variables on the dependent variable. The section includes the outcome of data analysis to determine correlational effects between the variables. The statistical tests were vital to make conclusions on the degree of effect of the variables of taxation, logistics, production cost and technology on company performance.

4.5.1 Overall Correlation Analysis Summary

The overall correlation analysis results between the four independent variables and the annual turnover are shown below.

Table 4.5.1 Overall Correlation Analysis Summary

		Annual Turnover	Taxation	Import Logistics	Production Cost	Technology
Annual Turnover	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	61				
Taxation	Pearson Correlation	-.071	1			
	Sig. (2-tailed)	.652				
	N	61	61			
Import Logistics	Pearson Correlation	.157	.184	1		
	Sig. (2-tailed)	.316	.000			
	N	61	61	61		
Production Cost	Pearson Correlation	.389	.41	-.261	1	
	Sig. (2-tailed)	.010	.000	.000		
	N	61	61	61	61	
Technology	Pearson Correlation	-.248	-.073	.011	.041	1
	Sig. (2-tailed)	.109	.000	.000	.000	
	N	61	61	61	61	61

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

Source (Author, 2023)

Based on the correlation table above. The correlation analysis provided examines the relationship between Annual Turnover and Taxation. The correlation coefficient between Annual Turnover and Taxation is -0.071. This value indicates a weak negative correlation between the two variables. The negative correlation suggests that, on average, higher taxation

is associated with slightly lower annual turnover. However, the magnitude of the correlation coefficient (-0.071) indicates that the relationship is very weak. The p-value associated with the correlation coefficient is 0.652. The p-value represents the probability of observing the correlation coefficient or a more extreme value if there were no true correlation in the population. In this case, the p-value of 0.652 suggests that there is no statistically significant evidence to support a correlation between annual turnover and taxation. The conventional significance level is set at 0.05, meaning that if the p-value is below 0.05, it is considered statistically significant. However, in this case, the p-value is greater than 0.05, indicating a lack of statistical significance.

Based on the provided results, there is a very weak negative correlation (-0.071) between annual turnover and taxation. However, the lack of statistical significance (p-value = 0.652) suggests that this observed correlation is likely due to chance rather than a true relationship in the population. Taxation is purely beyond the control of the companies as its dependent on policy brought about by the government through the different regulatory bodies.

The correlation analysis provided examines the relationship between Annual Turnover and Import Logistics. The correlation coefficient between Annual Turnover and Import Logistics of 0.157. This value indicates a weak positive relationship between these variables. However, since the p-value is 0.316, which is greater than the typical significance level of 0.05, there is no sufficient evidence to conclude that this correlation is statistically significant. Based on the available data, it cannot be confidently concluded that there is a reliable and meaningful relationship between Annual Turnover and Import Logistics. Other factors not considered in this analysis might have a more significant influence on the annual turnover of the companies. Import Logistics are purely beyond the control of the companies as its dependent on policy and taxation rates imposed by the government through the different regulatory bodies as well as the global fuel prices.

Based on the above results, there is a moderate positive correlation (0.389) between annual turnover and production cost. The correlation is statistically significant at the 0.05 level, indicating a strong level of confidence in the observed relationship between annual turnover and production cost. This finding suggests that higher raw materials cost and availability are associated with higher annual turnover. It implies that businesses with better access to affordable raw materials tend to have higher turnover rates. However, it's important to note

that correlation does not imply causation. Other factors and variables not considered in this analysis may also contribute to the relationship between annual turnover and production cost. The sample size for both variables is 61 for annual turnover and 61 for production cost. In summary, the results indicate a moderate positive correlation between annual turnover and production cost. This suggests that production cost play a role in the turnover of companies.

Based on the above results, there is a weak negative correlation (-0.248) between annual turnover and technology. However, this correlation is not statistically significant (p-value = 0.109) at the conventional significance level. These findings suggest that there might be a trend of lower annual turnover associated with higher technology. However, due to the lack of statistical significance, we cannot conclude with confidence that this relationship is present in the population. Other factors or variables not considered in this analysis might influence the relationship between annual turnover and technology. Considering the sample size, it's important to acknowledge the limitations and generalizability of the results. A larger and more diverse sample would provide more reliable estimates of the population correlation and allow for stronger conclusions. In summary, the results indicate a weak negative correlation between annual turnover and technology. However, the lack of statistical significance suggests caution in interpreting the findings. Further research and consideration of additional factors are necessary to gain a more comprehensive understanding of the relationship between these variables.

4.6 Regression Analysis

A linear regression analysis was carried out to determine the effect of the independent variables (taxation, import logistics, production cost, and technology) on the dependent variable (company performance). The table below show the results.

Table 4.6.1: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.883a	0.633	0.302	0.4312	2.058

a Dependent Variable: Annual Turnover

b Predictors: (Constant), Technology, Import Logistics, Production Cost, Taxation

Source (Author, 2023)

The model summary above presents the results of a regression analysis. The multiple correlation coefficient, denoted as R, is 0.883. This value indicates a strong positive correlation between the predictors (technology, import logistics, production cost, and taxation) and the outcome variable (company performance). The coefficient of determination, denoted as R Square, is 0.633. This value represents the proportion of the variance in the outcome variable that can be explained by the predictors included in the model. In this case, approximately 63.3% of the variance in the outcome variable can be accounted for by the predictors (technology, transport and freight, production cost, and taxation). A higher R Square value indicates that the predictors have a stronger influence on the outcome variable. The adjusted R Square is 0.302. This value adjusts the R Square for the number of predictors in the model and the sample size. It provides a more conservative estimate of how well the predictors explain the variance in the outcome variable. In this case, the adjusted R Square suggests that approximately 30.2% of the variance in the outcome variable can be explained by the predictors, taking into account the number of predictors and the sample size. The standard error of the estimate is 0.4312. This value represents the average distance between the observed values of the outcome variable and the predicted values by the regression model. It provides a measure of the accuracy of the predictions made by the model.

The model summary suggests that the predictors (technology, import logistics, production cost, and taxation) collectively have a strong positive correlation with the outcome variable.

They account for approximately 63.3% of the variance in the outcome variable, indicating a substantial level of influence. However, the adjusted R Square (0.302) indicates that when considering the number of predictors and the sample size, the predictors explain only about 30.2% of the variance in the outcome variable. This suggests that there may be other factors not included in the model that also contribute to the outcome variable. The standard error of the estimate (0.4312) provides an indication of the accuracy of the predictions made by the model. A lower value indicates a smaller average distance between the observed and predicted values, suggesting a more accurate model.

The study results indicated that the Durbin-Watson score was 2.058. The Durbin-Watson statistics ranges from 0 to 4, with a value around 2 indicating no autocorrelation (i.e., the residuals are independent). This means that from the results there is no autocorrelation present in the residuals of the regression model.

Overall, while the predictors included in the model show a strong positive relationship with the outcome variable, there is still a significant portion of the variance in the outcome that remains unexplained. Further analysis and consideration of additional factors may be necessary to improve the model's explanatory power.

The Analysis of Variance table provides information about the overall fit of the regression model. Below find the ANOVA table for the regression analysis performed.

Table 4.6.2: ANOVA Table

Model		df	Mean Square	F	Sig.
1	Regression	4	0.849	1.446	0.0231[b]
	Residual	56	0.587		
	Total	60			

a Dependent Variable: Annual turnover
b Predictors: (Constant), Technology, Import Logistics, Production Cost, Taxation
Source (Author, 2023)

The F-value was used to test the overall significance of the regression model. The associated p-value was 0.0231 (or 0.0231[b]), indicating that the overall regression model is statistically significant at the conventional significance level of 0.05. The F-statistic tests the null hypothesis that all the regression coefficients are zero, implying that the predictors do not have a significant effect on the dependent variable. In this case, the F-value of 1.446 suggests

that the model as a whole is statistically significant. The associated p-value of 0.0231 indicates that the overall model is statistically significant at a significance level of 0.05 (or 5%). Therefore, we have evidence to reject the null hypothesis and conclude that the study variables collectively have a significant effect on the dependent variable (company performance). The df (degrees of freedom) for the model was 4 degrees of freedom, corresponding to the number of the predictors. The mean square value for the model is 0.849, which is obtained by dividing the sum of squares by the degrees of freedom. The residuals have 56 degrees of freedom (df=56). The mean square value for the residuals is 0.587. The total degrees of freedom are 60.

Overall, based on the provided ANOVA table, the regression model appears to have a statistically significant model in predicting the relationship between the company performance and the study variables of taxation, import logistics, production cost, and technology.

Below is a Regression Coefficients table that provides the estimates and significance of the unstandardized coefficients (B), standardized coefficients (Beta), t-values, and p-values for each study variable that is taxation, import logistics, production cost, and technology in the regression model.

Table 4.6.3: Regression Coefficients Table

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.983	1.364		2.188	0.03
	Taxation	-0.067	0.114	-0.091	-0.59	0.557
	Import Logistics	0.218	0.151	0.215	1.44	0.155
	Production Cost	0.3	0.124	0.357	2.424	0.019
	Technology	-0.316	0.21	-0.219	-1.506	0.137

a Dependent Variable: Annual turnover
b Predictors: (Constant), Technology, Import Logistics, Production Cost, Taxation
Source (Author, 2023)

The resulting regression equation is as below:

$$Y= 2.983 - 0.067X_1 + 0.218X_2 + 0.3X_3 - 0.316X_4$$

The constant term in the regression model represents the expected value of the dependent variable (Annual turnover) when all predictor variables are set to zero. The estimated constant value is 2.983, and the standard error is 1.364. The t-value of 2.188 indicates that the estimated constant is statistically significant at the conventional significance level of 0.05 ($p = 0.03$). This indicates that the constant term significantly contributes to the model's prediction of the dependent variable.

The study's first objective was to determine the effect of taxation on the performance of the paper industry in Kenya. The results obtained indicate β_1= -0.067, t = -0.59, Sig = 0.557 > 0.05, taxation and annual turnover had a negative and statistically insignificant relationship.

The t-value of -0.59 suggests that the coefficient for Taxation is not statistically significant (p = 0.557) at the conventional significance level of 0.05. The non-significant p-value suggests that there is no strong evidence to conclude that Taxation has a significant effect on Annual turnover in this model.

The study's second objective was to establish the influence of import logistics on the performance of the paper industry in Kenya. The results obtained indicate $\beta_2 = 0.218$, t = 1.44, Sig = 0.155 > 0.05, import logistics and annual turnover had a positive and statistically insignificant relationship. The unstandardized coefficient (Beta) for Import Logistics is 0.218. The t-value of 1.44 suggests that the coefficient for Import Logistics is not statistically significant (p = 0.155) at the conventional significance level of 0.05. The non-significant p-value indicates that there is no strong evidence to conclude that Import Logistics has a significant effect on Annual turnover in this model.

The study's third objective was to assess the effect of production cost on the performance of the paper industry in Kenya. The results obtained indicate $\beta_3 = 0.3$, t = 2.424, Sig = 0.019 < 0.05, production cost and annual turnover had a positive and statistically significant relationship. The unstandardized coefficient (Beta) for Production Cost is 0.3. The t-value of 2.424 suggests that the coefficient for Production Cost is statistically significant (p = 0.019) at the conventional significance level of 0.05. The significant p-value indicates that there is strong evidence to suggest that Production Cost has a positive significant effect on Annual turnover in this model.

The study's fourth objective was to evaluate the effect of technological changes on the performance of the paper industry in Kenya. The results obtained indicate $\beta_4 = -0.316$, t = -1.506, Sig = 0.137 > 0.05, technological changes and annual turnover had a negative and statistically insignificant relationship. The unstandardized coefficient (Beta) for Technology is -0.316. The t-value of -1.506 suggests that the coefficient for Technology is not statistically significant (p = 0.137) at the conventional significance level of 0.05. The non-significant p-value suggests that there is no strong evidence to conclude that Technology has a significant effect on Annual turnover in this model.

In summary, based on the coefficient estimates and their significance levels, it can be concluded that Production Cost is the only predictor variable in the model that has a significant effect on Annual turnover. Taxation, Import Logistics, and Technology do not show statistically significant effects on Annual turnover in this analysis.

4.7 Chapter Summary

The study targeted 81 respondents and achieved 61, representing a 75.30% response rate. Descriptive, correlation, and regression analysis were used to determine the association between the dependent and independent variables. The results show that out of all the independent variables, production cost has the highest correlation to performance of the paper industry in Kenya.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a discussion of the findings and their association with the outcome of the literature review. The section includes the interpretation of findings and conclusions in response to the survey objectives. A recommendations sub-section elaborates on the way forward from the study outcome and provides future research focus areas.

5.2 Discussions

The variables of taxation, logistics, production cost, and technology were found to have effects on company performance at varied intensities. Each factor has a distinctive weight of which production cost was found to weigh the most. The different variables are each discussed separately.

5.2.1 Effect of Taxation on Company Performance

Taxes are statutory payments and are mandatory, meaning businesses do not have leeway to negotiate amounts payable or when to pay. The study tested the effect of taxation on the imported raw materials of paper through import taxes and duty cost, operational costs/overheads of the business, bulk importing and company growth. The study revealed that taxation had a negative and insignificant impact on economic growth of the paper industry in Kenya. A portion of the tax burden is borne by consumers as paper manufacturers pass the incremental taxes to them and absorb the remaining balance. This was corroborated by (Evans Tee, 2016) who found out that increase in tax rates lead to proportionate increase in selling prices which increases production and distribution and hence turnover of firm's that have the ability to shift the tax burden forward to consumers. (Gashi and Boqolli, 2018)

further asserted that companies with the ability to shift impact of taxation have a lower reduction of turnover arising from tax increases.

5.2.2 Effect of Import Logistics on Company Performance

Importation freight expenses are part of the many costs the business owners must contend with each time they buy supplies from overseas. The costs vary depending on the mode of transport used. Companies opting for efficient means of transport like air pay more than those who choose sea transport. Many importers choose sea freight and rail transport because of affordability. However, there are hidden charges associated with delays and the length of time it takes to get their supplies. The company owners allude to their transportation costs to be up to approximately 30% of their total costs. The proportion indicates a significant cost in the firms' operational expenses.

The analysis reveals that import logistics is not significant on company performance. The higher the quantity of goods imported, the higher the freight cost as asserted by (Jugović and Perić, 2015) on their study on freight rates on maritime shipping. The destination countries also put the importers at a disadvantage because of their distance from their suppliers which corroborates the study by (Martinez-Zarsoso and Suarez-Burguet, 2007), alluding that higher distance and poor importer infrastructure notably increase transport costs. Trading is not significantly deterred by higher transport costs and fostered by cultural similarities as Kenyan companies have no option than to import all their required raw material. The more they produce the more revenue they generate; hence they will still import paper whether there is an increase in import logistics costs.

5.2.3 Effect of Production Cost on Company Performance

In the manufacturing sector, the production costs naturally impact on overall performance of the firms. In the paper industry, the costs become more prominent because of reliance on imports for the production inputs. The firms participating in the survey mentioned the

challenges they encountered due to reliance on imports for their production. Some of the challenges include unavailability of supplies when needed. The companies also must contend with low supply in particular instances that raise the prices of the goods they seek. The high demand/low supply substantially affects prices and they often have to buy their inputs at high prices.

The study analysis shows that all factors of production costs, i.e., availability of the materials, and their affordability, affect the company performance significantly as acknowledged by (Siyanbola and Raji, 2013). Availability of paper raw materials is a global issue as corroborated by (Wear, Prestemon, and Foster, 2016). There is a general decline in the supply of wood bi-products, of which the paper commodity falls under the category. Production costs of paper, reveal that the US global share of industrial roundwood peaked at 28 percent in 1999 but by 2013 was at 17 percent, with the decline attributable to a combination of cyclical factors and long-run trends.

5.2.4 Effect of Technology on Company Performance

Technology catalyzes operations in businesses and enhances efficiency and effectiveness. Embracing technology has several benefits for organizations, enabling them to be competitive and improve their business performance. While a reasonable number of the business owners in the study admit to having the latest up-to-date technology, there is a significant proportion yet to match theirs with the demands of the industry. There are others using outdated technology that is working against their business growth.

The findings reveal that technology does not affect company performance. The paper manufacturing firms have to import technical know-how to complement their resources for them to grow their business. Although technology is important for the paper industry, size of the firm and scale of production are the key determinants of a firm's performance as revealed by (Luftman and Zvi, 2017) in their study on company performance as influenced by

information technology integration. This can also be verified by (Müller and Vom, 2018) who asserted that a firm's output is largely determined by size rather than technology.

5.3 Limitations

When conducting research on economic factors affecting paper performance in Kenya, there were several limitations encountered. These limitations had an effect on the scope, reliability, and generalizability of the research findings. These limitations included; data availability and quality, time constraints, financial constraints and limited research on the topic.

Firstly, it was challenging to access reliable and comprehensive data on paper performance and economic factors in Kenya. There is limited data sources, incomplete records, and data gaps which hindered the robustness of the research. Secondly, conducting in-depth research required time and resources. I lacked sufficient time for data collection, analysis, and interpretation. This restricted the depth and breadth of the research. Thirdly, I lacked adequate funding for conducting comprehensive research. This limited collecting data from a large sample or conducting in-depth analyses, thereby limiting the scope and quality of the research. Lastly, there was limited research on economic factors affecting paper industry in Kenya. There is a scarcity of existing literature or prior research conducted on the economic factors affecting paper performance in Kenya. This limited the availability of established frameworks, theories, or benchmarks to build upon.

To mitigate these limitations, the researcher carefully planned the research design, ensured data quality and reliability, used appropriate statistical methods, and provide recommendations for further research. Collaboration was done with local experts and organizations to help in overcoming some of the challenges related to data access.

5.4 Conclusions

To the company owners, the solution lies in an incentivized tax regime that seeks to reward importers and promote local trade. The importers demand concessions like tax reprieves on bulk imports to sustain their operations. The local market lacks the raw materials necessary to

run operations and importing is the only solution the industry has to operate. The companies that cannot sustain the import tax duties do not survive. The choices of where to import from are also limited because the supplies can only be sourced from specific markets which have restrictive conditions due to conservation measures of natural resources, (Soderholm, 2011).

The companies seek solutions through introduction of subsidized international freight to reduce their overheads and enable growth of the industry. The transportation costs are also volatile and known to frequently fluctuate (mostly upwards) and adding to the increasing burden of operational costs. Furthermore, the business owners decry unreliability of some transport modes that make them incur additional costs due to delays and damaged goods. The firm owners foresee a probable solution through several companies unifying to access more efficient transport modes and benefit from the economies of scale to make it more affordable for each business.

The business owners blame lack of locally available supplies for the increasing production cost of paper. The unavailability of supplies pushes them to the international markets where costs are prohibitive. The global increase in prices of recycled paper is also a factor attributed for the advocacy for environment conservation. Other costs also raise the production costs like energy which is a significant cost in paper production. Solutions need to be sought on low-cost overheads to tame the costs. Cartels also thrive in the industry, inhibiting companies to readily access the implements they need to thrive.

The firms perceive technology as gateway to lower the cost of production and are constantly searching for the best one within their reach. They also seek solutions of enhancing efficiency and enabling remote supervision of the production process. The appropriate technology that provides all-round solutions is rarely locally available and has to be outsourced from outside markets. It also takes a huge investment of resources to access the technology and the businesses that are at formative levels can hardly afford them.

5.5 Study Recommendations

The study investigated the effects of taxes, import logistics, production costs, and technology on the business performance of the companies. All the factors have some level of influence but at varied severity. Out of all factors, production costs emerged as the most impactful in

influencing performance. All the sub-factors under production cost significantly influence company performance. To enhance the performance of the paper industry in Kenya, there have to be interventions to lower production costs. Production cost drivers include unavailability, affordability and cost of paper raw materials. The government needs to examine policies on tax, trade regulations, environmental regulations and industry specific polices that can affect the production cost.

5.6 Suggestions for Further Research

This research focused on specific factors that can impact business performance, i.e., taxes, import logistics, production costs, and technology. However, there could be other intervening factors like market accessibility, social factors, legislation, energy, labor, capital etc., that can affect business performance. Future research can include other intervening factors to assess their effect.

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APPENDIX I: QUESTIONNAIRE

My name is Victor Mwangi Kogi from Strathmore University. I am carrying out a study on "The economic factors affecting the performance of the paper industry in Kenya" in fulfillment of my Masters in Business Administration. The responses you provide will be kept confidential and only used for the purposes of the research.

SECTION I: DEMOGRAPHIC FACTORS

1. Size of company

Micro (less than 10 employees) ---------- 1

Small (10-49 employees) ----------2

Medium (50-99 employees) ---------- 3

Large (100 and above employees) ---------- 4

2. Annual turnover

Micro (less than Ksh 500,000) ---------- 1

Small (Ksh 500,000 to Ksh 5M) ----------2

Medium (Ksh 5M to 800M) ---------- 3

Large (Above Ksh 800M) ---------- 4

3. Type of company

Family business ----------1

Partnership ---------- 2

Limited liability company ----------3

Other (specify) _____

SECTION II: TAXATION

On a scale of 1 to 5 where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is strongly agree. To what extent do you agree with the following statements regarding the taxes and duty charges on the imported raw materials of paper?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The import taxes and duty cost of the business affects its performance					
The import taxes and duty increase at a higher rate than other operational costs/overheads of the business					
The business does not benefit from bulk imports when paying for the import taxes and duty					
Without the high import taxes and duty charges, the company would grow at a higher rate					

SECTION III: IMPORT LOGISTICS

To what extent do you agree with the following statements regarding the freight and transport charges on the imported raw materials of paper? On a scale of 1 to 5 where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The freight and transport cost of the business affects its performance					
The freight and transport increase at a higher rate than other operational costs/overheads of the business					
The business does not benefit from bulk imports when paying for the transport and freight					
Without the transport and freight charges, the					

company would grow at a higher rate					

SECTION IV: PRODUCTION COST

To what extent do you agree with the following statements regarding the production cost of the imported raw materials of paper? On a scale of 1 to 5 where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Suppliers always have the materials I need					
The paper raw materials are affordable					
The cost of the raw materials greatly affects performance					

SECTION IV: TECHNOLOGY

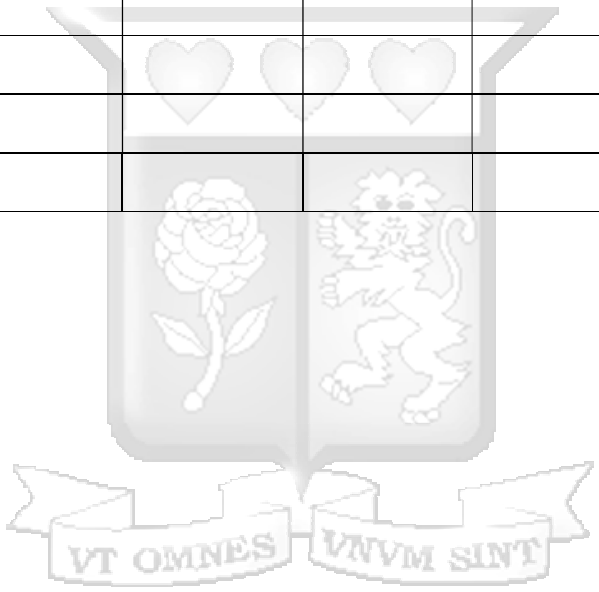
To what extent do you agree with the following statements regarding the technology of paper production? On a scale of 1 to 5 where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is strongly agree.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The technology is easily available locally					
The technology used determines the performance of the business					
The technology used determines sustainability of the business					
The firm is using the latest available technology in the paper industry					

SECTION V: PERFORMANCE OF PAPER INDUSTRY

On a scale of 1 to 5 where 1 is strongly disagree, 2 is Disagree, 3 is Neutral, 4 is Agree and 5 is strongly agree. Would you say the paper industry affects the GDP of the country within the following periods?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
20 years ago.					
10 years ago.					
5 years ago.					
Less than 5 years ago.					



Thank you for your time

END

APPENDIX II: LIST OF COMPANIES

Company	Email	Physical Address
Chandaria Industries Limited	info@chandaria.com	Baba Dogo Road, Ruaraka
Allpack Industries Ltd	bb@allpack.co.ke	Mombasa Road, Nairobi Opposite
Cartubox Industries (E.A.) Ltd	cartubox@africaonline.co.ke	Kenya Industrial Estates, Lowe
Phoeni Paper	phoenix@wananchionline.com	Gold Rock Park, Along MSA Rd
Sintel Security Print Solutions Limited	info@sintel.co.ke	Factory Road, Industrial Area, Thika.
Economic Industries Ltd	sales@economicindustries.com	Off Mombasa Road Along National Rd
Juja Pulp & Paper Ltd	jujapulp@gmail.com	Juja Gatundu Road
East African Paper Mills Limited	info@kenyapaper.com	Factory Road Thika
Avery Dennison Kenya Limited	pramod.tiwari@ap.averydennison.com	Saku Industrial Park, Along Mombasa Road, Nairobi,
Kenafric Manufacturing Limited	info@kenafriccml.com	RUARAKA, OFF BABA DOGO ROAD.
Green Pencils Limited	info@greenpencilsltd.co.ke	LR/13537/50 Highpoint Juja
Capitol Printers Limited	info@capitol.co.ke	Industrial Area, Road A, Off Enterprise Road, Safira Close.
Excel Packaging Ltd	raman@excelpakenya.com	No. 2 Lusingeti Road, Off Lunga Lunga RD, Nxt Lunga Lunga Square
Prime Cartons Limited	info@primecartonsltd.co.ke	Mombasa Road, Opposite JKIA Fly Over
Fortuna Industries Limited	meena@fortunaindustries.co.ke	Nairobi, Industrial Area
Safari Stationers (K) Ltd	accounts@safaristationers.co.ke	Go-Down 61 Silvercoin Business Park Along Juja-Gatundu Road
UR Home International (Kenya) Limited	urhomeintelkenyaltd@gmail.com	Gilbi Business Park Athi River
Sitima Printers & Stationers Limited	info@sitimaprinters.com	Kitui Road Industrial Area

ASL Packaging Limited	jayesh@aslpackaging.co.ke	Imara Daima Junction, Off Momb
Armor East Africa Imaging Supplies Ltd	sachen.gudka@armor-group.com	Industrial Atlantis Business Park - C16 ICD Road, Off Mombasa Road Nairobi
Wandi Packaging Ltd	info@wandipackagingltd.co.ke	Linga Lunga Road
Anke Home Appliances Services Limited	inter.expofam@gmail.com	Kenyatta street
Paperplast Limited	info@paperplastltd.com	14 Rangwe Road, Off Lunga Lunga Road, industrial Area
Chrome Partners Limited	info@chromepartners.co.ke	Road C Off Enterprises Industrial Area
Evo Pack Limited	info@evopack.co.ke	Ruiru Kamiti Road
Unique Packaging (ke) Limited	kmwirigi@uniqpackaging.com	Nairobi
Paper Converters (K) Ltd	info@papconkenya.com	Olesoi Road, Off Lunga Lunga Road
Quickpack Limited	info@quickpack.co.ke	Off Mombasa Road Behind Parkside Towers (AIRTEL)
Flexoworld Limited	admin@flexoworld.co.ke	Ramco Industrial Park
Enova Industries Limited	sales@enovaind.com	SILVERSTONE GODOWN NO 7 OLD MOMBASA ROAD, NEXT TO FACTORY GUARDS DOG SECTION KYANGOMBE, EMBAKASI, NAIROBI
Arc Packaging Limited	arcpackagingafrica@gmail.com	Off Baba Dogo Road Ruaraka
Royal Converters Limited	mohamed@royalconverters.com	Nyahera Rd, Off Lunga Lunga Rd Nairobi
Hills Converters (K) Ltd	hillsconverters.co.ke	Along Syokimau Katani Road
Dodhia Packaging Kenya Limited	dpl@dplkenya.com	Kampala Road, Industrial Area
Paraprint Limited	design@paraprint.co.ke	Mombasa Road, City Cabanas Alpha Centre
Label Converters Private Limited Company	operations@labelconverters.com	Old Mombasa Road, Old Airport North Road, City Cabannas, Near Nyoro Construction, Opposite Cool IT Storage, Kyangombe,

		Embakasi
Kibos Paper and Packaging Private Limited Company	headoffice@kibossugar.com	Kibos Road, Kibos Area
Carton Experts Private Limited Company	info@celkenya.com	II, Runyenjes Road, Industrial Area
The Print Store Limited	info@printstore.co.ke	off Airport north road, Catherine Ndereba Road
Jubilee Tissue Industries Private Limited Company	info@jubileetissue.com	Baba dogo
Smart Printers Limited	info@smartprinters.co.ke	17 mogotio Road Westlands Nairobi
Vvarks Industries Limited	v.shah@vvarks.com	Silvercoin busines park
East African Packaging Industries Limited	info@eapi.co.ke	Kitui Road, Off Kampala Road - Industrial Area
Tiger Packaging Limited	simbapackaging@gmail.com	Building south of Talungu, kilifi district Mtwapa
General Printers 2021 Limited	harish@kings.co.ke	16 Homa bay road
Kartasi Products Limited	rajan.malde@kavama.org	Enterprise Road
Storymoja Publishers	info@storymojafrica.co.ke	Njamba House shanzu road off lower kabete road
Bariko Industries Limited	bariko.industries@gmail.com	Donholm Godowns outering road
Advance Packaging Manufacturers Limited	info@apml.co.ke	Sekondi road off lunga lunga road Industrial Area
Ellams Products	sales@ellams.co.ke/gopal@ellams.co.ke	Mombasa road, opposite Standard group, next to Bobmill, Nairobi
Elite Offset Limited	info@eliteoffset.com	32 Factory Street Industrial area
English Press Limited	mail@englishpress.com	English press building, Enterprise Rd, Nairobi
Kartasi Industries Ltd	info@kartasi.com	Enterprise Road, Industrial Ar
Nation Media Group Ltd	info@nation.co.ke	Nation Centre, Kimathi Street,
National Printing Press Limited	info@nationalprintingpress.com	Oginga Odinga Road, Kisumu
Paperbags Limited	info@paperbagsltd.co.ke	No. 1 Gilgil Road, Industrial Area, Nairobi, Kenya

The Paper House of Kenya Ltd	info@paperhouseke.com	Sasio Road, Off Lunga-Lunga Ro
Printpak Multi Packaging Ltd	mail@printpakkenya.com	Likoni Road, Industrial Area,
Statpack Industries Limited	info@statpack.co.ke	North Airport Road Embakasi
Twiga Stationers & Printers Ltd	twiga@kasuku.co.ke	29 Changamwe Road, Industrial
Uneeco Paper Products Ltd	info@ameeco.com, grp.sec@ameeco.com	Pamba Road, Off Refinery Road Opposite Mbaraki Port Warehouse
Bags & Balers Manufacturers Ltd	info@bags-balers.co.ke	along Mombasa Rd, Behind Plaza 2000
Regal Press Kenya Ltd	rpkl@regalpress.org	14 Bunyala Road, Industrial Area
Modern Lithographic (K) Ltd	info@modernlitho.co.ke	Kibo Street, Road "A", off Enterprise Road, Nairobi
Tetra Pak Ltd	christine.manyara@tetrapak.com	Tetra Pak Building, Enterprise
Skanem Interlabels Nairobi Limited	sales@interlabelsafrica.com	Maasai Road off Mombasa Road, Nairobi, Kul Graphics Compound, Maasai Rd, Nairobi City
Kim-Fay East Africa Ltd	customercare@kimfay.com	Maasai Road, Off Mombasa Road, Behind Libra House
Anvi Emporium Limited	canutecarvalho@gmail.com	Anvi Building Makasamba Road
Guaca Stationers Limited	guacac@nbi.ispkenya.com	New Kireita Building-Kirinyaga
Ramco Printing Works Ltd	info@printing.ramco-group.com	Dunga Close off Ndunga Road industrial area
Carton Manufacturers Limited	info@carton.co.ke	Wundanyi Rd, Off Lunga-Lunga Rd Industrial area Nairobi
Printwell Industries Limited	logistics@printwell.co.ke	Enterprise Road Industrial Are
Pressmaster Africa Limited	info@pressmaster.co.ke	Catherine Ndereba Road, Off Airport N Rd, Nairobi
Printing Services Ltd	info@printingservices.co.ke	Factory Street Industrial Area
Adpak International Limited	purchases@adpakintl.com	Silvercoin business Park, Juja-Gatundu road
Platinum Packaging	info@ppl.co.ke	Kutch Road -mlolongo
Manipal International Printing Press Ltd	pritam@manipalea.com	Variety Flooring Works Ltd God

Euro Packaging Limited	info@europackagingea.com	Unit 1 - Ruiru Business Park, Ruiru Nairobi, Kenya
Sarjudas Industries Limited	sarjudaslimited@gmail.com	Kongoni Complex Godown B2, wuyi road
Palm Tree Kenya Limited	info@palmtreekenya.com	Station road next railway station Thika
Dune Packaging Limited	info@dunepackaging.com	Station Road, Thika

APPENDIX III: ETHICAL REVIEW APPROVAL

Strathmore University Institutional Scientific and Ethical Review Committee (SU-ISERC)

Final Decision

This is to certify that the application for ethics clearance submitted by:
Principal Investigator: Mr. Kogi, Victor Mwangi
Reference number: SU-ISERC1695/23
For Study: "ECONONIC FACTORS AFFECTING THE PERFORMANCE OF PAPER INDUSTRY IN KENYA."
Was reviewed and received the following status: "done"
Reviewer Comments
Final decision: **approved**
Comments sent:

The SU-ISERC wishes you all the best with this research undertaking.
14 April 2023 13:00:30

APPENDIX IV: NACOSTI RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 476367

Date of Issue: 25/April/2023

RESEARCH LICENSE

This is to Certify that Mr.. Victor Mwangi Kogi of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kiambu, Machakos, Nairobi on the topic: Economic Factors Affecting The Performance Of Paper Industry In Kenya for the period ending : 25/April/2024.

License No: NACOSTI/P/23/25380

476367

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

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