

**THE INFLUENCE OF PARALLEL IMPORTATION OF DRUGS ON COMPETITIVE  
PRICING STRATEGIES IN THE KENYAN PHARMACEUTICAL INDUSTRY**

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ADMINISTRATION AT STRATHMORE UNIVERSITY**



**MAY, 2025**

## 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 document contains no material previously published or written by another person except where due reference is made in the research concept itself.

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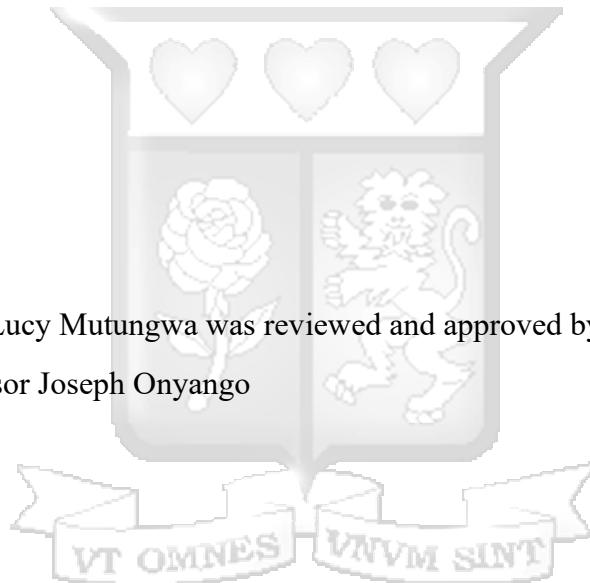
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### Approval

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## ABSTRACT

While parallel importation of pharmaceutical drugs is legal in Kenya, the prices of medicines in Kenya are still high, which contributes to their inaccessibility and shortages. Studies on the influence of parallel importation on competitive pricing differ in concepts, contexts, and methodologies. To address these knowledge gaps, this study aimed to analyze the influence of parallel importation on competitive pricing in the Kenyan pharmaceutical industry. The specific objectives were to assess the effect of altered, unaltered, repackaged and rebranded PIs on competitive pricing in the pharmaceutical sector. The study was grounded in the theory of price as the anchoring theoretical framework. Positivism philosophy guided the methodology of the study. The study adopted a descriptive cross-sectional design to examine the relationship between competitive pricing as the dependent variable and forms of parallel imports, including altered, unaltered, rebranded, and repackaged product imports as the independent variables. The population of the research consisted of the 52 active pharmaceutical companies in Kenya. Judgmental sampling was used to select participants from the 52 pharmaceutical companies in Kenya. The target sample size was 104 managers – two from each pharmaceutical company. Primary data was used for this research, which was collected using structured questionnaires administered to participants using a crop-and-pick approach. Data was analyzed using multiple linear regression to model the relationship between competitive pricing and parallel imports in the Kenyan pharmaceutical industry. Findings indicate that altered and unaltered PIs have a significant positive effect on competitive pricing, whereas the impact of repackaged and rebranded PIs is positive but not significant. Therefore, this research concludes that altered and unaltered PIs are significant determinants of competitive pricing. The study recommends encouraging parallel imports to increase the supply of drugs and improve the favorable pricing of these drugs.

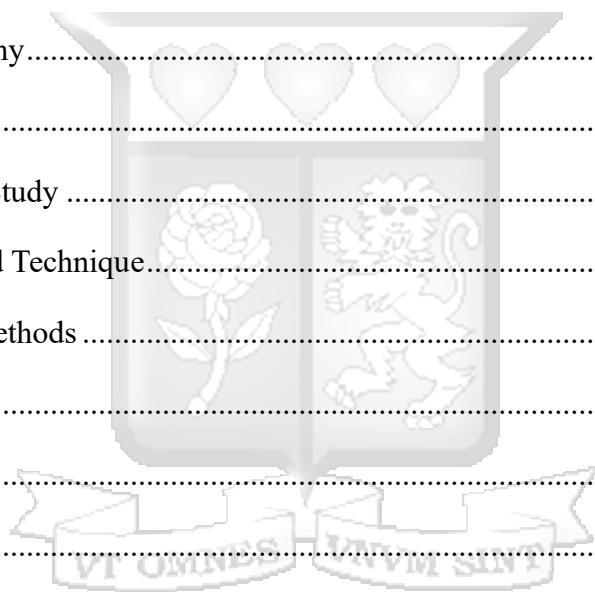


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## ABBREVIATIONS AND ACRONYMS

**IP** Intellectual Property

**KEMSA** Kenya Medical Supplies Authority

**PI** Parallel Import

**TRIPS** Trade-Related Agreement on Intellectual Property Rights



## DEFINITION OF KEY TERMS

### **Competitive Pricing**

Competitive pricing refers to the process through which sellers strategically select price points based on the price set by competitors in the same market or niche (Oritsematosan & Agwu, 2018)

### **Parallel Imports**

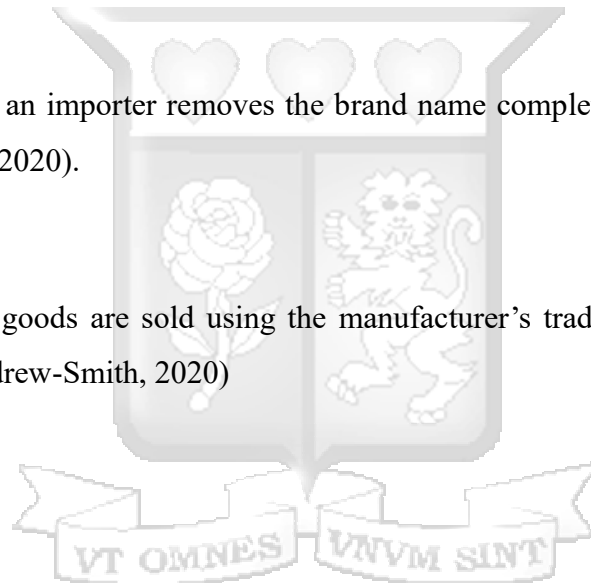
A parallel import (PI) is a product that is manufactured in one country, bought, and sold in another market at a different price without the trademark owner's consent in that market (Dubois & Sæthre, 2020).

### **Rebranded Products**

Rebranding occurs when an importer removes the brand name completely and re-sells the same product (Andrew-Smith, 2020).

### **Repackaged Products**

Repackaged imports are goods are sold using the manufacturer's trademark but are sold using modified packaging (Andrew-Smith, 2020)





## CHAPTER ONE

### INTRODUCTION TO THE STUDY

This chapter presents an introduction to the overall research topic, including the background and a brief description of the variables with respect to the pharmaceutical sector, which includes altered unaltered, repackaged, and rebranded product imports. Moreover, this chapter outlines the statement of the problem, research objectives and questions, scope and significance of the study.

#### 1.1 Background of the Study

High prices constitute one of the key barriers consumers face in accessing medicines (El Said, 2022). However, competition in the pharmaceutical sector helps to ensure that medications are available at affordable prices (Andrew-Smith, 2020). Through competition, brand companies can formulate new and improved medicines and encourage generic companies to develop affordable alternatives. Pricing is one of the elements of competition in the pharmaceutical sector (Iyengar et al., 2019). The classic economic theory of perfect competition posits that consumers are price takers in a market where products are homogenous, and there are no exit or entry barriers (El Said, 2022). The pharmaceutical market is one such homogenous market, where competitors set different price levels as a marketing strategy (Calboli, 2020). To maximize profit, firms tend to sell their products provided the marginal revenue exceeds the marginal cost. With more competitors, prices are expected to reduce to reach the marginal cost in the long-term, which is an ideal case for consumers in terms of affordability (Abid, 2022).

High prices of medications and medical supplies remain a problem globally, regionally, and locally. In the developed world, the high prices of medicines are a well-documented problem, as evidenced by the growing spending on medications (El Said, 2022). Globally, an estimated \$ 1.3 trillion is spent on medicines every year, which is projected to increase by 6 percent annually (Robbins & Jewett, 2024). The United States spends about \$ 350 billion on medicines (Rajkumar, 2020). Similar high prices have been recorded in Britain, France, and Canada even after accounting for discounts (Rajkumar, 2020). The high cost of medicines poses a threat to healthcare budgets and limits the funding available for other areas that need public investment (Calboli, 2020). In countries that lack universal healthcare, the high prices of medicines pose an additional challenge for patients. Pharmaceutical companies argue that high prices of medicines are crucial to sustaining

innovation (Robbins & Jewett, 2024). The high cost of medicines in the developed world is attributed to the high costs of development, lack of price controls, and a fragmented pharmaceutical industry that includes middlemen, patent gaming, and market monopolies (Rajkumar, 2020).

Regionally, in Africa and Sub-Saharan Africa (SSA), in particular, the prices of medicines are still high. Low-income countries in Africa that have small to medium-sized economies, like Tunisia, Senegal, and Zambia, pay more for less effective medicines (Iyengar et al., 2019). According to Iyengar et al. (2019), poor countries are more likely to purchase the most expensive medicines instead of the unbranded cheaper alternatives that constitute 85% of developed markets in the United States and the United Kingdom. In SSA, Koduah et al. (2022) reported that the implementation of pricing policies led to occasional reductions in prices and improved the availability of essential medicines. Koduah et al. (2022) further stressed that while pricing policies can improve the affordability and availability of medicines, there is a need to understand the country-specific experiences and contextual facilitators and barriers to policy implementation. Similar trends have been observed in Kenya. The prices of medicines in Kenya are 500% to 700% higher than in neighboring markets and in other countries like India, the United States, Germany, and the United Kingdom (Calboli, 2020).

Competitive pricing is commonly adopted in pharmaceutical markets as a way of increasing the supply of affordable medications. Competitive pricing in the pharmaceutical sector is often common following patent expiry. After a patent expires, any manufacturer can imitate the product of the originator (Iyengar et al., 2019). Off-patent medicines are often sold at relatively lower prices compared to brand medicines because of the fewer investments in marketing and manufacturing approvals. As Darrow and Kesselheim (2023) observe, after patent expiry, pharmaceutical companies fully exploit price competition, which can, in turn, benefit consumers by making medications more affordable. Therefore, this research sought to establish the relationship between the parallel importation of drugs and competitive pricing strategies in the Kenyan pharmaceutical sector.

### **1.1.1 Competitive Pricing Strategy**

The concept of competitive pricing has been conceptualized in various ways in the existing literature. Abid (2022) defined competitive pricing as setting pricing based on the price levels of

competitors. Abid (2022) further emphasized that competitive pricing is commonly used in markets characterized by similar products and high competition, such as the pharmaceutical industry, where pricing is a crucial factor that influences consumer behavior. According to Oritsematosan and Agwu (2018), firms that use competitive pricing ignore the costs associated with producing a product or the expected profit and instead assess different seller prices before deciding the optimal selling price. Peiravian (2014) conceptualized competitive pricing as a strategy that involves intense competitor analysis to determine what competitors are doing, offering, and how they price their products. For Datta and Selvaraj (2019), competitor-based pricing enables producers or sellers to determine whether to set prices at a higher, lower, or the same level as the nearest competitors. In the study, competitive pricing was conceptualized as a price-setting strategy that is based on the price levels of competitors, such that the firm's prices either match or beat their competitors in the market (Abid, 2022; Peiravian, 2014). The aim of competitive pricing is to boost profits and achieve revenue by selling more products (Peiravian (2014).

Competitive pricing has been measured differently in various studies. Elgarhy (2022) measured competitive pricing using the constructs of considering competitors' pricing strategies, competitive and market position, and price targets, as well as setting prices that match the prices of competitors. These indicators were assessed using a five-point Likert scale. In another study by Roy and Raju (2011), competitive pricing was measured in terms of fixing the price to match or beat the competition, pricing based on demand, and competing based on having superior distribution and appealing advertisement. Peiravian (2014) measured the concept of competitive pricing in terms of setting a price level that strikes a balance between revenue generation, providing customer value, and understanding the market (competition and customers and economic conditions, including supply and demand). Another operationalization of competitive pricing was provided by Ziari et al. (2022), which involved assessing the indicators of defining competitors, determining if products are congruent, collecting and analyzing data, and setting the optimal price. In this study, the indicators that were used to measure competitive pricing are competitor analysis, understanding the market, setting prices that match that of competitors, providing customer value, and generating revenue (Elgarhy, 2022; Ziari et al., 2022).

### 1.1.2 Parallel Importation

Parallel Importation is broadly defined as the process of buying a product manufactured in another country and selling it in another country/market at a different price without the trademark owner's consent in that market (Dubois & Sæthre, 2020). Various aspects of parallel importation have been described in the literature. Birg (2019) focused on the pricing approaches and product modifications adopted by importers of parallel imports (PIs). Birg (2019) noted that importers have the option of setting lower or higher prices and modifying products to make them acceptable in new markets. Altug and Sahin (2019) conceptualized PIs as being passive or active, wherein passive parallel importation involves the purchase of goods from foreign countries for sale in domestic markets, while parallel importation involves the sale of products in the secondary market in competition with the official producer. Darrow and Kesselheim (2023) described another form of parallel importation wherein importers purchase patented products in a country where they are sold at a lower price and then resell the same in another country at a higher price that undercuts the manufacturers' prices. According to Wenzel (2018), parallel importation involves countries with limited resources purchasing patented medicines in another country where they are lowly priced instead of buying them directly from brand manufacturers at a higher price. Parallel importation can also take the form of unaltered products (Tessema et al., 2019), repackaged and altered products (Mendez, 2016), and rebranded products (Andrew-Smith, 2020).

In the study, the indicators that were used to measure parallel importation are altered products, unaltered products, repackaged products, and rebranded products. Unaltered products are those that are imported to the country without the importer changing the packaging or branding in any manner (Tessema et al., 2019). The indicators that were used to measure unaltered products are not changing packaging and not changing products (Birg, 2019). In altered products, the importer changes some elements of a product in order to increase its acceptability in the local market (Mendez, 2016). The indicators that were used for altered product imports were altering some aspects of the product and obtaining trademark licensing from manufacturers (Birg, 2019). Repackaged products involve a parallel importer making changes in the labeling or packaging of the product before selling it in the local market, the possibility to comply with local regulations and laws, facilitate marketing of the product, and identify the importer (Mendez, 2016). The indicators that were used for repackaged products are removing the original trademark from the

packaging, rebranding to access the market, and adherence to legal, regulatory, safety, and IP requirements (Birg, 2019). In rebranded products, the importer removes the original trademark and applies a new trademark for the local market (Andrew-Smith, 2020). The indicators for measuring rebranded products were repackaging products without affecting the original condition, not damaging the reputation of the trademark, notifying trademark owners, and providing information on manufacturers and importers (Mendez, 2016). This research examined the relationships between these four types of PIs and competitive pricing in the context of the Kenyan pharmaceutical sector.

### **1.1.3 The Pharmaceutical Industry in Kenya**

The pharmaceutical sector in Kenya is extremely fragmented, uncoordinated, and primarily driven by competition that involves foreign and local pharmaceutical manufacturers, warehousing agencies, wholesale pharmacies, distributors, and retail chemists and pharmacies (Khalil & Onyango, 2022). The structure of the industry comprises public, private non-profit, and private commercial players involved in the distribution of drugs and medical equipment. The agency tasked with regulating the pharmaceutical sector is the Pharmacy and Poisons Board, which regulates the practice, manufacture, and trade of poisons and drugs. There are 52 active pharmaceutical manufacturing firms in Kenya (Pharmacy Board Kenya, 2022). The pharmaceutical market in Kenya is mostly import-driven (Pharmacy Board Kenya, 2022). A key challenge facing the sector is the high prices of medications. The prices of medicines in Kenya are 500% to 700% higher than in neighboring markets and in other countries like India, the United States, Germany, and the United Kingdom (Calboli, 2020). Since Kenya adheres to the obligations in the Trade-Related Agreement on Intellectual Property Rights (TRIPS) agreement and has a large number of parallel importers, it is important to understand their influence on the prices of imported products introduced into the country.

### **1.2 Statement of the Problem**

While parallel importation of pharmaceutical drugs is legal in Kenya through the Kenya Industrial Property Act of 2001, the prices of medicines in Kenya are still high, which contributes to their inaccessibility and shortages (Odhiambo & Shikanda, 2023). The prices of medicines in Kenya are 500% to 700% higher than in neighboring markets and in other countries like India, the United

States, Germany, and the United Kingdom (Calboli, 2020). High prices of medicines are burdensome to patients in Kenya who rely on out-of-pocket payments to buy these medicines (Ongarora et al., 2019). The high prices of medicines in Kenya are linked to a myriad of healthcare problems in the country, including inadequate access to affordable medicines, worse patient outcomes, and making it hard to achieve the goal of universal healthcare (Ongarora et al., 2019). The Kenyan government does not control the prices of pharmaceuticals in the country, which leads to multinational firms exploiting this opportunity to charge higher prices (Ongarora et al., 2019). Apart from regulation, another potentially effective solution to the issue of high prices of pharmaceuticals is PI (Calboli, 2020); however, evidence of their effectiveness in making the prices of pharmaceuticals competitive in Kenya is lacking. The increasing proliferation of altered, unaltered, repackaged, and rebranded PIs in the pharmaceutical market raises critical concerns regarding the effects of these practices on pricing dynamics. There is a need to understand how PIs influence the competitive pricing of pharmaceuticals in order to ensure sustainable access to medicines while at the same time safeguarding the business interests of pharmaceutical companies. The findings from this study might benefit policymakers and practitioners, including managers in the Kenyan pharmaceutical sector.

Conceptual, contextual, and methodological gaps exist in the literature on studies on the influence of PIs on competitive pricing. In Italy, Brekke et al. (2015) studied the impacts of price regulation on PIs in the pharmaceutical market using a panel data analysis. Their study showed that the effects of price regulation are dependent on whether producers experience competition from PIs. The same study also showed that, whereas PIs can improve the bargaining power of distributors, their effects can be counteracted by price regulation. Evidence from Brekke et al. (2015) showed that price regulation can be used as a tool for reducing competition from PIs. In Norway, Dubois and Sæthre (2020) showed that parallel importation enables pharmaceutical retailers to bargain and get reduced wholesale prices from parallel traders and manufacturers. In India, Arora and Chaturvedi (2017) reported that the implementation of TRIPs led to the increased affordability of medicines in the country. In Sweden, Granlund (2022) reported that PIs lowered the prices of on-patent pharmaceuticals by 6 percent in the long-term. A critical review study by Calboli (2020) using data from various countries showed that most countries accept PIs; however, the majority of these

countries are developed ones, which is quite surprising considering that developed and least developed countries stand to benefit most from PIs in terms of lower prices for medicines.

Regionally, Motari et al. (2021) analyzed patent data retrieved from the African Regional Intellectual Property Organization (ARIPO) to examine patenting trends and activity in the continent, as well as flexibilities in the implementation of TRIPs. Their findings showed low patenting in African countries, with most countries permitting parallel importation of drugs and applying TRIPs flexibilities, which have had a price-lowering effect on medicines. In Uganda, a secondary data analysis by Mukisa et al. (2021) showed that parallel importation had a pricelowering effect on solar photovoltaic modules. A qualitative study by Buckley (2011) reported that regional parallel trade is one of the effective strategies for increasing accessibility to affordable medicines in Africa.

In the local Kenyan context, a descriptive study by Kalekye and Kariuki (2020) analyzed the effect of parallel importation of pharmaceuticals on the firms' organizational performance in Kenya after the country introduced comprehensive guidelines in 2019. The study determined that parallel imports have a significant impact on price competition in the pharmaceutical sector. Using the case study design, Chorev (2015) reported that parallel importation has been instrumental in increasing the number of counterfeit products in Kenya. A mixed methods study by Ogendi (2019) showed that TRIPs flexibilities in Kenya that permit parallel importation could potentially increase access to affordable medicines.

While studies exist that examine the influence of parallel importation on competitive pricing, methodologies, concepts, and contexts vary. As a result, findings from existing studies cannot be applied in the context of the pharmaceutical sector in Kenya. To address these gaps, the study examined the influence of parallel importation of drugs on competitive pricing strategies in pharmaceutical companies in Kenya.

### **1.3 General Objective of the Study**

The general aim of this study was to analyze the influence of parallel importation on competitive pricing in the Kenyan pharmaceutical industry.

### **1.3.1 Specific Research Objectives of the Study**

The following are the specific objectives of the study:

- i. To examine the influence of altered product imports on competitive pricing among pharmaceutical firms in Kenya
- ii. To investigate the influence of unaltered product imports on the competitive pricing among pharmaceutical Firms in Kenya
- iii. To examine the effect of repackaged product imports on competitive pricing among pharmaceutical firms in Kenya
- iv. To investigate the effect of rebranded product imports on competitive pricing among pharmaceutical firms in Kenya

### **1.4 Research Questions**

The study sought to answer the following research questions:

- i. What is the influence of altered product imports on competitive pricing among pharmaceutical firms in Kenya?
- ii. What is the influence of unaltered product imports on competitive pricing among pharmaceutical firms in Kenya?
- iii. What is the effect of repackaged product imports on competitive pricing among pharmaceutical firms in Kenya?
- iv. What is the influence of rebranded product imports on competitive pricing among pharmaceutical firms in Kenya?

### **1.5 Scope of the Study**

The concepts that were examined in this study are parallel importation (independent variable) and competitive pricing. While there are various aspects of parallel importation, this study focused only on altered, unaltered, repackaged, and rebranded product imports. The contextual scope of this study is pharmaceutical companies in Kenya. The methodological scope of this research was a descriptive cross-sectional design. Primary data was used for this research, which was gathered using structured questionnaires administered to respondents from 52 pharmaceutical firms in the country. In addition, respondents from the Kenya Medical Supplies Agency (KEMSA) and Mission

for Essential Drugs and Supplies (MEDS) Respondents consisted of supply chain, marketing, and sales managers from these pharmaceutical firms. The target was to select two respondents from every company. The study was conducted in May 2024.

## **1.6 Significance of the Research**

### **1.6.1 Policymakers**

The findings obtained from this study provide useful insights for policymakers and regulators on how to formulate appropriate PI policies for the pharmaceutical sector. From the findings of the study, policy recommendations will be made for regulators regarding the most effective way to structure PIs in the pharmaceutical sector in order to increase the availability and affordability of pharmaceutical drugs in the country.

### **1.6.2 Practitioners**

Practitioners, including managers of multinational and local manufacturers, distributors, and retail pharmacists, also benefit from the findings gained from this study. In particular, the findings reveal the effects of the various forms of PIs on competitive pricing. This will help these practitioners choose the most appropriate PI that can enhance their competitiveness in the Kenyan market.

### **1.6.3 Scholars**

Academicians also benefit from the findings of the study. This study augments existing literature on the relationship between PIs and competitive pricing strategies. In addition, the limitations of the findings of this study form the basis for further research to better understand how PIs influence competitive pricing across other sectors and countries beyond Kenya.

## **1.7 Chapter Summary**

In this chapter, the researcher has discussed the concepts and the context of the study in the background section. The problem statement has also been discussed. In addition, the chapter discusses the general and specific objectives, scope, and significance of the study.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

The aim of this chapter was to review existing theoretical and empirical literature in order to identify the research gaps that were addressed in this study. The chapter is arranged as follows: section 2.2 discusses the theoretical review, 2.3 reviews the empirical studies, 2.4 discusses the research gaps, and 2.5 outlines the conceptual framework.

#### 2.2 Theoretical Review

The theory that formed the basis of this study was the theory of price. A detailed discussion of this theoretical framework is provided in the following subsections, as well as how it informed the research.

##### 2.2.1 Theory of Price

The theory of price, or price theory, is a fundamental economic theory developed by George Stigler in 1946 (Friedman, 2017). It posits that the prices of goods and services at any given point are determined by the relationship between their demand and supply. In other words, prices are a function of the law of demand and supply of goods and services whereby prices rise when demand (markets' desire for a good/service) exceeds supply (availability of goods/services). Conversely, when supply exceeds demand, prices tend to drop. The demand and supply of goods and services can be influenced by a wide range of factors, which are collectively known as market forces (Friedman, 2017). Examples include changing consumer preferences, production costs, government policies, number of sellers, natural factors, and technology.

The theory of price was highly relevant to the study. This is because it sought to determine the effect of parallel importation of pharmaceutical drugs on competitive pricing strategies by pharmaceutical companies. In this case, parallel importation served as a market force which can have significant effect on the law of demand and supply of pharmaceutical products in the pharmaceutical market. Importation affects the supply of pharmaceutical products in the market thereby upsetting the equilibrium price (Hirshleifer et al., 2005). Usually, importation results in

reduced prices of pharmaceutical products due to increased supply and competition. However, according to Friedman (2017), despite an increase in supply, when the demand for these products remains inelastic, the impact of parallel importation on prices may be limited.

In light of the above, the theory of price provided a robust framework for analyzing how parallel importation activities (i.e., altered product, unaltered product, repackaged product, and rebranded product imports) impact the pricing of pharmaceutical products. It helped in understanding the interplay between supply, demand, market equilibrium, and regulatory factors in shaping the prices of pharmaceuticals.

## **2.3 Empirical Review**

This section discusses the existing empirical review relating to the objectives of this research. The focus of the empirical review is on the effect of altered, unaltered, repackaged, and rebranded product imports on competitive pricing.

### **2.3.1 Altered Product Imports and Competitive Pricing Strategy**

Altered product imports have some elements of the product changed, although the packaging and trademark are maintained (Wirtz & Ravinetto, 2022). In this case, parallel importers may opt to change some elements of the product in order to increase its acceptability in the local market (Liu & Pazgal, 2020). The aspect changed can be the name of the product or new changes introduced into the product (Wirtz & Ravinetto, 2022). Trademark proprietors can object to altered product imports if new or replacement parts have been added, such that the conditions of the product change or might damage the trade mark's reputation (El Said, 2022).

Internationally, a secondary data analysis by Duso et al. (2014) researched the impact of parallel imports of oral anti-diabetics on consumer welfare in the German market using econometric models. Considering that anti-diabetics are still patented, the country's regulatory oversight has resulted in positive impacts on retailers and reduced prices for patented medicines, contributing to sustainable healthcare delivery. The price-lowering effects of altered PIs were also echoed by Mendez (2016) in a panel data study to examine the effect of parallel imports on the prices of statins in Denmark. Findings from the research were that prohibiting parallel imports would affect the balance offered by generic firms, resulting in higher health expenditures and reduced welfare

among Danish patients. These findings support the rationalization of the TRIPS flexibilities in that governments can use policies to stabilize prices in the domestic market. In an extension of intellectual property laws, Tenni et al. (2022), using a systematic review method, researched the impact of intellectual property rules on access to medicines using a systematic review. The study specified the recently-developed TRIPS-plus rules that go beyond regular TRIPS stipulations. Findings were that the TRIPS-plus intellectual property rules stifle competition and have created stronger pharmaceutical monopolies, which increase drug prices, increase shortage, and increase health costs. Goodchild et al. (2022) researched national regulations aimed at controlling illicit imports of cigarettes and their impact on consumer demand. The study collected panel data from 36 countries that had imposed restrictions on parallel imports, with the analysis revealing a positive association between a reduction of illicit cigarette trade and cigarette prices. Total consumption reduced significantly with the increase in prices.

Regionally, in the South African manufacturing sector, a panel data analysis by Edwards and Jenkins (2015) showed an increased direct importation was associated with a reduction in manufacturing output as well as a drop in prices due to increased supply. Oyelude and EgbohNwachukwu (2023) performed a narrative review to determine if unaltered parallel importation serves as an effective tool for bolstering industry competition in Nigeria. The findings from this review showed that parallel imports can increase industry competition, leading to increased output coupled with price decreases. In Uganda, a secondary data analysis by Mukisa et al. (2021) showed that parallel importation had a price-lowering effect on solar photovoltaic modules. A qualitative study by Buckley (2011) reported that regional parallel trade is one of the effective strategies for increasing accessibility to affordable medicines in Africa.

Locally, a descriptive study by Kalekye and Kariuki (2020) analyzed the effect of parallel importation of pharmaceuticals on the firms' organizational performance in Kenya after the country introduced comprehensive guidelines in 2019. The study determined that parallel imports have a significant impact on price competition in the pharmaceutical sector. Using the case study design, Chorev (2015) reported that parallel importation has been instrumental in increasing the number of counterfeit products in Kenya. A mixed methods study by Ogendi (2019) showed that TRIPS flexibilities in Kenya that permit parallel importation could potentially increase access to affordable medicines.

### **2.3.2 Unaltered Product Imports and Competitive Pricing Strategy**

Unaltered product imports involve the parallel importer buying a product that is already offered in the market in another country at a lower price and importing it to the local market for sale at a higher price without changing the packaging or the product. Trade mark proprietors seldom object to unaltered product imports (Wirtz & Ravinetto, 2022). This is because unaltered products do not adversely affect their brand and reputation. As El Said (2022) noted, unaltered product imports serve to increase the distribution of products and can be used as an avenue for trademark proprietors to access foreign markets.

The relationship between unaltered PIs and competitive pricing has been studied internationally. Huang et al. (2019) examined the competitive strategies that firms use to counter PIs in the global market. The findings of Huang et al. (2019) showed that firms counter unaltered imports using numerous marketing strategies, including supply interference, price cutting, service differentiation, and strategic pricing. Therefore, unaltered PIs can prompt price-cutting from originators. The impact of unaltered PIs on competitive pricing was also demonstrated in a study by Altug (2017), who examined the impact of gray markets on pricing dynamics in the American pharmaceutical sector. The findings showed that unaltered product imports in the gray market have a demand cannibalization effect – threatens the demand for manufacturer’s branded products. The study also showed that gray markets result in price competition between manufacturer’s branded products and gray products. Li et al. (2018) examined the impact of unaltered PIs on competitive pricing dynamics. The results of Li et al. (2018) showed that PI profits were lower when PIs coexisted with original manufacturers in the market. The lower profits were attributed to the price-lowering effects of PIs in the gray market.

Several other international studies have also examined the relationship between unaltered imports and competitive pricing (Birg, 2023; Dubois & Sæthre, 2020; Flaaen et al., 2020). Flaaen et al. (2020) examined the impact of trade import restrictions on prices of washing machines originating from South Korea using secondary retail price data and revealed a significant increase in the prices of the targeted items. Further, the researchers linked anti-dumping duties with production relocation, ascertaining manufacturers will re-locate operations to more acceptable trade regions to maintain competitive prices. Using panel data, Birg (2023) researched the impact and revealed

that requiring manufacturers to provide rebates increases the market share of parallel imports, resulting in improved competitive advantage. This study used the difference-in-differences approach. Using secondary transaction data from Norway, Dubois and Sæthre (2020) developed a structural model of demand and supply to examine the impact of parallel trade on price competition. The analysis reveals that the presence of parallel importers empowers retailers to choose goods with acceptable prices and often forces manufacturers to lower their demand prices. The analysis reveals a significant positive impact of retailer incentives on the degree of parallel trade penetration, with consumers, retailers, and traders benefitting significantly due to renegotiated prices. Liu and Pazgal (2020) investigated the impact of gray market products on product quality, pricing, and demand in Taiwan. The findings show the existence of grey markets negatively affects the price and quality of products as well as the manufacturer's profits when the manufacturer deals with retailers. Essentially, gray markets were ascertained to increase consumer surplus. Similarly, Maqsood (2021) looked into factors that affect consumer's willingness to use gray-market perfumes and their impact on brand image in Pakistan. Findings indicated that price consciousness, price-quality inference, and risk averseness all impact purchasing decisions. From the regressions, when customers are not price sensitive, gray-goods importers can leverage products' brands to take advantage of manufacturers' price discrimination strategies across different international domains and sell parallel import products at higher prices.

At the regional level, Motari et al. (2021) analyzed patent data retrieved from the ARIPO to examine patenting trends and activity in the continent as well as flexibilities in the implementation of TRIPs. Their findings showed low patenting in African countries, with most countries permitting parallel importation of drugs and applying TRIPs flexibilities, which have had a pricelowering effect on medicines. In Uganda, a secondary data analysis by Mukisa et al. (2021) showed that parallel importation had a price-lowering effect on solar photovoltaic modules. A qualitative study by Buckley (2011) reported that regional parallel trade is one of the effective strategies for increasing accessibility to affordable medicines in Africa.

Studies have also been conducted in the local Kenyan context, showing the relationship between unaltered imports and competitive pricing. Owiye et al. (2016), using panel data analysis, examined the effect of trade liberalization, especially increased imports, on the Kenyan sugar industry. The findings indicated that an increase in sugar imports was inversely associated with its

retail price due to increased supply. Similar findings were corroborated by Obange et al. (2011), who showed that increased sugar imports coincided with the poor performance of local sugar companies due to price erosion. In the same vein, using monthly panel data, Elodie et al. (2013) showed how maize imports have been an effective tool adopted by the Kenyan government to mitigate domestic price volatilities in the maize market during the 2004-2009 period.

### **2.3.3 Repackaged Product Imports and Competitive Pricing Strategy**

Repackaged product imports involve a parallel importer making changes in the labeling or packaging of the product before selling it in the local market. The reason for repackaging can be to comply with local regulations and laws, facilitate the marketing of the product, and identify the importer (Mendez, 2016). In repackaged products, the content of the product remains unaltered. However, they are re-labeled or repackaged differently.

The effect of repackaging imports has been studied internationally (Gupta et al., 2017; Tessema et al., 2019). Tessema et al. (2019) investigated why the price of older, off-patent generic medicines in the US was still too expensive in the country. Their study showed that the high prices were related to the number of patient subscriptions and the marketing rights to the drugs. They also showed that prices will not be influenced by generic medicines if the potential revenue stream is too low and if the generic competitor offers little marketing competition. Gupta et al. (2017), in a panel data study, showed that the banning of repackaged generic medicines in the U.S resulted in increased drug prices and frequent drug shortages. Stern et al. (2019) conducted a retrospective analysis examining the relationship between reference pricing and access to new pharmaceuticals in Germany using data on pharmaceuticals allowed into the country between 2012 and 2016. Findings were that regulated pricing can serve as an incentive to traders, increasing approved drugs' availability and reducing costs. Datta and Selvaraj (2019) make this observation in India, where despite the legalization of parallel import of health technologies increasing the volume of refurbished devices in the country, the absence of strong regulation has contributed to increased cost of refurbished devices and equipment, resulting in increased out of pocket spending on healthcare.

At the regional level, the effect of repackaging product imports on price competition has also been studied. In Tanzania, Andreoni et al. (2020) conducted a case study using secondary data analysis

to examine the effect of repackaging imports on the sugar sector in Tanzania. The findings showed that sugar imports had a price-erosion effect. Imports were useful in filling the gaps in the sugar supply. Similarly, Tibandebage et al. (2016) presented evidence showing how the repackaging of imported drugs led to an increase in price competition in Tanzania's pharmaceutical sector. In Nigeria, Okereke et al. (2021) investigated the effect of access to active pharmaceutical ingredients on the cost of medicines. The results indicated that the high cost of drugs was due to the lack of a functional petrochemical industry, rising logistics and manufacturing costs, and a weakening Naira, which eroded Nigerian's purchasing power. Pharmaceuticals chose to export their products at higher prices in regional markets.

At the local level, the influence of repackaging imports has been demonstrated. Onyango (2014) conducted a secondary data analysis and reported that repackaging imports is one of the viable alternatives to increase the supply of rice in the country. Similarly, a panel data analysis by Nzuma et al. (2013) indicated that repackaging imports is an effective strategy for mitigating the price volatilities of staple foods in Kenya. A descriptive survey by Muhunyu (2012) presented evidence showing that fraudulent repackaging of cheap and poor-quality imported rice resulted in unfair competition due to price erosion.

#### **2.3.4 Rebranded Product Imports and Competitive Pricing Strategy**

In rebranded PIs, the importer removes the original trademark and applies a novel trademark for the new market. Rebranding is often motivated by the need to gain a commercial advantage in the new market (El Said, 2022). Rebranded products have no trace of the originator, and consumers are likely to believe that the importer is the originator (El Said, 2022).

Studies at the international level show how rebranding imports can influence price competition (Chakraborty et al., 2019; Birg, 2023). In India, a systematic review by Chakraborty et al. (2019) reported that the introduction of refurbished or remanufactured automotive parts would shift consumer demand for second-hand vehicles. The study shows how the low cost of remanufactured goods would force licensed importers to reduce their selling price. Wenzel (2018), using an exploratory secondary analysis of American firms, reported reduced prices for products that have been imported and then de-branded or rebranded. The findings suggested that importers from low-income countries have leveraged simplification and corporate name-dropping techniques to

devalue products and enhance local market performance. Birg (2023) studied the impact of competition by PIs on the wholesale prices of pharmaceuticals using a German dataset consisting of prescription drugs that competed with PIs. The developed a model that predicted an increase in the market share of PIs with a decrease in the price of prescription drugs. The findings from their study reported an increase in the number of parallel importers by 17 percent and a market share of 18-35% following a reduction in the prices of prescription drugs by ten percentage points.

Nevertheless, Vadoros and Kanavos (2014) presented contradictory findings from the European Union that showed that PIs do not prompt price competition between original manufacturers and repackaged PIs. Vadoros and Kanavos (2014) used the game-theory approach and adopted econometric and descriptive methods to examine the effects of repackaged PIs on price competition. The results of their econometric analysis demonstrated that these PIs did not elicit price competition and that PIs did not affect the prices of the original brand.

Studies at the regional level have also reported the effects of rebranded products on price competition (Anafo, 2016; Tibandebage et al., 2016). In Tanzania, secondary research by Andreoni et al. (2020) showed that rebranding sugar imports had a price-erosion effect even though they were beneficial in filling the gaps in the sugar supply. Likewise, Tibandebage et al. (2016) presented evidence showing how the rebranding of imported drugs led to an increase in price competition in Tanzania's pharmaceutical sector. Similar insights were documented in a descriptive study conducted in Ghana by Anafo (2015), which showed that the rebranding of imported Chinese textiles induced price competition to the detriment of local producers due to price erosion.

Locally, Onyango (2014), using a secondary data analysis, reported that rebranding imports is one of the feasible alternatives to increase the supply of rice in the country. In the same way, a panel data analysis by Nzuma et al. (2013) demonstrated that repackaging imports is an effective strategy for mitigating the price volatilities of staple foods in Kenya. Muhunyu (2012), using a descriptive design, indicated that fraudulent repackaging of cheap and poor-quality imported rice resulted in unfair competition due to price erosion. Kalekye and Kariuki (2020) determined that parallel imports have a significant impact on price competition in the medical sector. However, the study asserts that the entrance of parallel importers into the market makes the pharmaceutical industry even more complex.

## 2.4 Research Gaps

While the effects of PIs on pricing have been studied extensively, conceptual, contextual, and methodological gaps have been identified. International, regional, and local studies differ in terms of conceptualizations, methodologies used, and the contexts of their study. The resultant lack of uniformity means that the effect of parallel importation on competitive pricing is not clear. Therefore, this study sought to examine the impact of different types of parallel importation on the competitive pricing strategies of pharmaceutical firms in Kenya and provide insights that can inform policy and business decisions in the industry. Table 2.1 presents a summary of the knowledge gaps.



**Table 2. 1: Summary of Knowledge Gaps**

<b>Author</b>	<b>Focus of the Study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Gaps</b>	<b>Focus of the Current study</b>
Duso et al. (2014)	Impact of parallel imports of oral anti-diabetics on consumer welfare in the German market	Econometric analysis using panel data	Parallel imports reduced prices for patented medicines	Contextual and methodological	Current study focused on the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Mendez (2016)	The effect of parallel imports on prices of statins in Denmark	Econometric analysis using panel data	Prohibiting parallel imports of would affect the balance offered by generic firms, resulting in higher health expenditures and reduced welfare among Danish patients.	Contextual and methodological	Current study focused on the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Tenni, et al. (2022)	Impact of intellectual property rules on access to medicines	Systematic review	the TRIPS-plus intellectual property rules stifle competition and have created stronger pharmaceutical monopolies which increase drug prices, increase shortage and increase health costs	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Goodchild et al. (2022)	Impact of restrictions on parallel imports	Panel data analysis	Results showed a positive association between a reduction of illicit cigarettes trade and cigarette prices	Contextual and methodological	Current study focused on the pharmaceutical sector in Kenya and used descriptive cross-sectional design

Edwards and Jenkins (2015)	Impact of direct imports on manufacturing input	Secondary data analysis	An increased direct importation was associated with a reduction in manufacturing output	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
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<b>Author</b>	<b>Focus of the Study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Gaps</b>	<b>Focus of the Current study</b>
Oyelude and Egboh-Nwachukwu (2023)	To determine if unaltered parallel importation serves as an effective tool for bolstering industry competition in Nigeria	Narrative review	Parallel imports can increase industry competition, leading to increased output coupled with price decreases	Contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Mukisa et al. (2021)	To determine the effect of parallel importation on prices of photovoltaic modules	Secondary data analysis	Parallel importation had a price lowering effect on solar photovoltaic modules	Contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design

Buckley (2011)	To explore the effect of parallel trade on accessibility of medicines in Africa	Qualitative	Parallel trade is one of the effective strategies of increasing accessibility to affordable medicines in Africa	Contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Huang et al. (2019)	To determine the competitive strategies that firms use to counter PIs in the global market	Secondary data analysis	Firms counter unaltered imports using numerous marketing strategies including supply interference, price cutting, service differentiation, and strategic pricing.	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design

<b>Author</b>	<b>Focus of the Study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Gaps</b>	<b>Focus of the Current study</b>
Altug (2017)	To examine the impact of gray markets on pricing dynamics in the American pharmaceutical sector	Secondary data analysis	Unaltered product imports in the gray market have a demand-cannibalization effect	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design

Flaen et al (2020)	The impact of trade import restrictions on prices of washing machines originating from South Korea	Secondary data analysis	Trade import restrictions led to an increase in prices	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Dubois and Sæthre (2020)	To examine the impact of parallel trade on price competition in Norway	Panel data analysis	The presence of parallel importers empowers retailers to choose goods with acceptable prices and often forces manufacturers to lower their demand prices	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Liu and Pazgal (2020)	To assess the impact of gray market products on product quality, pricing and demand in Taiwan	Panel data analysis	The existence of grey markets negatively affect price and quality of products	Conceptual, contextual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
<b>Author</b>	<b>Focus of the Study</b>	<b>Methodology</b>	<b>Findings</b>	<b>Gaps</b>	<b>Focus of the Current study</b>

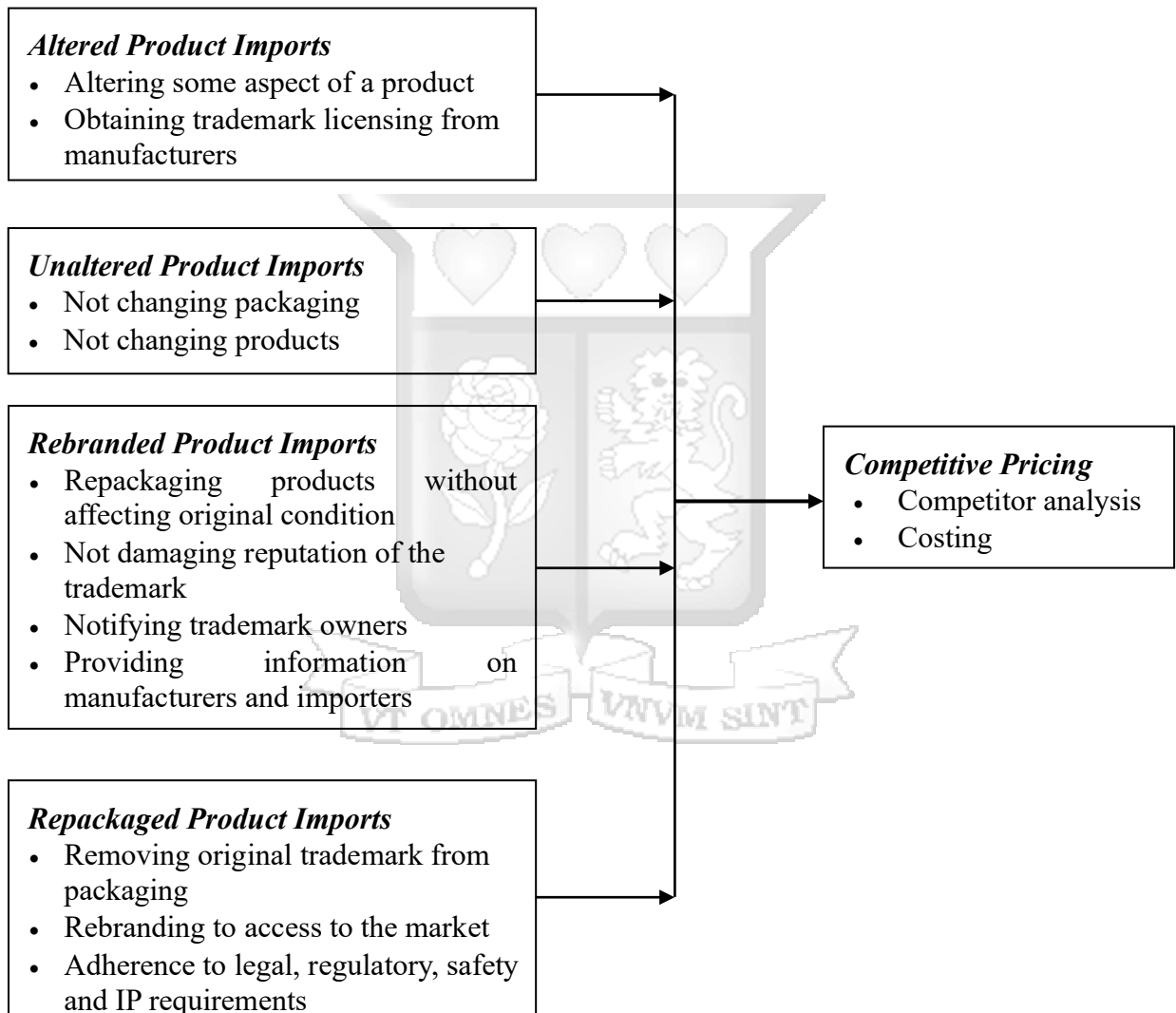
Maqsood (2021)	Factors that affect consumer's willingness to use gray-market perfumes and their impact on brand image in Pakistan	Descriptive design	When customers are not price sensitive, gray-goods importers can leverage products' brand to take advantage of manufacturer's price discrimination strategies across different international domains and sell parallel import products at higher prices	Conceptual and contextual	Current study focused on parallel importation in the pharmaceutical sector in Kenya
Owiye et al. (2016)	The effect of trade liberalization, especially increased imports, on the Kenyan sugar industry	Panel data analysis	An increase in sugar imports was inversely associated with its retail price due to increased supply	Conceptual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design
Obange et al. (2011)	Effect of sugar imports on the performance of local sugar companies	Panel data analysis	Increased sugar imports coincided with poor performance of local sugar companies due to price erosion	Conceptual and methodological	Current study focused on parallel importation in the pharmaceutical sector in Kenya and used descriptive cross-sectional design

Source: Researcher (2024)

## 2.5 Conceptual Framework

Figure 2.1 presents the conceptual framework for this research. The dependent variable is competitive pricing. The independent variables are altered, unaltered, rebranded, and repackaged PIs.

**Figure 2. 1: Conceptual framework**



Source: Researcher (2024)

As demonstrated in the figure above, the key concepts of the study were competitive pricing, as the dependent or outcome variable. Here, the study sought to determine the competitive pricing strategies adopted by pharmaceutical companies in Kenya. The overall independent variable for

the study was parallel importation, which was represented by altered product imports, unaltered product imports, rebranded product imports, and repackaged product imports. The measurement of these variables is illustrated in the subsequent section.

## 2.6 Operationalization of Study Variables

Table 2.1 shows the operationalization of the study variable, including the relevant indicators. A five-point rating scale was used to measure the variables whereby 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent.

**Table 2. 2 :Operationalization of variables**

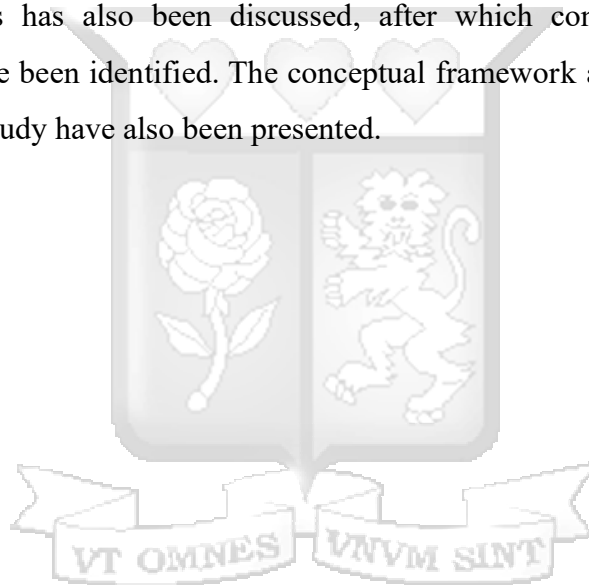
Variable	Indicators	Variable Type	Measurement	Literature source
<b>Independent variables</b>				
Altered Product Imports	<ul style="list-style-type: none"> <li>Altering some aspect of a product</li> <li>Obtaining trademark licensing from manufacturers</li> </ul>	Ordinal	5-point rating scale	(Birg, 2019; Brekke et al., 2015)
Unaltered Product Imports	<ul style="list-style-type: none"> <li>Not changing packaging</li> <li>Not changing products</li> </ul>	Ordinal	5-point rating scale	(Birg, 2019)
Rebranded Product Imports	<ul style="list-style-type: none"> <li>Repackaging products without affecting original condition</li> <li>Not damaging the reputation of the trademark</li> <li>Notifying trademark owners</li> <li>Providing information on manufacturers &amp; importers</li> </ul>	Ordinal	5-point rating scale	(Birg, 2019; Wang et al., 2020)
Repackaged Product Imports	<ul style="list-style-type: none"> <li>Removing trademark from the packaging</li> <li>Rebranding to access to the market</li> <li>Adherence to regulatory, safety, and IP requirements</li> </ul>	Ordinal	5-point rating scale	(Brekke et al., 2015; Wang et al., 2020)

<b>Dependent Variable</b>				
<b>Variable</b>	<b>Indicators</b>	<b>Variable Type</b>	<b>Measurement</b>	<b>Literature source</b>
Competitive Pricing	<ul style="list-style-type: none"> <li>• Competitor analysis</li> <li>• Cost-based pricing</li> </ul>	Ordinal	5-point rating scale	(Elgarhy, 2022; Ziari et al., 2022)

Source: Researcher (2024)

## 2.7 Chapter Summary

In this chapter, the author discusses the theories that underpin the research. Empirical literature relating to the variables has also been discussed, after which contextual, conceptual, and methodological gaps have been identified. The conceptual framework and the operationalization of the variables for this study have also been presented.



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter presents a discussion of the methodology that was adopted for the research. The chapter is organized as follows: research philosophy, research design, population of the study, sample design and technique, data collection methods, research quality, data analysis, and ethical considerations.

#### 3.2 Research Philosophy

The positivism philosophy was employed in the research. Positivism considers valid knowledge as one developed objectively without bias; hence, this philosophy advocates for using quantitative methods using large samples in order to develop generalizable findings that can be used for predicting and explaining phenomena (Bryman, 2012). Positivism was used since the assumptions of this philosophy are aligned with the objectives of the study, which attempted to explain the concept of competitive pricing using PI variables, including unaltered, altered, repackaged, and rebranded PIs in the pharmaceutical sector. Moreover, by using positivism, generalizable findings were obtained that could be applied to the pharmaceutical sector in Kenya.

#### 3.3 Research Design

The research design refers to the framework that guides the techniques and methods that the researcher uses to conduct the investigation (Bell et al., 2022). This study adopted the cross-sectional descriptive design, which is adopted in studies seeking to collect information for describing phenomena associated with a population (Bell et al., 2022). The choice of the descriptive design for the study was influenced by the need to describe the characteristics of the variables that were investigated, as well as the relationships between them. By using the survey approach, the researcher was able to describe the variables and generalize the findings to the population of the study. This design is suitable for the objectives of the study, which sought to examine the relationships between competitive pricing and forms of PIs. For this study, the pharmaceutical companies were the unit of analysis. The explanatory design was used to explain competitive pricing in the Kenyan pharmaceutical sector using the four forms of PIs as predictors.

Similar studies on parallel importation have employed the cross-sectional descriptive design (Anafo, 2015; Kalekye & Kariuki, 2020).

### **3.4 Population of the Study**

The population for the study consisted of pharmaceutical companies in Kenya. There are 52 active pharmaceutical manufacturing firms in Kenya (Pharmacy Board Kenya, 2022). These 52 pharmaceutical companies constituted the population for the study.

### **3.5 Sample Design and Technique**

A census approach was adopted in the study. This means that respondents were targeted from all the 52 pharmaceutical companies. In addition, respondents from KEMSA and MEDS were surveyed. The census approach was used considering the small size of the population, which eliminates the need for selecting a sample. Respondents consisted of supply chain and marketing managers from these pharmaceutical firms since they are involved in decision-making regarding the pricing strategies of pharmaceutical companies. From each firm, two managers were invited to participate in the study in order to mitigate a potential situation where one manager was not available to participate; thus, the sample size was 104 respondents. Such an approach helped increase the response rate.

### **3.6 Data Collection Methods**

Primary data collection was performed using structured questionnaires, which were designed using closed-ended questions. The reasons for choosing structured questionnaires as a data collection tool for the study include the lower cognitive load on respondents, leading to higher response rates and accurate responses; standardized data that can be analyzed easily; and effectiveness in gathering data from large samples (Kombo & Tromp, 2009). Despite these advantages, a drawback of structured questionnaires is that respondents might misunderstand the questions – this drawback can be mitigated by wording questions in a simple and clear format (Bell et al., 2022). A copy of the questionnaire used in this study is provided in Appendix II.

The questionnaire has three sections. Section A collects information regarding the profile of respondents. Section B collects information regarding parallel importation. Section C contains questions on competitive pricing strategies. The drop and pick-later method will be used to distribute

the questionnaires to respondents. Two questionnaires were distributed per firm. Trained research assistants were used to increase the response rate.

### **3.7 Research Quality**

The two aspects associated with research quality are validity and reliability. Validity is concerned with the accuracy of the measures used in a study, whereas reliability is concerned with the consistency of the findings if the study is replicated (Bryman, 2012). In this section, the measures that were taken to enhance validity and reliability are discussed.

#### **3.7.1 Validity**

Validity was improved using a pilot survey and an expert review of the questionnaire. A pilot study was conducted with ten marketing professionals of a selected pharmaceutical company – a 10 percent sample – as recommended by Bell et al. (2022). Feedback gained from the pilot survey participants in the pilot study was adopted to refine the questionnaire. The questionnaire was also reviewed by marketing experts from the researcher's contacts to help establish if it captured the concepts being investigated. Experts' feedback was also used to refine the questionnaire further. Additionally, the questionnaire was developed with the guidance of a supervisor appointed by Strathmore University.

Additionally, data collection processes and procedures were standardized, improving the external validity of study by minimizing variability in responses and ensuring all data is collected in the same way. This also reduced the risk of bias and allowed for reliable comparisons between different data points. Data validation check measures were implemented to verify responses for consistency and addressing missing data appropriately.

#### **3.7.2 Reliability**

Reliability was improved by making sure that the questionnaire was worded clearly with detailed instructions in order to make it understandable. Additionally, Cronbach's coefficient of the questionnaire was calculated after collecting the data to assess the extent to which its internal consistency is satisfactory. An internal consistency coefficient that exceeds 0.7 was deemed satisfactory, as recommended by Bryman (2012). As shown below, all the constructs attained the threshold for internal consistency.

**Table 3. 1: Reliability Tests**

Constructs	Cronbach's Alpha	N of Items
Altered product imports	.790	2
Unaltered product imports	.872	2
Repackaged product imports	.796	4
Rebranded product imports	.761	3
Competitive pricing	.712	6

### 3.8 Data Analysis

The analysis of the collected data was performed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive and inferential statistics were used. The descriptive statistics used were means, standard deviations, frequency counts, and percentages (Zikmund, Babin, Carr, & Griffin, 2013). The inferential statistics used to examine the relationship between PIs and competitive pricing were correlation and multiple linear regression (Bell et al., 2022). The collected data was tested to determine if it meets the assumptions needed to perform a multiple linear regression. These assumptions include linear associations between dependent and independent variables (linearity), normal distribution of variables (normality), observations being independent of each other (every participant is considered as one observation), and homoscedasticity (all independent variables have an equal variance of error) (Bell et al., 2022).

The regression equations that were used to test the hypotheses are listed below:

$$CP = \beta_0 + \beta_1API + \beta_2UPI + \beta_3RebPI + \beta_4RepPI + \epsilon$$

**Where,**

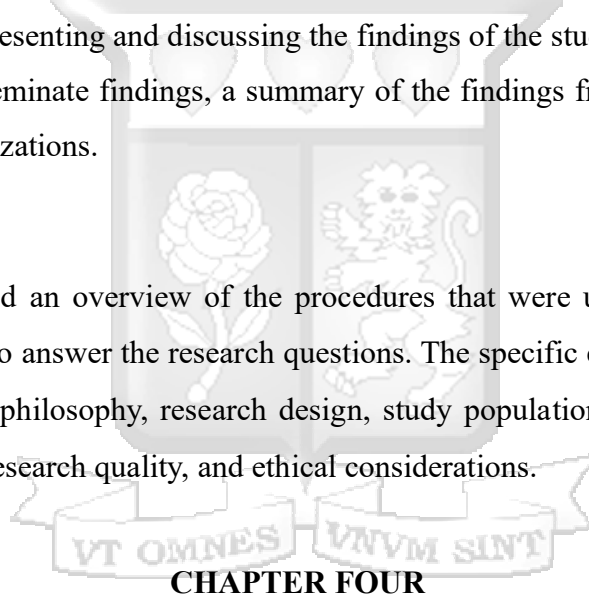
- CP = Competitive Pricing
- API = Altered Product Imports
- UPI = Unaltered Product Imports
- RebPI = Rebranded Product Imports
- RepPI = Repackaged Product Imports
- $\epsilon$  = Error function

### **3.9 Ethical Considerations**

Ethical approvals were obtained before collecting data. Approval was sought from the Ethical Review Board at Strathmore University. Also, a license was obtained from the National Commission for Science, Technology, and Innovation (NACOSTI). The second ethical consideration was voluntary participation – this was realized by seeking informed consent from respondents before administering the questionnaire. The questionnaire had an information sheet that detailed the study and guaranteed the confidentiality and privacy of participants. By choosing to respond to the questionnaire, respondents would have provided informed consent. Voluntary participation was achieved by signing an informed consent form. Additionally, the confidentiality and privacy of respondents were upheld. Personal data, including names and contact information, was not reported when presenting and discussing the findings of the study. To update respondents on the progress and disseminate findings, a summary of the findings from the study was sent to them through their organizations.

### **3.10 Chapter Summary**

This chapter has provided an overview of the procedures that were undertaken to collect and analyze the data needed to answer the research questions. The specific elements discussed in this chapter are the research philosophy, research design, study population, sampling method, data collection and analysis, research quality, and ethical considerations.



## **PRESENTATION OF FINDINGS**

### **4.1 Introduction**

This chapter dives into the heart of the study and presents the findings. Following a thorough process of data collection and analysis, the results of the study are presented in a detailed but clear and concise manner via tables and figures.

## 4.2 Response Rate

The study targeted and recruited 104 respondents who were asked to fill out a questionnaire. Ninety-five of them filled out and returned the questionnaires on time for the analysis. These questionnaires were taken through a cleaning process, after which seven questionnaires were ruled out for errors and incomplete responses. As such, 88 completed questionnaires were usable, implying that 84.62% of the sample recruited participated in the survey in its entirety, as illustrated in Table 4.1.

**Table 4. 1: Response Rate**

Category	Frequency	Percentage
Responded	88	84.62%
Non-response	16	15.38%
<b>Total</b>	<b>104</b>	<b>100.0%</b>

## 4.3 Demographic Information

The study sought to collect data about the demographic profile of the respondents. As shown in Table 4.2, the bulk of the respondents were aged 36-45 years (71.6%), female (52.3%), had graduate degrees (55.7%), and had worked in the pharmaceutical industry for 11-15 years (44.3%).

**Table 4. 2: Demographic Information (n=88)**

Characteristics	Distribution	Frequency	Percentage
What is your age bracket?	<35 years	15	17.0%
	36-45 years	63	71.6%
	46-55 years	10	11.4%
What is your gender identity?	Male	42	47.7%
	Female	46	52.3%
What is your current educational attainment?	Diploma	12	13.6%
	Graduate degree	49	55.7%

	Postgraduate degree	27	30.7%
How long have you been working within the pharmaceutical industry in Kenya?	<5 years	15	17.0%
	6-10 years	15	17.0%
	11-15 years	39	44.3%
	>16 years	19	21.6%

From the data above, it can be noted that both genders were sufficiently represented. It is also worth noting from the demographic profile of the sample that respondents, in general, had enough industry experience and educational qualifications to provide quality data and valuable insights about the subject matter under investigation.

#### 4.4 Descriptive Statistics

Descriptive statistics was performed to summarize, organize, and describe the main qualities of the data set. In particular, this research performed the measures of central tendency, measures of distribution, and measures of frequency. The findings are presented below:

##### 4.4.1 Altered Product Imports

The study sought to collect data on altered aspects of pharmaceutical products. Respondents were asked to indicate the extent to which they believed pharmaceutical products are altered in their firms on a five-point Likert scale where 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent. Table 4.3 summarizes the main qualities of the responses.

**Table 4. 3: Altered Product Imports**

	N	Mean	SD
The firm engages in altering some aspects of the pharmaceutical products to adhere to local regulations and to determine pricing.	88	2.852	1.251
The firm has obtained trademark licensing from global pharmaceutical manufacturers, which is factored during pricing	88	3.727	.8755

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**Overall Mean****3.290 1.063**

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The study observed a composite mean of 3.290 at a 1.063 standard deviation for the altered product variable. This means that, overall, respondents felt that pharmaceutical products were altered to a moderate extent. In particular, the item “The firm has obtained trademark licensing from global pharmaceutical manufacturers, which is factored during pricing” had a mean of 3.727 at a .8755 standard deviation. This means that respondents felt that obtaining trademark licensing from global pharmaceutical manufacturers factored into pricing to a moderate extent, with responses leaning more towards a large extent. The item, “The firm engages in altering some aspects of the pharmaceutical products to adhere to local regulations and to determine pricing,” had a mean of 2.852 at a 1.251 standard deviation. This means that respondents felt that altering pharmaceutical products led to adherence to local regulations to a small extent, with responses leaning more towards a moderate extent.

**4.4.2 Unaltered Product Imports**

The study sought to collect data on unaltered aspects of pharmaceutical products. Respondents were asked to indicate the extent to which they believed pharmaceutical products are not altered in their firms on a five-point Likert scale where 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent. Table 4.4 summarizes the main qualities of the responses.

**Table 4. 4: Unaltered Product Imports**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
The firm imports pharmaceutical products from other markets without changing products in any way	88	3.273	1.312
The firm imports pharmaceutical products from other markets without changing packaging in any way	88	3.295	1.208

**Overall Mean****3.284 1.260**

---

The study found an overall mean of 3.284 at a 1.260 standard deviation. This means that, in general, respondents felt that pharmaceutical firms in Kenya did not alter pharmaceutical products to a moderate extent. This notion is confirmed by the items, “The firm imports pharmaceutical products

from other markets without changing products in any way” and “The firm imports pharmaceutical products from other markets without changing packaging in any way,” as denoted by mean scores of (M=3.273, SD=1.312) and (M=3.295, SD=1.208), respectively.

#### 4.4.3 Repacked Product Imports

The study sought to collect data on the repackaging of pharmaceutical products. Respondents were asked to indicate the extent to which they believed pharmaceutical products are repackaged in their firms on a five-point Likert scale where 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent. Table 4.5 summarizes the main qualities of the responses.

**Table 4. 5: Repacked Product Imports**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
The firm repackages pharmaceutical products within the local market without affecting their original condition as a way of setting the optimal price	88	2.705	1.490
The firm ensures that the repackaged products do not damage the reputation of the trademark in order to beat its competitors in the market	88	2.955	1.588
The firm continuously notifies the trademark owner before the sale of the repackaged products	88	2.591	1.788
The repackaged products clearly provide information on the manufacturer and importer in order to achieve a competitive advantage in the market	88	2.943	1.591
<b>Overall Mean</b>		<b>2.798</b>	<b>1.614</b>

The overall mean for the repacked products variable was 2.798 at a 1.614 standard deviation. This means that, overall, respondents felt that pharmaceutical firms in Kenya are involved in repackaging pharmaceutical products to a small extent, with responses leaning more towards a moderate extent. The notion was the same for individual repackaging practices, as illustrated in Table 4.5 above.

#### 4.4.4 Rebranded Product Imports

The study sought to collect data on the rebranding of pharmaceutical products. Respondents were asked to indicate the extent to which they believed pharmaceutical products are rebranded in their firms on a five-point Likert scale where 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent. Table 4.6 summarizes the main qualities of the responses.

**Table 4. 6: Rebranded Product Imports**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
The firm removes original trademarks on the packaging of our pharmaceutical products with the consent of the trademark proprietor.	88	1.205	.5673
The use of a rebranding approach allows the firm to access a substantial part of the market that would otherwise be hindered because of strong resistance.	88	3.239	1.331
The firm ensures there is strict adherence to regulatory, legal, safety and IP requirements for rebranded products.	88	4.614	.6646
<b>Overall Mean</b>		<b>3.019</b>	<b>.8544</b>

The overall mean for the repackaged products was 3.019 at a .8544 standard deviation, implying that respondents felt that pharmaceutical firms in Kenya were involved in rebranding products to a moderate extent. However, the item “The firm ensures there is strict adherence to regulatory, legal, safety and IP requirements for rebranded products” had the highest mean score of 4.614 at a .6646 standard deviation. This means that respondents were of the view that these firms, to a large extent, adhered to regulatory, legal, safety, and IP standards when rebranding products. On the other hand, the item “The firm removes original trademarks on the packaging of our pharmaceutical products with the consent of the trademark proprietor” had the lowest mean of 1.205 at a .5673 standard deviation. This means that respondents felt that firms removed trademarks from packages with the consent of the trademark proprietor to no extent at all.

#### 4.4.5 Competitive Pricing

The study sought to collect data on the competitive pricing of pharmaceutical products. Respondents were asked to indicate the extent to which they believed pharmaceutical products are

priced competitively by their firms on a five-point Likert scale where 1=no extent at all; 2=small extent; 3=moderate extent; 4=large extent; 5=very large extent. Table 4.7 offers a summary of the main qualities of the responses.

**Table 4. 7: Competitive Pricing**

	<b>N</b>	<b>Mean</b>	<b>SD</b>
The firm conducts regular analysis of the pricing levels of other competitors	88	4.409	.4917
The prices set by the firm are influenced by market factors like supply and demand	88	4.500	.8118
The company sets prices that match or are slightly below the prices of competitors	88	4.159	.8776
Costs are not considered when determining pricing	88	2.875	1.323
The pricing strategy adopted by the firm helps to sell more products and boost revenue	88	4.568	.6536
The prices set by the company match the value offered to customers	88	3.932	1.268
<b>Overall Mean</b>		<b>4.074</b>	<b>.9044</b>

The composite mean for competitive pricing was 4.074 at a .9044 standard deviation. This finding implies that pharmaceutical firms in Kenya price their products competitively to a large extent.

The item “The pricing strategy adopted by the firm helps to sell more products and boost revenue” had the highest mean of 4.568 at a .6536 standard deviation. This means that respondents felt that the pricing strategy adopted helped firms sell more and enhance their revenue to a large extent, with a significant number of respondents suggesting a very large extent. However, the item “Costs are not considered when determining pricing” had the lowest mean of 2.875 at a 1.323 standard deviation. This implies that respondents were of the view that pharmaceutical firms consider costs when determining pricing to a small extent.

## 4.5 Inferential Statistics

Having understood the main characteristics of the dataset, the study proceeded to perform inferential statistics for the purpose of using the sample data to generalize or make inferences about the target population. The specific inferential statistics performed were correlational analysis and regression analysis.

### 4.5.1 Normality Test

The first phase of inferential statistics was performing the correlation analysis. However, before the analysis, a normality test was performed to determine whether to perform a parametric or nonparametric test for the correlation analysis. Due to the sample size, this research performed the Shapiro-Wilk (SW) test. Findings, as shown in Table 4.8, indicate that the constructs were all normally distributed, as proven by (sig.<.05). Therefore, this research performed a nonparametric test in the subsequent analysis.

**Table 4. 8: One-Sample Shapiro-Wilk Test**

	N	Mean	Std. Deviation	Skewness	Kurtosis	S-W	Asmp. Sig.
Altered product imports	88	3.301	.71735	-1.130	1.362	.859	.000
Unaltered product imports	88	3.284	1.19577	-.834	-.077	.839	.000
Repackaged product imports	88	2.804	1.09364	-.191	-.299	.911	.000
Rebranded product imports	88	3.019	.39589	-.449	-1.081	.844	.000
Competitive pricing	88	4.078	.25137	.293	-.765	.912	.000

### 4.5.2 Correlation Analysis

The study performed Spearman's rank correlation analysis, a nonparametric test, to determine how each independent variable (i.e., altered, unaltered, repackaged, and rebranded pharmaceutical products) correlates with the dependent variable (i.e., competitive pricing). Table 4.9 shows the results of the correlation analysis.

**Table 4. 9: Correlation Analysis**

		<u>Altered product imports</u>	<u>Unaltered product imports</u>	<u>Repackaged product imports</u>	<u>Rebranded product imports</u>
Spearman's rho	Competitive pricing				
	Correlation Coefficients	.257**	.816**	.506**	.385**
	Sig. (2-tailed)	.016	.000	.000	.000
	N	88	88	88	88

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

The results above indicate a significant positive correlation between altered product imports and competitive pricing as denoted by ( $r=.257, p<.05$ ). This means that by increasing the importation of altered pharmaceutical products by a unit, competitive pricing would increase by 0.257 units.

Therefore, since the correlation is statistically significant, this research rejected the null hypothesis.

A very strong and significant positive correlation was observed between unaltered product imports and competitive pricing, as proven by ( $r=.816, p<.05$ ). This means that with a unit increase in the importation of unaltered pharmaceutical products, competitive pricing would increase by 0.816 units. Therefore, this research rejected the null hypothesis at a 5% significance level.

The findings above suggest a strong, significant positive correlation between repackaged product imports and competitive pricing as denoted by ( $r=.506, p<.05$ ). This implies that by increasing the importation of repacked pharmaceutical products by a unit, competitive pricing would increase by 0.506 units. Therefore, since the association is statistically significant, this research rejected the null hypothesis.

Also, this research found a moderate, significant positive correlation between rebranded product imports and competitive pricing, as shown by ( $r=.385, p<.05$ ). This means that driving the importation of rebranded pharmaceutical products up by a unit would increase competitive pricing by 0.385 units. Therefore, this research rejected the null hypothesis at a 5% significant level.

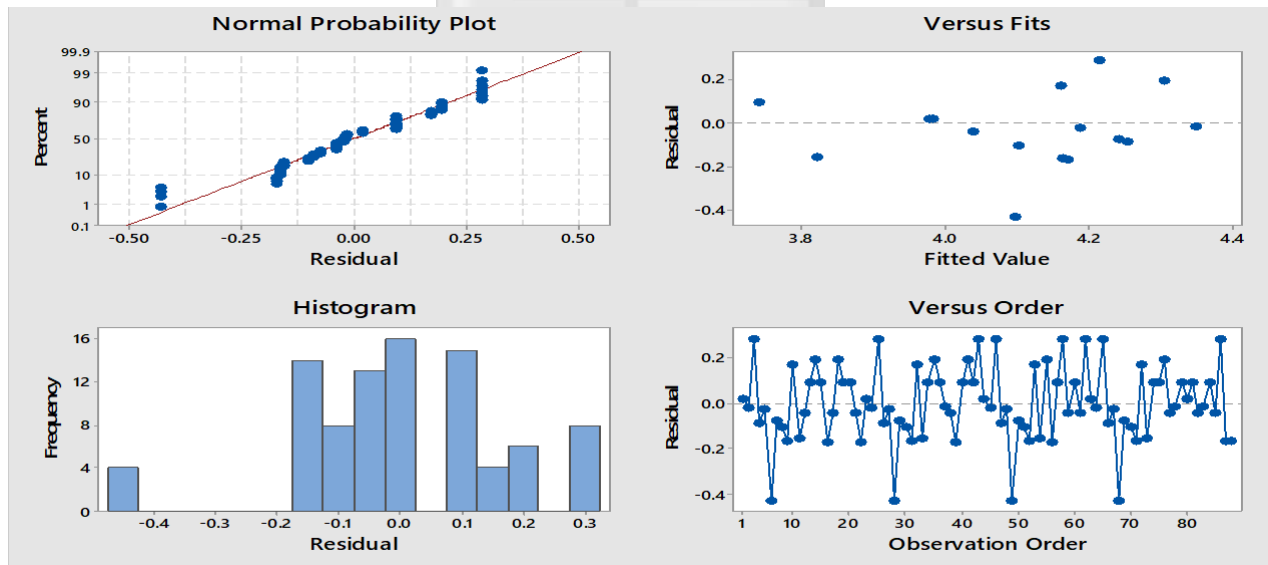
### 4.5.3 Diagnostic Tests

Diagnostic tests were computed to determine the appropriateness of the regression model before proceeding to regression analysis. The purpose of the tests was to check if the underlying assumptions of the regression analysis were satisfied, i.e., the homoscedasticity, normality, autocorrelation, and lack of multicollinearity.

#### 4.5.3.1 Test for Heteroscedasticity

One of the assumptions of regression analysis is that the variance of residuals (error terms) changes systematically as the predictor variables. Put simply, the residuals have a constant variance, a condition known as homoscedasticity. Residual plots, as shown in Figure 4.1, were generated to check if this assumption was violated.

**Figure 4. 1 Residual Plots for Competitive Pricing**

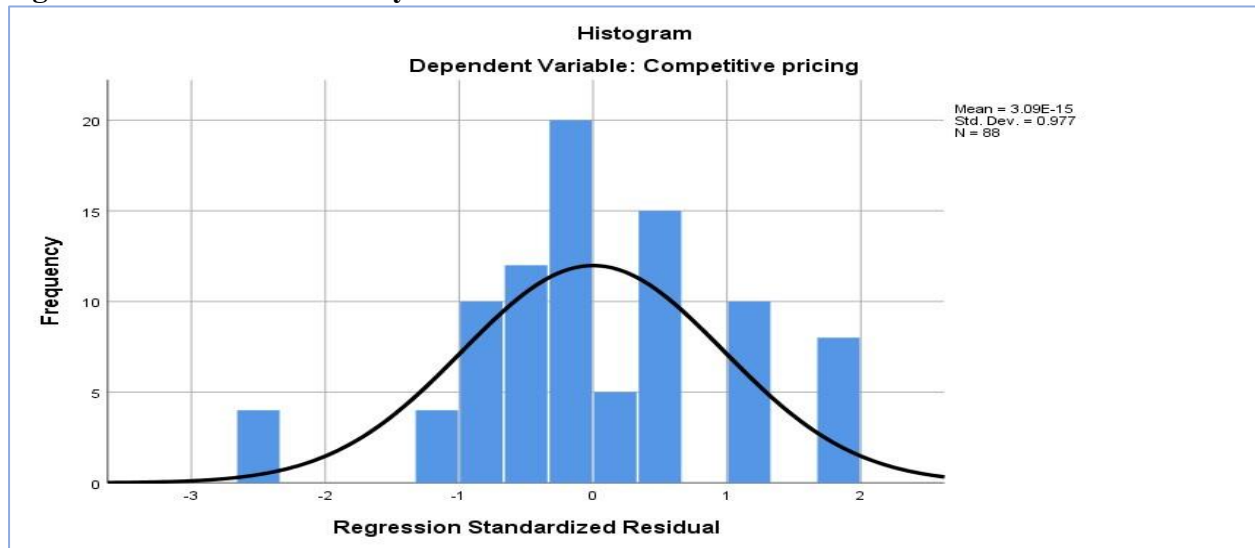


In the figure above, the error terms follow a normal distribution, as illustrated in the normal probability plot. In addition, a straight line is generated between the residuals versus the fitted value plot, indicating that heteroscedasticity was not detected and that the homoscedasticity assumption was satisfied.

### 4.5.3.2 Test for Normality

Another assumption is that the residuals should be normally distributed. That is, in an ideal scenario, the error terms should be distributed symmetrically around zero with no skewness. A histogram plot was drawn to check if this assumption was violated.

**Figure 4. 2 Test for Normality**



As shown in the figure above, the residuals produce an almost symmetric bell-shaped histogram, which is mostly distributed around zero. Also, there is the absence of extreme cases of outliers since the histogram is covered by the normality curve. This indicates that the normality assumption was not violated.

### 4.5.3.3 Test for Autocorrelation

The third assumption of the model states that the consecutive error terms should be independent or not correlated. The Durbin-Watson (D-W) test was computed to ensure that this assumption was violated. The D-W test produces a value that ranges between 0 and 4. A value below 1.5 signifies positive serial correlation, above 2.5 denotes negative serial correlation, and 2.0 suggests an ideal case of no autocorrelation. However, a value between 1.5 and 2.5 suggests autocorrelation is likely not a cause for concern.

**Table 4. 10: Test for Autocorrelation**

Alpha	.05
D-stat	2.036
D-lower	1.38466
D-upper	1.94068
Sig	<b>No autocorrelation</b>

A D-W value of 2.036 confirms that autocorrelation was not a likely cause for concern, illustrated in Table 4.10, since it falls in the acceptable 1.5-2.5 range. The absence of autocorrelation is substantiated by  $(4-D) > D_u$ , which proves that the autocorrelation assumption was satisfied.

#### 4.5.3.4 Test for Multicollinearity

The final assumption states that the predictor variables in a regression model should not be highly correlated, or there should be the absence of multicollinearity in the independent variables. The variance inflation factor (VIF) test was performed to detect if one or more of the predictor variables are highly correlated. As shown in Table 4.11, the assumption was satisfied since  $VIF < 10$  for all the constructs.

**Table 4. 11: Test for Multicollinearity**

Model	Collinearity Statistics	
	Tolerance	VIF
1 (Constance)		
Altered product imports	.922	1.084
Unaltered product imports	.374	2.675
Repackaged product imports	.386	2.590
Rebranded product imports	.785	1.274

a. Dependent Variable: Competitive pricing

#### 4.5.4 Regression Analysis

Having ascertained that the underlying assumptions of the regression model were satisfied, the study proceeded to perform linear regression to determine the relationship between each predictor

variable (i.e., altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports) and the outcome variable, competitive pricing.

#### 4.5.4.1 Altered Product Imports and Competitive Pricing

Linear regression analysis was computed to determine the relationship between altered product imports and competitive pricing in Kenya's pharmaceutical firms. A model summary was generated to highlight the essential information about the fitted regression model and results published in Table 12.

**Table 4. 12: Model Summary: Altered product imports and competitive pricing**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.381 <sup>a</sup>	.145	.137	.24859

a. Predictors: (Constant), Altered product imports

The results above show that a small portion of variance (R Square=.145) in the dependent variable is attributed to the independent variable. This means that imports of altered pharmaceutical products explain only 14.5% of competitive pricing practices adopted by pharmaceutical firms in Kenya.

The analysis of variance (ANOVA) was undertaken to examine the statistical significance of the regression model. Results are published in Table 4.13.

**Table 4. 13: ANOVA: Altered product imports and competitive pricing**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.183	1	.183	2.954	.000 <sup>b</sup>
	Residual	5.315	86	.062		
	Total	5.497	87			

a. Dependent Variable: Competitive pricing

b. Predictors: (Constant), altered product imports

The findings above indicate that the relationship between altered product imports and competitive pricing is not statistically significant, as shown by ( $F(1,86) = 2.954, P < .05$ ). The results suggest that the importation of altered products predicts competitive pricing reliably.

In addition to the above, a regression coefficient was performed to predict the value of the dependent variable based on the values of the independent variable. Results were published in Table 4.14.

**Table 4. 14: Coefficient: Altered product imports and competitive pricing**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.867	.125		30.817	.000
	Altered product imports	.064	.037	.184	1.719	.000

a. Dependent Variable: Competitive pricing

According to the results above, altered product imports have a significant effect on competitive pricing in Kenya's pharmaceutical market, denoted by ( $B=.064, p > .05$ ). This implies that importing altered pharmaceutical products more would lead to a significant increase in competitive pricing.

#### 4.5.4.2 Unaltered Product Imports and Competitive Pricing

Regression analysis was computed to test the relationship between unaltered pharmaceutical product imports and competitive pricing in Kenya's pharmaceutical industry. A model summary was generated to highlight the essential information about the fitted regression model and results published in Table 4.15.

**Table 4. 15: Model Summary: Unaltered product imports and competitive pricing**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703 <sup>a</sup>	.495	.489	.17973

a. Predictors: (Constant), Unaltered product imports

The results above show that a significant portion of variance (R Square=.495) in the dependent variable is attributed to the independent variable, meaning unaltered product imports explain 49.5% of competitive pricing practices adopted by pharmaceutical firms in Kenya.

ANOVA was performed to examine the statistical significance of the regression model. Results are published in Table 4.13.

**Table 4. 16: ANOVA: Unaltered product imports and competitive pricing**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.719	1	2.719	84.183	.000 <sup>b</sup>
	Residual	2.778	86	.032		
	Total	5.497	87			

a. Dependent Variable: Competitive pricing

b. Predictors: (Constant), Unaltered product imports

The findings above indicate that the relationship between unaltered product imports and competitive pricing is statistically significant, as shown by ( $F(1,86) = 84.183, P < .05$ ). The results suggest that the importation of unaltered pharmaceutical products predicts competitive pricing reliably.

Furthermore, a regression coefficient was computed to predict the value of the dependent variable based on the values of the independent variable. Results were published in Table 4.17.

**Table 4. 17: Coefficient: Altered product imports and competitive pricing**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.592	.056		63.824	.000
	Unaltered product imports	.148	.016	.703	9.175	.000

a. Dependent Variable: Competitive pricing

As shown in Table 4.17, importing unaltered pharmaceutical products has a significant positive effect on competitive pricing in Kenya's pharmaceutical market, denoted by (B=.064,  $p < .05$ ). This means that importing unaltered pharmaceutical products by a unit more would increase competitive pricing by 0.148 units.

#### 4.5.4.3 Repackaged Product Imports and Competitive Pricing

Regression analysis was performed to determine the relationship between repackaged product imports and competitive pricing in Kenya's pharmaceutical industry. A model summary was generated to highlight the essential information about the fitted regression model and results published in Table 4.18.

**Table 4. 18: Model Summary: Repackaged product imports and competitive pricing**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.572 <sup>a</sup>	.327	.319	.20744

a. Predictors: (Constant) Repackaged product imports

The results in Table 4.18 show that a significant portion of variance (R Square=.327) in the dependent variable is attributed to the predictor variable, meaning repackaged pharmaceutical product imports explain 32.7% of competitive pricing in the pharmaceutical industry in Kenya.

ANOVA was undertaken to examine the statistical significance of the regression model. Results are published in Table 4.19.

**Table 4. 19: ANOVA: Repackaged Product Imports and competitive pricing**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.797	1	1.797	41.752	.000 <sup>b</sup>
	Residual	3.701	86	.043		
	Total	5.497	87			

a. Dependent Variable: Competitive pricing

b. Predictors: (Constant), Repackaged product imports

The results above indicate that the relationship between repackaged product imports and competitive pricing is statistically significant, as shown by ( $F(1,86) = 41.752, P < .05$ ). The results suggest that the importation of repackaged pharmaceutical products is a reliable predictor of competitive pricing.

In addition, a regression coefficient was performed to predict the value of the dependent variable based on the values of the independent variable. Results were published in Table 4.20.

**Table 4. 20: Coefficient: Repackaged product imports and competitive pricing**

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	3.7.9	.061		60.650	.000
	Repackaged product imports	.131	.020	.572	6.462	.000

a. Dependent Variable: Competitive pricing

Findings in Table 4.20 suggest that repackaged pharmaceutical product imports have a significant positive effect on competitive pricing in Kenya's pharmaceutical market, denoted by ( $B=.131$ ,

p<.05). This means that importing repackaged pharmaceutical products by a more would increase competitive pricing by 0.131 units.

#### 4.5.4.d Rebranded Product Imports and Competitive Pricing

Regression analysis was performed to determine the relationship between rebranded product imports and competitive pricing in Kenya’s pharmaceutical industry. A model summary was generated to highlight the essential information about the fitted regression model and results published in Table 4.21.

**Table 4. 21: Model Summary: Rebranded product imports and competitive pricing**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.389 <sup>a</sup>	.152	.142	.23088

a. Predictors: (Constant), Rebranded product imports

Table 4.21 indicates that a significant portion of variance (R Square=.152) in the dependent variable is attributed to the predictor variable, meaning imports of rebranded pharmaceutical products explain 15.2% of competitive pricing in the pharmaceutical industry in Kenya.

ANOVA was undertaken to examine the statistical significance of the regression model. Results are published in Table 4.22.

**Table 4. 22: ANOVA: Rebranded product imports and competitive pricing**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.833	1	.833	15.364	.000 <sup>b</sup>
	Residual	4.664	86	.054		
	Total	5.497	87			

a. Dependent Variable: Competitive pricing

b. Predictors: (Constant), Rebranded products

The results above suggest that the relationship between rebranded product imports and competitive pricing is statistically significant, as denoted by ( $F(1,86) = 15.364, P < .05$ ). The results confirm that the importation of rebranded pharmaceutical products is a reliable predictor of competitive pricing.

In addition, a regression coefficient was performed to predict the value of the dependent variable based on the values of the independent variable. Results were published in Table 4.23.

**Table 4. 23: Coefficient: Rebranded product imports and competitive pricing**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.331	.192		17.350	.000
	Rebranded products	.247	.063	.389	3.920	.000

a. Dependent Variable: Competitive pricing

Findings shown above indicate that repackaged pharmaceutical products have a significant positive effect on competitive pricing in Kenya's pharmaceutical market, denoted by ( $B = .247, p < .05$ ). This means that selling rebranded pharmaceutical products more would increase competitive pricing by 0.247 units.

#### 4.5.5 Multiple Regression Analysis

Multiple regression analysis was performed to determine the combined effect of the independent variables (i.e., altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports) on the dependent variable, competitive pricing.

A model summary was generated to determine the degree to which the four predictor variables explain the variation of the dependent variable. In this analysis, a model summary was computed to assess the proportion of the variance in the dependent variable that can be explained by the four independent variables. The results of the analysis are presented in Table 4.24

**Table 4. 24: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.756 <sup>a</sup>	.571	.551	.16851	2.036

a. Predictors: (Constant), Altered product imports, Unaltered product imports, Repackaged product imports, Rebranded product imports

b. Dependent Variable: Competitive pricing

As shown above, a significant portion of variance (R Square = .571) in the independent variable was attributed to the four dependent variables. In other words, altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports explain 57.1% of competitive pricing in Kenya's pharmaceutical industry.

The ANOVA analysis was also computed to model the relationship between the variables and determine the strength of the relationship between the dependent variable and the independent variables. This analysis helped determine whether the combined effect of the four variables on the dependent variable was statistically significant. The results indicate that the collective effect is statistically significant, as shown by ( $F(1,83) = 27.649, P < 0.01$ ).

**Table 4. 25: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.140		.785	27.649	<sup>b</sup> .000
	Residual	2.357	83	.028		
	Total	5.497	87			

a. Dependent Variable: Competitive pricing

b. Predictors: (Constant), Altered product imports, Unaltered product imports, Repackaged product imports, Rebranded product imports

Moreover, the regression coefficients were conducted to predict the outcome variable based on the values of the predictor variables (i.e., altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports). Results of the analysis are shown in Table 4.26.

**Table 4. 26: Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.056	.176		17.391	.000
Altered product imports	.095	.026	.271	3.625	.000
Unaltered product imports	.113	.025	.536	4.556	.000
Repackaged product imports	.040	.027	.174	1.502	.137
Rebranded product imports	.075	.052	.118	1.452	.150

a. Dependent Variable: Competitive pricing

The values of the beta coefficient and significance level shown above indicate that while some parallel pharmaceutical importation has a significant effect on pricing, others do not. For instance, altered product imports were found to have a significant positive effect (B=.095,  $p<.05$ ) on competitive pricing; unaltered product imports were found to have a significant positive (B=.113,  $p<.05$ ) effect on competitive pricing. However, the effect of repacked product imports and rebranded product imports were both not significant, as denoted by (B=.040,  $p>.05$ ) and (B=.075,  $p>.05$ ), respectively.

In light of the above, the regression equation for the study is as follows:

$$\text{Competitive pricing} = 3.056 + .095\text{API} + .113\text{UPI} + .040\text{RebPI} + .075\text{RepPI} + \epsilon$$

Where;

API = Altered Product Imports

UPI = Unaltered Product Imports  
RebPI = Rebranded Product Imports  
RepPI = Repackaged Product Imports  
 $\epsilon$  = Error function

Based on the equation above, if the values of all the parallel pharmaceutical importation (i.e., altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports) equals zero, competitive pricing would be 3.056.

#### **4.6 Chapter Summary**

This chapter focused on presenting the findings of the study. As demonstrated, a sufficient response rate was achieved. The importation of altered, unaltered, and rebranded pharmaceutical products was to a moderate extent, while the import of repacked products was to a small extent. Pharmaceutical firms in Kenya adopt competitive pricing strategies to a large extent. Correlational analysis showed that each of the four variables (altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports) is positively and significantly associated with competitive pricing. Multiple regression analysis shows that parallel pharmaceutical product importation has a significant positive effect on competitive pricing.

### **CHAPTER FIVE**

#### **SUMMARY, DISCUSSION, CONCLUSION, AND RECOMMENDATIONS**

##### **5.1 Introduction**

This section offers in-depth interpretation and discussion of the findings as well as the overall conclusion of the study. This section also includes an overview of the study, its implications, and recommendations for further research.

##### **5.2 Summary of the Study**

The main objective of the study was to determine the influence of parallel importation of pharmaceutical drugs on competitive pricing strategies in Kenya's pharmaceutical industry. The focus was on altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports and how they influence competitive pricing practices. This research

was grounded in the principles of system theory, and Porter's five forces theory followed a positivist research philosophy, adopting a descriptive cross-sectional research design. The study targeted management-level employees of 52 licensed pharmaceutical companies in Kenya, from whom a sample of 104 respondents was selected and surveyed using structured questionnaires.

Eighty-eight of the targeted 104 respondents participated in the survey in its entirety, translating to 84.62%. Most of the respondents were aged 36-45 years (71.6%), female (52.3%), had graduate degrees (55.7%), and had worked in the pharmaceutical industry for 11-15 years (44.3%). Descriptive statistics produced composite mean and standard deviation values for the variables were as follows: altered product imports ( $M=3.290$ ,  $SD=1.063$ ), unaltered product imports ( $M=3.284$ ,  $SD=1.260$ ), repackaged product imports ( $M=2.798$ ,  $SD=1.614$ ), rebranded product imports ( $M=3.019$ ,  $SD=.8544$ ), and competitive pricing ( $M=4.074$ ,  $SD=.9044$ ).

The results from inferential statistics indicate a significant positive correlation between altered product imports and competitive pricing ( $r=.257$ ,  $p<.05$ ), unaltered product imports and competitive pricing ( $r=.816$ ,  $p<.05$ ), repackaged product imports and competitive pricing ( $r=.506$ ,  $p<.05$ ), and rebranded product imports and competitive pricing ( $r=.385$ ,  $p<.05$ ). Regression analysis showed that altered product imports ( $\beta=.095$ ,  $p<.05$ ) and unaltered product imports ( $\beta=.113$ ,  $p<.05$ ) are significant predictors of competitive pricing. On the other hand, repackaged product imports ( $\beta=.040$ ,  $p>.05$ ) and rebranded product imports ( $\beta=.075$ ,  $p>.05$ ) do not have a significant effect on competitive pricing.

### **5.3 Discussion of the Findings**

The discussion of the findings is presented according to the specific objectives of the research study.

#### **5.3.1 Altered Product Imports and Competitive Pricing**

The first objective of this research was to determine the effect of altered product import on competitive pricing strategies in Kenya's pharmaceutical industry. This research observed that imported pharmaceuticals are altered to a moderate extent. The interaction between the alteration of imported pharmaceuticals and competitive pricing was tested using correlation and regression analysis. Findings from correlation analysis revealed that altered product imports correlated

positively and significantly with competitive pricing. This implies that importing altered pharmaceuticals is associated with positive outcomes in competitive pricing strategies in the pharmaceutical sector.

The notion above was further substantiated by regression analysis between the variables, which indicated that altered product imports have a significant positive effect on competitive pricing. As the findings above suggest, introducing more altered pharmaceuticals through imports favors competitive pricing. Therefore, this research rejected the null hypothesis. In this context, the research supports theory of price. This is in the sense that imports of altered pharmaceutical products affects the supply of pharmaceutical products in a market. As such, when altered and cheaper pharmaceuticals are brought in through parallel importation more of the same products are available on the market, exerting market pressure on domestic firms. This forces them to adapt by offering more competitive prices to avoid losing their market share.

The findings also corroborate the results of a great deal of previous body of empirical literature (Duso et al., 2014; Mendez, 2016; Edwards & Jenkins, 2015; Kalekye & Kariuki, 2020; Mukisa et al., 2021). These studies all demonstrate that altered product imports have a price-lowering effect on pharmaceuticals. The dynamics of the interaction between altered PIs and competitive pricing vary and can be attributed to a number of factors—for example, encouraging the inflow of altered pharmaceutical products affects the supply and demand dynamics since there are more of the same product in the market, increases competition among industry players thereby driving prices down, and, although rarely, altered imports may command premium prices due to their uniqueness.

### **5.3.2 Unaltered Product Imports and Competitive Pricing**

The second objective of the study was to determine the effect of unaltered pharmaceutical imports on competitive pricing in Kenya's pharmaceutical industry. Like altered PIs, this research observed that pharmaceutical firms are involved in the importation of unaltered pharmaceuticals. The relationship between unaltered PIs and competitive pricing was examined using inferential statistics. Results of correlation analysis showed that unaltered product imports are significantly and positively associated with competitive pricing. This means that introducing more unaltered pharmaceuticals into the local market through parallel importation is associated with favorable pricing strategies.

The observation above was further supported by findings from regression analysis, which indicated that unaltered product imports are a significant predictor of competitive pricing. Therefore, this research supports the principles of theory of price. Introducing more of the same, often cheaper, pharmaceutical products into the local market without making any major changes to the products increases the supply of the product in the local market. In other words, the proliferation of cheaper versions of the same products forces local pharmaceutical firms to adapt first to protect their market. Often, they do so by revising their prices to remain competitive.

The findings are also consistent with those of previous researchers (Huang et al., 2019; Altug, 2017; Li et al., 2018; Birg, 2023; Dubois & Sæthre, 2020; Flaaen et al., 2020; Mukisa et al., 2021; Owiye et al., 2016; Elodie et al., 2013). According to these studies, unaltered parallel imports have both price-lowering and demand-cannibalization effects (Altug, 2017). In other words, besides eroding the prices of pharmaceutical products offered by local brands, they threaten the demand for local pharmaceutical companies' branded products (Altug, 2017). Increased imports of foreign pharmaceutical products in their original form force domestic brands to lower the prices of their product offerings.

### **5.3.3 Repackaged Product Imports and Competitive Pricing**

The third objective of the study was to determine the effect of repackaged product imports and competitive pricing in Kenya's pharmaceutical industry. Respondents were of the view that pharmaceutical imports are repackaged only to a small extent. Inferential statistics was performed to determine the relationship between repackaged product imports and competitive pricing strategy. Correlational analysis revealed a significant positive correlation between repacked PIs and competitive pricing, suggesting that when pharmaceuticals are imported and repackaged, the outcome is often competitive pricing. In other words, repackaged PIs improve competitive pricing strategies.

The notion above was further supported by findings of the regression analysis, which revealed that repacked product imports have a significant effect on competitive pricing. This means that repackaged pharmaceutical imports have a favorable and noticeable effect on competitive pricing practices. Therefore, this finding supports the core principles of the price theory. By importing and repackaging drugs from countries where they are cheaper, the supply in the importing country

increases, which can lead to lower prices due to increased competition. In other words, when pharmaceutical products are imported, repacked, and introduced into the market, market dynamics change, influencing these companies' behaviors, such as adjusting their prices.

Moreover, the findings are consistent with those of previous research (Gupta et al., 2017; Tessema et al., 2019; Stern et al., 2019; Datta & Selvaraj, 2019; Andreoni et al., 2020; Okereke et al., 2021; Tibandebage et al., 2016; Onyango, 2014; Nzuma et al., 2013; Muhunyu, 2012). Allowing more repackaged pharmaceutical imports into the market enhances market efficiency and promotes healthy competition. As a result, pharmaceutical firms and other industry players are forced to adjust their prices as they strive to retain and attract more customers. This occurs through the laws of supply and demand, whereby repackaged product imports are seen as a viable way of increasing the supply of pharmaceuticals in the local market.

#### **5.3.4 Rebranded Product Imports and Competitive Pricing**

The fourth objective of the study was to examine the effect rebranded product imports have on competitive pricing in Kenya's pharmaceutical industry. According to respondents, imported pharmaceuticals are rebranded to a moderate extent. Testing the correlation between rebranded product imports and competitive pricing, a significant positive correlation was observed. This means that altering imported pharmaceutical products' names, appearances, and other aspects to give them fresh identities is associated with improvements in competitive pricing. Therefore, this research rejected the null hypothesis. Also, the findings support the core principles of price theory since importing and rebranding drugs is a key market force that disrupts the law of demand and supply, pricing dynamics of local markets, and forces local companies to strategize their price offerings.

The findings also corroborate those of previous research studies (Chakraborty et al., 2019; Birg, 2023; Anafo, 2016; Tibandebage et al., 2016; Onyango (2014). Rebranded PIs introduce new, differentiated options into the market. Sometimes, because of their uniqueness, rebranded pharmaceutical drugs may be perceived as unique or improved. Therefore, besides offering customers a wide range of options, rebranded product imports have a price-lowering effect. Encouraging more rebranded pharmaceutical imports compels domestic companies to rethink their

pricing strategies in order to stay relevant. It is to be noted, however, that these findings are not in agreement with Vandoros and Kanavos' (2014) research, which was of a contradictory opinion.

#### **5.3.4 Combined Effect of Parallel Imports on Competitive Pricing**

The overall objective of the study was to determine the influence parallel importation has on competitive pricing in Kenya's pharmaceutical industry. Respondents were of the view that pharmaceutical firms in Kenya are involved in competitive pricing to a large extent. Also, according to findings from multiple regression analysis, parallel importation of drugs (altered, unaltered, repackaged, and rebranded) explains up to 57.1% of competitive pricing strategies in Kenya's pharmaceutical industry. This means that parallel imports reflect positively on competitive pricing in that the more the parallel imports are encouraged, the more the pricing of pharmaceuticals becomes favorable as a result of the disruption of market dynamics. Therefore, this research aligns with the core principles of Porter's five forces model. Parallel importation increases competition, the threat of substitution, the threat of new entrants, and buyers' bargaining power but decreases suppliers' power, resulting in reduced prices of products and services.

#### **5.4 Conclusion of the Study**

This research aimed to determine the effect of parallel importation of drugs on competitive pricing practices in Kenya's pharmaceutical industry. The research looked into the effects of altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports. Collectively, parallel importation of drugs was found to have a significant effect on competitive pricing, meaning prices of pharmaceutical products become more favorable with increased importation of drugs. At individual importation practices, altered product imports and unaltered product imports had a significant positive effect on competitive pricing, whereas the effect of repackaged and rebranded was not significant. Therefore, this research concludes that altered product imports and unaltered product imports are significant determinants of competitive pricing in Kenya's pharmaceutical industry.

#### **5.5 Recommendations**

The policy, practical, and theoretical implications of this research study are as follows:

### **5.5.1 Policy Implications**

The findings of this research are significant at the policy level. By explaining 57.1% of competitive pricing, parallel importation of drugs plays a huge role in enhancing competition in the local pharmaceutical market. Therefore, this research encourages Kenya's government, through the Pharmacy and Poisons Board (PPB), to create and enforce more policies promoting the importation of quality pharmaceutical drugs. Doing so will help address the drug shortages and the overpricing issue. In particular, these policies should focus more on encouraging unaltered product imports due to the degree of its impact on competitive pricing.

### **5.5.2 Practical Implications**

The findings of this research demonstrate that, at the firm level, certain measures can be taken to enhance a company's competitiveness. Pharmaceutical companies that wish to become more relevant and competitive should embrace parallel importation. Introducing cheaper but highquality imports in their product portfolio is a viable way of attracting new and retaining existing customers through strategic pricing. While parallel importation as a whole favors competitive pricing, it would be wise to pay particular attention to unaltered product imports since the quality and reputation of the drugs are maintained.

### **5.5.3 Theoretical Implications**

For theoretical implications, this research makes a significant contribution by extending the competitive pricing literature. It underscores the value of parallel importation of drugs in enhancing competitive pricing in Kenya's pharmaceutical sector. It highlights how individual parallel importation practices such as altering, not altering, repackaging, and rebranding translate into competitive pricing among pharmaceutical firms. In so doing, this research proposes investing more in the parallel importation of legitimate pharmaceutical drugs to improve the competitiveness of the local pharmaceutical market.

### **5.6 Areas for Further Research**

This research focused only on four aspects of the parallel importation of drugs: altered product imports, unaltered product imports, repackaged product imports, and rebranded product imports. It also tested how they reflect on competitive pricing. Findings demonstrate that the four elements

explain 57.1% of competitive pricing strategies, meaning the rest of the percentage can be attributed to aspects of parallel importation not covered in this research. Therefore, future researchers are encouraged to explore parallel importation more, identify other aspects, and examine how they associate with competitive pricing. It is also worth noting that this research stuck to the importation of genuine and non-counterfeit importation of pharmaceutical drugs. The practice of importing counterfeit drugs and its impact on pricing remains to be examined.

## REFERENCES

- Altug, M. S. (2017). The Dynamics of Domestic Gray Markets and Its Impact on Supply Chains. *Production and Operations Management*, 26(3), 525–541.  
<https://doi.org/10.1111/poms.12645>
- Altug, M. S., & Sahin, O. (2019). Impact of parallel imports on pricing and product launch decisions in pharmaceutical industry. *Production and Operations Management*, 28(2), 258275.
- Anafo, F. Y. (2015). *The impact of imported Chinese textiles on Ghanaian local producers* (Doctoral dissertation).
- Andreoni, A., Mushi, D., & Therkildsen, O. (2020). The political economy of ‘scarcity’ in East Africa: a case study of sugar production, smuggling and trade in Tanzania.  
<https://eprints.soas.ac.uk/38577/1/ACE-WorkingPaper031-SugarProduction-201215.pdf>
- Andrew-Smith, R. (2020, March 2020). *Parallel imports of pharmaceuticals – A UK trade mark perspective*. Retrieved from Mewburn Ellis:  
<https://www.mewburn.com/newsinsights/parallel-imports-of-pharmaceuticals-a-uk-trade-mark-perspective#:~:text=Parallel%20imports%20of%20pharmaceuticals%20%E2%80%93%20A%20UK%20trade%20mark%20perspective,-19%20March%202020&text=The%20UK%20parallel%20import%>
- Arora, S., & Chaturvedi, R. (2017). Impact of TRIPS on Providing Easy Access to Affordable

- Medicines in India. *JIPR Vol.22(5) [September 2017]*.  
<http://nopr.niscpr.res.in/handle/123456789/43408>
- Belton, P. (2017). *An Analysis of Michael E. Porter's Competitive Strategy: Techniques for Analyzing Industries and Competitors*. CRC Press.
- Bertalanffy, L. von. (1968). *General system theory: Foundations, development, applications*. G. Braziller. [http://repository.vnu.edu.vn/handle/VNU\\_123/90608](http://repository.vnu.edu.vn/handle/VNU_123/90608)
- Birg, L. (2019). Reference pricing and parallel imports: Evidence from Germany. *Center for European, Governance and Economic Development Research*.
- Birg, L. (2023). Parallel imports under a manufacturer rebate and a price freeze: Evidence from Germany. *Health Economics*, 32(2), 302–323. <https://doi.org/10.1002/hec.4621>
- Brekke, K. R., Holmås, T. H., & Straume, O. R. (2015). Price regulation and parallel imports of pharmaceuticals. *Journal of Public Economics*, 129, 92–105. <https://doi.org/10.1016/j.jpubeco.2015.08.002>
- Bryman, A. (2012). *Social Research Methods (4th ed.)*. . New York: Oxford University Press.
- Buckley, M. (2011). Looking Inward: Regional Parallel Trade as a Means of Bringing Affordable Drugs to Africa. *Seton Hall Law Review*, 41, 625.
- Calboli, I. (2020). Intellectual Property Exhaustion and Parallel Imports of Pharmaceuticals: A Comparative and Critical Review. *SSRN Electronic Journal*.  
<https://doi.org/10.2139/ssrn.3853065>
- Chakraborty, K., Mondal, S., & Mukherjee, K. (2019). Critical analysis of enablers and barriers in extension of useful life of automotive products through remanufacturing. *Journal of Cleaner Production*, 227, 1117-1135.
- Chorev, N. (2015). Narrowing the Gaps in Global Disputes: The Case of Counterfeits in Kenya. *Studies in Comparative International Development*, 50(2), 157–186. <https://doi.org/10.1007/s12116-015-9183-5>
- Darrow, J., & Kesselheim, A. (2023). *Promoting Competition To Address Pharmaceutical Prices*

- Datta, P., & Selvaraj, S. (2019). Medical Devices Manufacturing Industry. Estimation of Market Size and Import Dependence in India. *Economic & Political Weekly*, 5 (15), 46-53.
- Dubois, P., & Sæthre, M. (2020). On the Effect of Parallel Trade on Manufacturers' and Retailers' Profits in the Pharmaceutical Sector. *Econometrica*, 88(6), 2503–2545.  
<https://doi.org/10.3982/ECTA16039>
- Duso, T., Herr, A., & Suppliet, M. (2014). *The welfare impact of parallel imports: a structural approach applied to the German market for oral anti-diabetics*. Düsseldorf: DICE Discussion Paper, No. 137.
- Edwards, L., & Jenkins, R. (2015). The Impact of Chinese Import Penetration on the South African Manufacturing Sector. *The Journal of Development Studies*, 51(4), 447–463.  
<https://doi.org/10.1080/00220388.2014.983912>
- El Said, M. (2022). The Impact of 'TRIPS-Plus' Rules on the Use of TRIPS Flexibilities: Dealing with the Implementation Challenges. *Access to Medicines and Vaccines*, 297–327.
- Elgarhy, S. (2022). Effects of Service Quality, Loyalty Programs, Pricing Strategies, and Customer Engagement on Firms' Performance in Egyptian Travel Agencies: Mediating Effects of Customer Retention. *Journal of Quality Assurance in Hospitality & Tourism*.  
<https://doi.org/10.1080/1528008X.2022.2077889>
- Elodie, E. M., Le Cotty, T., & Jayne, T. (2013). Trade Policy Inconsistency and Maize Price Volatility: An ARCH Approach in Kenya. *African Development Review*, 25(4), 607–620.  
<https://doi.org/10.1111/1467-8268.12055>
- Flaen, A., Hortaçsu, A., & Tintelnot, F. (2020). The production relocation and price effects of US trade policy: the case of washing machines. *American Economic Review*, 110(7), 2103-27.
- Friedman, M. (2017). *Price theory*. Routledge.

- Goodchild, M., Paul, J., Iglesias, R., Bouw, A., & Perucic, A. M. (2022). Potential impact of eliminating illicit trade in cigarettes: a demand-side perspective. *Tobacco Control*, 31(1), 57-64.
- Gupta, R., Dhruva, S. S., Fox, E. R., & Ross, J. S. (2017). The FDA Unapproved Drugs Initiative: an observational study of the consequences for drug prices and shortages in the United States. *Journal of managed care & specialty pharmacy*, 23(10), 1066-1076.
- Hirshleifer, J., Glazer, A., & Hirshleifer, D. (2005). *Price theory and applications: decisions, markets, and information*. Cambridge University Press.
- Huang, H., He, Y., & Chen, J. (2019). Competitive strategies and quality to counter parallel importation in global market. *Omega*, 86, 173–197. <https://doi.org/10.1016/j.omega.2018.07.009>
- Iyengar, S., van den Ham, R., & Suleman, F. (2019). Chapter 2.5—Medicine Prices in Africa. In S. Vogler (Ed.), *Medicine Price Surveys, Analyses and Comparisons* (pp. 85–111). Academic Press. <https://doi.org/10.1016/B978-0-12-813166-4.00007-3>
- Kalekye, E., & Kariuki, W. (2020). Economic and Social Effects of Parallel Importation of Pharmaceutical Products on Organisational Performance in Pharmaceutical Firms in Kenya. *Editon Consortium Journal of Economics and Development Studies*, 2(1), 64-73.
- Kenya Pharmaceutical Industry. (2020). International Finance Corporation.
- Khalil, F., & Onyango, J. O. (2022). Effect of Patent Expiry on the Performance of Innovator Multinational Pharmaceutical Companies in a Low Middle Income Country. *Frontiers in Medical Technology*, 4. <https://www.frontiersin.org/articles/10.3389/fmedt.2022.783460>
- Koduah, A., Baatiema, L., de Chavez, A. C., Danso-Appiah, A., Kretchy, I. A., Agyepong, I. A., King, N., Ensor, T., & Mirzoev, T. (2022). Implementation of medicines pricing policies in sub-Saharan Africa: Systematic review. *Systematic Reviews*, 11(1), 257. <https://doi.org/10.1186/s13643-022-02114-z>

- Kombo, D., & Tromp, D. (2009). *Proposal and Thesis Writing: An Introduction*. . Nairobi: Pauline Publications Africa.
- Li, H., Shao, J., & Zhu, S. X. (2018). Parallel importation in a supply Chain: The impact of gray market structure. *Transportation Research Part E: Logistics and Transportation Review*, 114, 220–241. <https://doi.org/10.1016/j.tre.2018.04.006>
- Liu, X., & Pazgal, A. (2020). The Impact of Gray Markets on Product Quality and Profitability. *Customer Needs and Solutions*, 7(3), 62-73.
- Magretta, J. (2011). *Understanding Michael Porter: The Essential Guide to Competition and Strategy*. Harvard Business Press.
- Maqsood, S. M. (2021). Gray-market and its impacts on brand image: case for retail perfume industry.
- Mendez, S. J. (2016). Parallel trade of pharmaceuticals: the Danish market for statins. *St. Louis: Federal Reserve Bank of St Louis*.
- Motari, M., Nikiema, J.-B., Kasilo, O. M. J., Kniazkov, S., Loua, A., Sougou, A., & Tumusiime, P. (2021). The role of intellectual property rights on access to medicines in the WHO African region: 25 years after the TRIPS agreement. *BMC Public Health*, 21(1), 490. <https://doi.org/10.1186/s12889-021-10374-y>
- Muhunyu, J. G. (2012). Is doubling rice production in Kenya by 2018 achievable?. *Journal of Developments in Sustainable Agriculture*, 7(1), 46-54.
- Mukisa, N., Zamora, R., Tjing Lie, T., Wu, X., & Chen, G. (2021). Multi criteria analysis ranking of solar photovoltaic modules manufacturing countries by an importing country: A case of Uganda. *Solar Energy*, 223, 326–345. <https://doi.org/10.1016/j.solener.2021.05.078>
- Nzuma, J. M., Karugia, T. J., Wanjiku, J., Wambua, J., & Kirui, O. K. (2013). Staple food price volatility and its policy implications in Kenya. <https://ageconsearch.umn.edu/record/161525/>

- Obange, N., Onyango, G. M., & Siringi, E. M. (2011). Determinants of Sugar Market Performance under Imperfect Market Conditions: Empirical Evidence from Kenya. *African Research Review*, 5(1), Article 1. <https://doi.org/10.4314/afrev.v5i1.64505>
- Odhiambo, A., & Shikanda, H. (2023, April 17). *Runaway medicine prices making Kenyans sicker*. Nation. <https://nation.africa/kenya/business/runaway-medicine-prices-making-kenyanssicker--4201728>
- Ogendi, P. O. (2019). Pharmaceutical trade policies and access to medicines in Kenya. *African Human Rights Law Journal*, 19(2), 698–720. <https://doi.org/10.17159/1996-2096/2019/v19n2a7>
- Okereke, M., Adekunbi, A., & Ghazali, Y. (2021). Why Nigeria Must Strengthen its Local Pharmaceutical Manufacturing Capacity. *Innovations in pharmacy*, 12(4), 3-3.
- Ongarora, D., Karumbi, J., Minnaard, W., Abuga, K., Okungu, V., & Kibwage, I. (2019). Medicine Prices, Availability, and Affordability in Private Health Facilities in Low-Income Settlements in Nairobi County, Kenya. *Pharmacy: Journal of Pharmacy Education and Practice*, 7(2), 40. <https://doi.org/10.3390/pharmacy7020040>
- Onyango, A. O. (2014). Exploring options for improving rice production to reduce hunger and poverty in Kenya. *World environment*, 4(4), 172-179.
- Oritsematosan, D., & Agwu, E. (2018). *A Review of the Effect of Pricing Strategies on the Purchase of Consumer Goods* (SSRN Scholarly Paper 3122351). <https://papers.ssrn.com/abstract=3122351>
- Owiye, P. O., Naibei, I. K., & Momanyi, G. (2016). Effect of Trade Liberalization on Performance of Sugar Firms in Kenya: The Case of Government Owned Firms. *European Scientific Journal*, 12(13).
- Oyelude, S., & Egboh-Nwachukwu, C. (2023). *Parallel Import in Nigeria: The Federal Competition and Consumer Protection (FCCPA) Regime* (SSRN Scholarly Paper 4541213). <https://doi.org/10.2139/ssrn.4541213>

- Peiravian, F. (2014). Parallel Import: Is It Worth? *Iranian Journal of Pharmaceutical Research : IJPR*, 13(4), 1111–1114.
- Pharmacy Board Kenya. (2022). *Local Manufacturing Sites*. Retrieved from Public View of Local Manufacturing Sites Certificates Approved for the year 2022: [https://products.pharmacyboardkenya.org/ppb\\_admin/pages/manufacturers.php](https://products.pharmacyboardkenya.org/ppb_admin/pages/manufacturers.php)
- Rajkumar, S. (2020). The high cost of prescription drugs: Causes and solutions. *Blood Cancer Journal*, 10(6), 71. <https://doi.org/10.1038/s41408-020-0338-x>
- Robbins, R., & Jewett, C. (2024, January 17). Six Reasons Drug Prices Are So High in the U.S. *The New York Times*. <https://www.nytimes.com/2024/01/17/health/us-drug-prices.html>
- Roy, A., & Raju, J. S. (2011). The influence of demand factors on dynamic competitive pricing strategy: An empirical study. *Marketing Letters*, 22(3), 259–281. <https://doi.org/10.1007/s11002-010-9124-z>
- Scott, P. (2019). General system theory and the use of process mining to improve care pathways. *Applied Interdisciplinary Theory in Health Informatics: A Knowledge Base for Practitioners*, 263(11).
- Stern, A. D., Pietrulla, F., Herr, A., Kesselheim, A. S., & Sarpatwari, A. (2019). The impact of price regulation on the availability of new drugs in Germany. *Health Affairs*, 38(7), 1182-1187.
- Tenni, B., Moir, H. V., Townsend, B., Kilic, B., Farrell, A. M., Keegel, T., & Gleeson, D. (2022). What is the impact of intellectual property rules on access to medicines? A systematic review. *Globalization and health*, 18(1), 1-40.
- Tessema, F. A., Kesselheim, A. S., & Sinha, M. A. (2019). Generic but expensive: why prices can remain high for off-patent drugs. *Hastings LJ*, 71 (1019), 1020-1052.
- Tibandebage, P., Wangwe, S., Mackintosh, M., & Mujinja, P. G. (2016). Pharmaceutical manufacturing decline in Tanzania: How possible is a turnaround to growth?. *Making medicines in Africa: The political economy of industrializing for local health*, 45-64.

- Vandoros, S., & Kanavos, P. (2014). Parallel Trade and Pharmaceutical Prices: A Game-theoretic Approach and Empirical Evidence from the European Union. *The World Economy*, 37(6), 856–880. <https://doi.org/10.1111/twec.12063>
- Wang, Y., Lin, J., & Choi, T. M. (2020). Gray market and counterfeiting in supply chains: A review of the operations literature and implications to luxury industries. *Transportation Research Part E: Logistics and Transportation Review*, 133, 101823.
- Wenzel, M. C. (2018). Simplification, Debranding, And New Marketing Techniques: An Historical Analysis Of Brand Logo Design. *MSC, Colorado State University*.
- Wirtz, V. J., & Ravinotto, R. (2022). Enhancing Equitable Access to Essential Medicines and Health Technologies. *Making Health Systems Work in Low and Middle Income Countries: Textbook for Public Health Practitioners*, 320.
- Ziari, M., Ghomi-Avili, M., Pishvae, M. S., & Jahani, H. (2022). A review on competitive pricing in supply chain management problems: Models, classification, and applications. *International Transactions in Operational Research*, 29(4), 2082–2115. <https://doi.org/10.1111/itor.13082>
- Zikmund, W. G., Babin, B. J., Carr, J., & Griffin, M. (2013). *Business Research Method (9th ed)*. UK, UK: : Cengage Learning.

## APPENDICES

### Appendix I: Letter of Introduction

Lucy Mutungwa (admission number 150058), a student at Strathmore University (SU) is inviting you to participate in research study titled “The influence of parallel importation of drugs on competitive pricing strategies in pharmaceutical companies in Kenya.” The purpose of this research is to determine the effect of parallel imports on the use of competitive pricing strategy by pharmaceuticals firms in Kenya. Your participation involves answering a questionnaire for about 5-10 minutes. Your decision to participate in this study is completely voluntary. Your confidentiality and privacy is guaranteed. The information collected from this questionnaire will be used only for academic purposes. If need any clarification regarding the study, you can contact Lucy via testing or calling 0726678163 or emailing [lucy.mutungwa@strathmore.edu](mailto:lucy.mutungwa@strathmore.edu).



## Appendix II: Participant Information and Consent Form

### PARTICIPANT INFORMATION AND CONSENT FORM

#### THE INFLUENCE OF PARALLEL IMPORTATION OF DRUGS ON COMPETITIVE PRICING STRATEGIES IN THE KENYAN PHARMACEUTICAL INDUSTRY

##### SECTION 1: INFORMATION SHEET

**Investigator:** LUCY MUMBUA MUTUNGWA

**Institutional affiliation:** Strathmore Business School (SBS)

##### SECTION 2: INFORMATION SHEET–THE STUDY

###### 2.1: Why is this study being carried out?

This study seeks to evaluate how parallel imports influence pricing strategies

###### 2.2: Do I have to take part?

No. Taking part in this study is entirely optional and the decision rests only with you. If you decide to take part, you will be asked to complete a questionnaire to get information on the influence of parallel importation of drugs on competitive pricing strategies in Kenya. If you are not able to answer all the questions successfully the first time, you may be asked to sit through another informational session after which you may be asked to answer the questions a second time. You are free to decline to take part in the study from this study at any time without giving any reasons.

###### 2.3: Who is eligible to take part in this study?

Respondents will consist of supply chain managers, marketing and sales managers from pharmaceutical firms since they are involved in decision-making relating to pricing strategies of pharmaceutical companies

###### 2.4: Who is not eligible to take part in this study?

Anyone not in the pharmaceutical industry.

###### 2.5: What will taking part in this study involve for me?

You will be approached by a study representative and requested to take part in the study. If you are satisfied that you fully understand the goals behind this study, you will be asked to sign the informed consent form (this form) and then taken through a questionnaire to complete.

###### 2.6: Are there any risks or dangers in taking part in this study?

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

###### 2.7: Are there any benefits of taking part in this study?

The information will be used to improve the quality of pharmaceutical products getting into our country.

**2.8: What will happen to me if I refuse to take part in this study?**

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

**2.9: Who will have access to my information during this research?**

All research records will be stored in securely locked cabinets. That information may be transcribed into our database but this will be sufficiently encrypted and password protected. Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

**2.10: Who can I contact in case I have further questions?**

You can contact me, **LUCY MUMBUA MUTUNGWA** at SBS, or by e-mail [Lucy.mutungwa@strathmore.edu](mailto:Lucy.mutungwa@strathmore.edu) or by phone **(+254 726 678 163)**. You can also contact my supervisor, **Prof. Joseph Onyango**, at the Strathmore Business School, Nairobi, or by e-mail [JOnyango@strathmore.edu](mailto:JOnyango@strathmore.edu) or by phone **(+254 720 879 706)**

**If you want to ask someone independent anything about this research, please contact:**

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email [ethicsreview@strathmore.edu](mailto:ethicsreview@strathmore.edu) Tel number: +254 703034418

I, \_\_\_\_\_, have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please tick the boxes that apply to you;

**Participation in the research study**

I AGREE to take part in this research.

I DO NOT AGREE to take part in this research.

**Storage of information on the completed questionnaire**

I AGREE to have my completed questionnaire stored for future data analysis

I DON'T AGREE to have my completed questionnaire stored for future data analysis.

**Participant's Signature:**

\_\_\_\_\_

**Participant's Name:**

\_\_\_\_\_

*(Please print name)*

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**DD / MM / YEAR**

**Time:** \_\_\_\_ / \_\_\_\_

**HR / MN**

I, \_\_\_\_\_ (Name of person taking consent) certify that I have followed the SOP for this study and have explained the study information to the study participant named above, and that s/he has understood the nature and the purpose of the study and consents to the participation in the study. S/he has been given opportunity to ask questions which have been answered satisfactorily.

**Investigator's Signature:**

\_\_\_\_\_

**Investigator's Name:**

\_\_\_\_\_

*(Please print name)*

**Date:** \_\_\_\_/\_\_\_\_/\_\_\_\_

**DD / MM / YEAR**

**Time:** \_\_\_\_ / \_\_\_\_

**HR / MN**

### **Appendix III: Questionnaire**

This questionnaire is aimed at getting information from personnel within pharmaceutical firms on implication of parallel imports on competitive pricing among pharmaceutical firms and

accessibility to medicines in Kenya. I kindly ask for your assistance in answering the attached questions to the best of your ability. Kindly answer the following questions by ticking or marking the appropriate box or spaces provided. The information collected will only be used for academic purposes only; thus, the highest level of privacy and confidentiality is guaranteed. Your participation is highly appreciated.

### Section A: Demographic Information

#### Part A: Demographic Information

**1. What is your age bracket?**

- Below 35 years of age ( )
- 36-45 years ( )
- 46-55 years ( )
- Over 56 years ( )

**2. What is your gender identity?**

- Male ( )
- Female ( )

**3. What is your current educational attainment?**

- Graduate degree ( )
- Postgraduate degree ( )
- Others ( )

**4. How long have you been working within the pharmaceutical industry in Kenya?**

- Below 5 years ( )
- 6-10 years ( )
- 11-15 years ( )
- Over 16 years ( )

### Section B: Parallel Importation

Please indicate in the table with a tick (√) or across (×) with a scale of

5= very strong extent, 4= strong extent, 3= moderate extent, 2= small extent, 1= no extent at all

<i>Altered products</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
i. The firm engages in alternating some aspects of the pharmaceutical products in order to determine the pricing					
ii. The firm has obtained trademark licensing from global pharmaceutical manufacturers, which is factored during pricing					

<i>Unaltered products</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
i. The firm imports pharmaceutical products from other markets without changing products in any way					
ii. The firm imports pharmaceutical products from other markets without changing packaging in any way					

<i>Repackaged products</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
i. The firm repackages pharmaceutical products within the local market without affecting their original condition as a way of setting the optimal price					
ii. The firm ensures that the repackaged products do not damage the reputation of the trademark in order to beat its competitors in the market					

iii. The firm continuously notifies the trade mark owner before the sale of the repackaged products					
iv. The repackaged products clearly provide information on the manufacturer and importer in order to achieve a competitive advantage in the market					

<i>Rebranded products</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
i. The firm removes original trademarks on the packaging of our pharmaceutical products					
i. The use of rebranding approach allows the firm to have access to a substantial part of the market would be hindered as the result of strong resistance					
ii. The firm ensures there is strict adherence to regulatory, legal, safety and IP requirements for rebranded products.					

### Section C C: Competitive Pricing

Please indicate in the table with a tick (√) or across (×) with a scale of

*5= very strong extent, 4= strong extent, 3= moderate extent, 2= small extent, 1= no extent at all*

<i>Competitive Pricing</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
i. The firm conducts regular analysis of the pricing levels of other competitors					

ii.	The prices set by the firm is influenced by market factors, like supply and demand					
iii.	The company sets prices that matches or are slightly below the prices of competitors					
iv.	Costs are not considered when determining pricing					
v.	The pricing strategy adopted by the firm helps to sell more products and boost revenue					
vi.	The prices set by the company matches the value offered to customers					

#### Appendix IV: List of Pharmaceutical Firms

1. Laboratory & Allied Ltd
2. Tarta Africa pharma Ltd
3. Benmed Pharmaceuticals Ltd
4. Beta Healthcare International Limited
5. Medivet Products Ltd
6. Biodeal Laboratories Ltd
7. Cipla pharmaceuticals Limited
8. Medisel (Kenya) Limited
9. Innova Biologicals Ltd
10. Ray pharmaceuticals
11. Autosterile (Ea) Limited
12. Ivey Infusions Epz Ltd
13. Njimia (K) Limited
14. Glaxosmithkline (Kenya) Ltd
15. Biopharma Ltd

16. Macs Pharmaceuticals Ltd
17. Elys Chemical Industries Ltd. - Unit 1
18. Universal Corporation Ltd
19. Tru Pharma Limited
20. Regal Pharmaceuticals Limited
21. Benmed Pharmaceuticals Limited
22. Cosmos Limited
23. Meditec Ea Fairlife Limited
24. Ivey Aqua Epz
25. Biodeal Laboratories Ltd
26. Questa Care Ltd
27. Glenmark Pharmaceuticals Ltd. (Unit I)
28. Oss Chemie (K) Ltd
29. B. Braun Pharmaceuticals Epz Ltd.
30. Hightech Pharmaceuticals & Reseach Ltd
31. Abbot Pharmaceuticals
32. Getz Pharma Ltd
33. Stedam Pharma Manufacturing Limited
34. Krishna Healthcare Ltd
35. Elys Chemical Industries Ltd.-Unit 1
36. Vitabiotics pharma
37. Dinlas pharma Ltd
38. Dawa Limited
39. Zain Pharma Limited
40. Regal pharma Limited
41. Synermed healthcare
42. Laborex Pharmaceuticals Ltd Thika
43. Tropikal Brands (Afrika) Ltd



44. Macs Pharmaceuticals Limited
45. Merc serono Ltd
46. Phillips Pharma group limited
47. Square Pharmaceutical
48. Oss-Chemie (K) Ltd
49. Concept Pharma Ltd
50. Norvatis Phama
51. Biodeal Laboratories Limited
52. Aculife Healthcare Pvt Ltd. (Unit 5)



## Appendix V: Ethical Approval



13<sup>th</sup> May 2024

Ms Mutungwa Lucy,  
lucy.mutungwa@strathmore.edu

Dear Ms Mutungwa,

**RE: The Influence of Parallel Importation of Drugs on Competitive Pricing Strategies in the Kenyan Pharmaceutical Industry**

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** research proposal. Your application reference number is SU-ISERC2170/24. The approval period is from **13<sup>th</sup> May 2024 to 12<sup>th</sup> May 2025**.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
- v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Ambrose Rachier".

**Mr Ambrose Rachier,**  
Chairperson; SU-ISERC

Appendix VI: Research License

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
RefNo: 539935	Date of Issue: 30/May/2024
<b>RESEARCH LICENSE</b>	
	
<b>This is to Certify that Miss.. Lucy Mumbua Mutungwa of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: THE INFLUENCE OF PARALLEL IMPORTATION OF DRUGS ON COMPETITIVE PRICING STRATEGIES IN THE KENYAN PHARMACEUTICAL INDUSTRY. for the period ending : 30/May/2025.</b>	
License No: NACOSTI/P/24/35955	
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See overleaf for conditions	

## Appendix V: Budget

STUDENT NAME: Lucy Mumbua Mutungwa

STUDENT NO: 150058

RESEARCH TOPIC: THE INFLUENCE OF PARALLEL IMPORTATION OF DRUGS ON COMPETITIVE PRICING STRATEGIES IN THE KENYAN PHARMACEUTICAL INDUSTRY

### STUDY BUDGET

Item No.	Item	Amount (Ksh.)
1.	Research tools, printing, photocopies.	6,000
2.	Travel Expense and communication	20,000
3.	Pilot study	4,000
4.	Payments for data collectors	50,000
5.	Contingencies	10,000
<b>Total</b>		<b>90,000</b>