



The effects of Trade barriers on the price determination of imported medical equipment in Ethiopia

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Declaration

I Kehulubelay Hussen, the under signed, declare that this thesis entitled: **“The effects of Trade barriers on the price determination of imported medical equipment in Ethiopia”** is my original work. I have undertaken the research work independently with the guidance and support of my research supervisor. This study has not been submitted for any degree or diploma program in this institution and that all sources of material used for the thesis has been duly acknowledged.

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Certificate of Approval

This is to certify that the thesis entitled: **The effects of Trade barriers on the price determination of imported medical equipment in Ethiopia** submitted in partial fulfillment of the requirements for the degree of master of Business Administration to Addis Ababa University is a record of original research carried out by **Kehulubelay Hussen** under my supervision, and no part of thesis has been submitted for any other degree or diploma. The assistance and help received during the investigation have been duly acknowledged. Therefore, I recommend it to be accepted as fulfilling the thesis requirements.

Name of advisor

Signature

Date

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Acronyms /Abbreviations

ANOVA = Analysis of variance

SPSS =Statistical Package for Social Sciences

VIF =Variance Inflation Factor

EFDA = Ethiopian Food and Drug Authority

ECC = Ethiopian Custom Commission

WHO = world Health Organization

WTO = World Trade Organization

UHC = Universal Health Coverage

CBHI = Community Based Health Insurance

OOP = Out Of Pocket Health Expenditure

NTM = Non-Tariff measure

Abstract

Despite the price of medical equipment is expensive globally, most of the medical equipment importers have mentioned that trade barriers have also great influence on price of imported medical equipment. To put it simply, trade barriers are interventions in global markets. The study's objective was to determine the effects of Trade barriers on the price determination of imported medical equipment in Ethiopia. Therefore, it made an effort to determine which factors have the greatest influence on the price of imported medical equipment, look into government regulatory issues related to imports, evaluate how trade barriers affect the pricing strategies of suppliers and manufacturers of medical equipment, and learn how importers perceive the price of imported medical equipment. To this goal, a descriptive and explanatory study design was used in conjunction with a qualitative method. With a cross-sectional study survey, the study used an inferential and descriptive research approach. A qualitative investigation of 187 importers of medical equipment in Addis Ababa. Utilizing the census method. The study employed both qualitative and quantitative data collection techniques. SPSS version 27.0 was used for the analysis of the quantitative data, which were gathered via structured questionnaires. Additionally, to correlate the results with the findings of the descriptive analysis, qualitative data was gathered using case studies on three specific items of medical equipment. The results of the study show that the price of imported medical equipment is significantly impacted by shortages of foreign currency and incorrect custom valuation factors; tariff factors (tax and duty) only slightly raise the equipment's cost. Product registration affects the price of imported medical equipment by limiting the number of brands that can enter the market, however, its precise effect is unknown. The following recommendations have been delivered: the Ethiopian Food and Drug Authority (EFDA) should review the documentation requirements for product registration and eliminate unnecessary documents; the banks should provide foreign currency to importers of medical equipment; the customs office should implement a mechanism that allows them to know the correct price of the imported equipment instead of calculating tax based on estimating the price; and finally, the EFDA should implement a system to expedite the registration process.

Key words: Tariff Barriers, Product Registration, Custom Valuation, Foreign Currency Regulation, and price of medical equipment.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Trade barriers like taxes, import quotas, and requirements for product registration can have a big influence on how much imported medical equipment costs. These obstacles may raise the price of imported medical equipment by adding to the expenses and complications of the procurement process. (Wang, 2001). To maintain affordable access to high-quality medical equipment, policymakers, healthcare providers, and medical equipment producers must comprehend the precise implications of trade barriers on price determination.

Trade barriers refer to the constraints or limitations that partners in a trade must contend with. Trade barriers impose restrictions that impede the flow of products. (Helble, 2017) In economics, trade barriers typically refer to the limitation of international trade, even though it is conceivable on a domestic level as well (trade between countries). Most people agree that these obstacles reduce economic efficiency, which makes them an adverse factor in economics. This is a result of the enormous advantages associated with global trade. In essence, international commerce enables countries to outsource their manufacturing to reduce costs and operate more profitably. Countries' potential for production and consumption can be severely limited when this economic tool is hampered, which results in slower national growth. (Helble, 2017)

The development of global trade in all medical goods since 2002. The bulk of international trade in health items is accounted for by North America, Europe, and Central Asia. Nonetheless, from 81.9% in 2002 to 74.0% in 2014, their total share decreased (Jowett M, 2016). Consequently, the proportion of regions containing developing nations increased gradually. East Asia and the Pacific had a rise in its percentage, from less than 11.7% in 2002 to 16.0% in 2014. Sub-Saharan Africa (from 0.6% to 1.2%), and South Asia (from 0.1% to 1.5%) saw the biggest relative increases (CDC, 2020). Using the membership in the Organization for Economic Co-operation and Development (OECD) as a guide, we can see that, in 2014, the population share of non-OECD countries was approximately 83% of the global total, while only 24% of those imports were health products (H., 2019). This is demonstrated by using South Asia as an example. Despite accounting for 24% of

global population, South Asia only receives 1.5% of the health items traded abroad. Of course, a considerable amount of health items are produced in that area, but in certain situations, switching from local to imported manufacture could lead to increased costs or restricted access to premium types. (Alebachew A, 2015)

All health services should ideally be available, reasonably priced, and of a sufficient caliber. (WHO, 2010). Advises that a health system should be built on stable policies and resources, such as skilled personnel, technology, financing, access to necessary medications, and effective governance. However, obstacles to receiving quality healthcare in Ethiopia have been recognized, including a growing population, insufficient resources, lax regulatory frameworks, and antiquated technologies (Tamirat, et al., 2020). Ethiopia has been establishing preventative health policies arranged in a three-tiered service delivery structure to address these problems (Alebachew, 2015). Major health issues in the past have been communicable diseases such HIV/AIDS, malaria, diarrheal illnesses, tuberculosis, and upper respiratory infections (CDC, 2020). However, the incidence of non-communicable diseases (NCDs) is dangerously rising (Misganaw, et, al., 2014, Shiferaw, et, al., 2018). According to Dombrovskiy (2020), NCDs are predicted to cost Ethiopia more than \$1.1 billion, or 1.8% of GDP, indirect costs, and more than \$951.5 million indirectly due to lost productivity (Shiferaw F, 2018). The issue is made worse by the expensive and limited availability of NCD medications. (Tamirat KS, 2016)

The government has acted to update its health policies and initiatives to boost domestic pharmaceutical manufacturing and lessen the effects of NCDs. (Dombrovskiy V, 2020) To achieve this, significant expenditures have been made in human resource development, health information systems, logistics management, and infrastructure (FMOH, 2019a). According to the 7th National Health Account, improvements were also made in a few important health system metrics between 2014 and 2017 (FMOH, 2019). The overall amount spent on health care climbed from \$2.52 billion to \$3.2 billion; government spending went from 30% to 32%; per capita spending jumped from \$28.6 to \$33.22; and out-of-pocket spending decreased from 33% to 31%. Health spending per capita, however, is still significantly below the \$60 minimum suggested for providing basic healthcare services and below the \$37.70 minimum suggested for low-income nations (Jowett et al., 2016). 39% of all health expenditures were spent on prescription drugs, with out-of-pocket spending making up the largest portion. Only 15% of health spending goes toward managing non-

communicable diseases (NCDs); the other half goes toward infectious diseases (FMOH, 2019b). It is anticipated that the introduction of health insurance plans and changes to healthcare financing will increase equity and accessibility (Zegele, 2019).

1.2. Statement of the Problem

Despite significant progress towards achieving universal health coverage (UHC), healthcare in Low and Middle-Income Countries remained inaccessible and inequitable due to high out-of-pocket healthcare expenditure (WHO, 2010). The rapid growth of healthcare costs is a great concern for both households and governments of developing countries including Ethiopia. All across the world healthcare is becoming more expensive partly due to the rapid advancements in medical technology (High-tech medical equipment). (Damon, 2024). Nowadays the price of imported medical equipment in Ethiopia is increasing rapidly, due to this price increase accessing proper healthcare service is unaffordable for the majority of the population in the country. (Eze, 2018).

Despite the price of medical equipment is expensive globally, most of the medical equipment importers have mentioned that trade barriers have also great influence on limiting the number of brands of medical equipment imported to the country and increasing the price in the market. Although trade barriers have an impact on limiting product availability in the market and increasing product prices, as far as the knowledge of the researcher there are no studies made in Ethiopia which show exactly to which extent these barriers have an impacts on the price of medical equipment in the market.

Assessing the impact of trade barriers on the price of imported medical equipment will provide an insight for different governmental offices and regulatory authorities to review some of their rule and regulations and to change their system which need to be changed. So this study aims to understand the exact impact of trade barriers on the price of imported medical equipment, using statistical analysis the researcher will show the impact of each trade barriers on the price of imported medical equipment, and as trade barriers the study mainly focused on tariff barrier, product registration/regulation, custom valuation practices, and foreign currency regulation.

1.3 Research Questions

- ✓ Does trade barriers have an impact on the price determination of imported medical equipment in Ethiopia?
- ✓ Does Tariff barriers have an impact on the pricing of imported medical equipment in Ethiopia?
- ✓ Does Product regulation/registration have an impact on the pricing of imported medical equipment in Ethiopia?
- ✓ Does custom valuation have an impact on the pricing of imported medical equipment in Ethiopia?
- ✓ Does foreign currency regulation have an impact on the pricing of imported medical equipment in Ethiopia?
- ✓ Which factors that highly affect the price determination of imported Medical equipment in Ethiopia?

1.4 Objectives of the Study

1.4.1 General objective:

This study aims to examine the effect of trade barriers on the price determination of imported medical equipment.

1.4.2 Specific objective:

- ✓ To identify the effect of tariff barriers on the price determination of imported medical equipment in Ethiopia.
- ✓ To identify the effect of product regulation/registration on the price determination of imported medical equipment in Ethiopia.
- ✓ To identify the effect of custom valuation on the price determination of imported medical equipment in Ethiopia.
- ✓ To identify the effect of foreign currency regulation on the price determination of imported medical equipment in Ethiopia.
- ✓ To identify which factors that highly affect the price determination of imported Medical equipment.

1.5 Significance of the study

This study will help for the owners of medical equipment importer companies to better understand the influence of trade barriers on the price determination of the imported medical equipment in the local market. In addition, it will create a clear understanding for trade barriers association about the influence of the price determination of the imported medical equipment consumers purchase decision is critical to ensure that a company's marketing efforts are matched with the needs of consumers decision. Moreover, it will enhance theoretical knowledge of the researcher about the trade barriers on the price determination of the imported medical equipment perception on it. Finally, it will help for any other researchers who have interest to conduct study in this area can uses as the benchmark or literature.

1.6 Scope of the Study

The scope of this study will be delimited conceptually, geographically and methodologically. Conceptually, the study is delimited on trade barriers that how it will affect the price determination of the imported medical equipment. Geographically, this study will be conduct in Addis Ababa. This geographical limitation is not only chosen because of time, access and budget restriction, but also it is believed that a considerable number of medical equipment importers are available in Addis Ababa. Due to urbanization, education, exposure to international media and globalization people life style is changing and they are becoming more conscious about their health. More specifically data will be collect from the importers of medical equipment. The time is delimited to measure consumers buying decision on the price determination of the imported medical equipment based on the data collected from March to April 2024. Methodologically, this study will uses mixed research approach that the data collection design with cross sectional.

1.7 Definition of Key terms

Custom valuation: Customs valuation is the determination of the economic value of goods declared for importation.

Medical equipment: instrument, apparatus, or machine that is used in the prevention, diagnosis, or treatment of illness or disease, or for detecting, measuring, restoring, correcting, or modifying the structure or function of the body for some health purpose.

Product reregistration: including a product in the list of products that can be imported to the country after evaluating its safety and quality issues by the Ethiopian Food and Drug Authority (EFDA).

Trade barrier: A trade barrier refers to any regulation or policy that restricts international trade, especially tariffs, quotas, licenses, payment terms, and registration requirements.

1.8 Organization of the paper

The arrangement of the research paper organized into five chapters and appendix and reference. The first chapter deals with the introduction part of the study which includes a background of the study, statement of the problem, the objective of the study, research question, significance of the study, the scope of the study, and definition terms. The second chapter the literature review part discusses trade barriers on imported medical equipment, and related issues. The third chapter focused on research design and methodology. The fourth chapter contains the finding and data analysis part of the study where primary and secondary data collected from various sources is analyzed and presented. The last fifth chapter focused on the final result of the study finding, conclusion, and recommendation.

CHAPTER TWO

RELATED LITERATURE REVIEW

This chapter examines pertinent research on the impact of trade barriers on the price determination of imported medical equipment. It fully encapsulates the definition and concepts of trade barriers, tariff barriers, non-tariff barriers, custom valuation, procedures for approving foreign currency, requirements for registering medical equipment, and medical equipment pricing. Lastly, included are the research gap and conceptual framework.

2.1 Theoretical Literature Review

2.1.1 Trade theories

According to Mercantilism theory a country's wealth was determined by the amount of its gold and silver holdings (Blitz, 1979). In its simplest sense, mercantilists believed that a country should increase its holdings of gold and silver by promoting exports and discouraging imports. In other words, if people in other countries buy more from you (exports) than they sell to you (imports), then they have to pay you the difference in gold and silver. The objective of each country was to have a trade surplus, or a situation where the value of exports is greater than the value of imports, and to avoid a trade deficit, or a situation where the value of imports is greater than the value of exports.

Although mercantilism is one of the oldest trade theories, it remains part of modern thinking. Countries such as Japan, China, Singapore, Taiwan, and even Germany still favor exports and discourage imports through a form of neo-mercantilism in which the countries promote a combination of protectionist policies and restrictions and domestic-industry subsidies. Nearly every country, at one point or another, has implemented some form of protectionist policy to guard key industries in its economy. While export-oriented companies usually support protectionist policies that favor their industries or firms, other companies and consumers are hurt by protectionism. Taxpayers pay for government subsidies of select exports in the form of

higher taxes. Import restrictions lead to higher prices for consumers, who pay more for foreign-made goods or services. Free-trade advocates highlight how free trade benefits all members of the global community, while mercantilism's protectionist policies only benefit select industries, at the expense of both consumers and other companies, within and outside of the industry.

In 1776, Adam Smith questioned the leading mercantile theory of the time in *The Wealth of Nations*. Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (W. Strahan and T. Cadell, 1776). Recent versions have been edited by scholars and economists. Smith offered a new trade theory called absolute advantage, which focused on the ability of a country to produce a good more efficiently than another nation. Smith reasoned that trade between countries shouldn't be regulated or restricted by government policy or intervention. He stated that trade should flow naturally according to market forces.

Smith's theory reasoned that with increased efficiencies, people in both countries would benefit and trade should be encouraged. His theory stated that a nation's wealth shouldn't be judged by how much gold and silver it had but rather by the living standards of its people.

The challenge to the absolute advantage theory was that some countries may be better at producing both goods and, therefore, have an advantage in *many* areas. In contrast, another country may not have *any* useful absolute advantages. To answer this challenge, David Ricardo, an English economist, introduced the theory of comparative advantage in 1817. Ricardo reasoned that even if Country A had the absolute advantage in the production of *both* products, specialization and trade could still occur between two countries. (Brown, 2018).

Comparative advantage occurs when a country cannot produce a product more efficiently than the other country; however, it *can* produce that product better and more efficiently than it does other goods. The difference between these two theories is subtle. Comparative advantage focuses on the relative productivity differences, whereas absolute advantage looks at the absolute productivity.

The theories of Smith and Ricardo didn't help countries determine which products would give a country an advantage. Both theories assumed that free and open markets would lead countries and producers to determine which goods they could produce more efficiently. In the early 1900s, two

Swedish economists, Eli Heckscher and Bertil Ohlin, focused their attention on how a country could gain comparative advantage by producing products that utilized factors that were in abundance in the country. Their theory is based on a country's production factors—land, labor, and capital, which provide the funds for investment in plants and equipment. (Lundahl, 2015). They determined that the cost of any factor or resource was a function of supply and demand. Factors that were in great supply relative to demand would be cheaper; factors in great demand relative to supply would be more expensive. Their theory, also called the factor proportions theory, stated that countries would produce and export goods that required resources or factors that were in great supply and, therefore, cheaper production factors. In contrast, countries would import goods that required resources that were in short supply, but higher demand.

2.1.2 The concept of Trade barriers

Trade barriers are restrictions or limitations faced by parties involved in a trade. Restrictions caused by trade barriers hinder the transfer of goods. Although possible on a domestic level, in economics, trade barriers usually refer to the restriction of international trade (trade between countries). It is generally agreed upon that these barriers are a negative factor in economics as they normally decrease economic efficiency. This is due to the tremendous benefits that are found in international trade. International trade essentially allows nations to outsource the production of goods in order to save money, functioning more profitably. When hindered from this economic tool, countries' production and consumption capacity can be severely capped, making for slower national growth.

While most extant research confirms that NTMs have an impact on trade, it also suggests that these effects are detrimental to low-income nations. According to Maskus et al.'s 2005 estimate of the cost of compliance with standards and regulations, exporting companies may have to pay more to adhere to the laws and regulations that their trading partners impose. According to Chen et al. (2006), norms and technical restrictions by rich nations hurt imports from developing nations. These policies hurt businesses' inclination to export and their ability to diversify by accessing more markets in developing nations. Import barriers raise domestic prices for imported goods, which helps the country's production grow. On the other hand, they cause the country's import prices to fall globally, which could counteract the initial rise in domestic prices for imported goods (Metzler's paradox theory).

Young industries theory by Alexandro et al. states that protection from foreign competition enables emerging companies to reach economies of scale more quickly, increasing the competitiveness of their products in international marketplaces. New industries may have greater production costs than their more established international rivals. Subsidies and other forms of governmental regulation of foreign entities necessitate state intervention. The term "trade barriers" describes the impediments imposed by governments to restrict open trade between economies. To put it another way, trade barriers are basically interventions in global markets. Tariffs (taxes) on imports (and sometimes exports) and non-tariff trade barriers like import quotas, domestic industry subsidies, trade embargoes (usually imposed for geopolitical reasons), and licenses to import goods into the economy are examples of trade barriers (Tom McKenzie, 10 February 2020).

According to the idea of comparative advantage, nations will benefit from international trade with one another as long as they have access to resources in varying proportions (i.e., at varying relative costs). They only need to invest in the sectors of the economy where domestic production is most productive to reap these benefits from trade, and they can then trade for other items that meet domestic demand. When considering economies in this way, trade restrictions lead to a deadweight loss. Because they are always looking for ways to be more efficient, economists generally concur that free trade agreements are beneficial and that trade obstacles should be avoided. Nevertheless, as more governments adopt a protectionist approach to their economy, trade barriers are becoming ubiquitous worldwide.

Although free trade generally benefits nations overall, as more nations join the global economy, production rivalry increases and causes losses for some domestic groups. Certain industries may experience pressure on wages and employment. Theoretically, retraining and shifting employment to more productive sectors of the economy can help offset the loss of a less productive domestic industry. Yet, since retraining takes time, trade barriers may have an earlier impact. Therefore, many voters and politicians seeking an easy solution embrace trade barriers. Over time, this leads to nations using tariffs and subsidies to support inefficient domestic industries, which results in additional deadweight loss. McKenzie, Tom. February 10, 2020.

Any business must consider pricing, and choosing the appropriate price can be difficult. Companies may be unable to grow their revenue, penetrate new markets, or maintain their competitiveness if they have pricing obstacles. They may also prevent companies from realizing the benefits they provide (Steve Gaskell, 2023).

One of the most frequent problems with doing business in Ethiopia is the unclear nature of the government procurement system, which shows up in problems like canceled tenders. The challenges are further compounded by poor infrastructure, onerous bureaucratic procedures, a lack of coordination, inefficiencies within government agencies, and frequent turnover in positions of high decision-making authority, a complicated tax system, a dearth of foreign currency, and expensive transaction and transportation costs. The National Bank of Ethiopia strictly regulates the process of securing foreign exchange, which presents challenges for importers, particularly those bringing commodities into the country for distribution. Larger companies, state-owned businesses, and some manufacturing sectors usually have little trouble acquiring foreign exchange, but smaller organizations frequently face protracted delays in enabling trade-related payments. Before beginning any orders, importers must get import permission and a letter of credit covering the entire import value. (U.S. Department of Commerce, Administration of International Trade, 2024).

2.1.3 Factors affecting the price determination of imported medical equipment in Ethiopia.

2.1.3.1 Tariff barriers

Tariffs are a type of trade barrier imposed by countries to raise the relative price of imported products compared to domestic ones. Tariffs typically come in the form of taxes or duties levied on importers and are eventually passed on to end consumers. They're commonly used in international trade as a protectionist measure, to advantage domestic producers and raise revenue.

International trade increases the number of goods that domestic consumers can choose from, decreases the cost of those goods through increased competition, and allows domestic industries to ship their products abroad. While all of these effects seem beneficial, it has been argued that free trade isn't beneficial to all parties. Ethiopian customs commission imposed tariffs on imported medical equipment in the form of tax and duty, its amount is 8% of the price of the imported equipment.

2.1.3.2 Non-Tariff Barriers

Non-tariff barriers to the import of pharmaceuticals and medical equipment in Ethiopia are classified as Registration requirements, *Customs valuation*, *Foreign Currency*, and *Import Licenses* (Sadiq, 2020).

2.1.3.2 Registration requirements for medical equipment

Guidelines for the registration of medicinal items are released by the Ethiopian Food and Drug Authority, according to this guideline, all producers worldwide must register both their products and medical supplies. Additionally, an agency agreement between the product's maker and the agent in charge of its import, distribution, and sale in Ethiopia must be submitted by the manufacturer for the product to be registered (EFDA, 2020).

In addition to overseeing the importation of medical equipment to ensure its safety and quality, the Ethiopian Food and Drug Authority (EFDA) is a governmental body that is in charge of product registration. However, the majority of importers have expressed concerns about the necessity of some of the documents required for product registration, citing concerns about their lack of significance and the excessively long registration process, which typically takes six months to complete for a single product. Because of this, the majority of importers would rather import goods that are already registered than register new brands (Sadiq, 2020).

2.1.3.3 Custom valuation

Importers criticize the custom valuation system, even though medical equipment has lower tax and duty rates than other imported goods. They claim that the Ethiopian Customs Commission generally requests tax and duty on imported medical equipment by estimating the equipment's price rather than considering the product's invoice from the manufacturer, which results in incorrect tax valuation. (Sadiq, forthcoming) To calculate the precise amount of any customs tax that must be paid, the customs value is crucial (Erkie, 2016). A significant part of the customs clearance process is customs value. "The determination of the amount upon which the rate of duty is calculated" is the definition of customs valuation. Ad valorem duties, or a rate stated as a

proportion of the value of the imported items, are the foundation for the majority of import tariffs (Marsha Sisay, 2016).

2.1.3.4 Foreign Currency

For individuals looking to participate in foreign sourcing, the Ethiopian government's low levels of foreign exchange reserves present a constant obstacle. The necessity to pay off the foreign debt that was taken on to fund earlier infrastructure projects has made this reserve loss worse (Sadiq, 2020). Permits are required for all overseas payments, and any foreign exchange transaction must go through approved dealers under NBE supervision. Ethiopian domestic accounts must be used to finance imports. The NBE still has the power to authorize sizable foreign exchange allocations even though commercial banks now handle the majority of their foreign exchange transaction duties. Commercial banks provide import/export permits to importers and exporters. Additionally, exporters are expected to sell the remaining 70% of their foreign exchange earnings to commercial banks within four weeks, but they are allowed to keep 30% of their earnings permanently. Investors from other countries are free to send all of their gains home. (U.S. Department of Commerce, Administration of International Trade, 2024).

The lack of foreign currencies resulting from poor export performance and strong demand for foreign currency will continue to be a major barrier to the market, especially for prospective Ethiopian buyers of products and services from the United States. Concerns about foreign exchange scarcity and its negative effects on the private sector's activities are common. As a result, NBE regulations require commercial banks to assign foreign exchange to importers by debt commitments and GTP II priorities. When competing for access to foreign exchange, state-owned businesses and government-sponsored infrastructure projects usually take precedence over the private sector. For the foreseeable future, businesses will continue to face difficulties with foreign exchange availability due to the previous underperformance of exports and the increasing demand for imported capital goods. Private sector organizations are implementing tactics like working with export-oriented partners and obtaining inputs locally to lessen this. (International trade administration U.S. Department of Commerce., 2024). According to the National Bank of Ethiopia, Medical equipment is one of the things that receive precedence for the approval of foreign currency, even though the lack of foreign currency is currently a major issue for all

Ethiopian businesses. However, importers are complaining that banks aren't able to provide them with foreign currency, so they're purchasing it at the black market rate.

2.1.3.5 Import Licenses

As per the provisions of Article 43 of the Commercial Registration and Business Licensing Proclamation No. 980/2016, the Ministry of Trade is authorized to prohibit the import or export of specific goods and services, subject to the national interest and with the consent of the Council of Ministers. Additionally, it may allow the import or export of commodities by those without an import or export license. Furthermore, certain licenses also grant permission to import; for example, an investment license can be used to import investment items.

Pre-import authorization required for certain Ethiopian items that are limited, as well as sanitary and phytosanitary standards. Medical equipment is one of the commodities that cannot be imported into Ethiopia for reasons related to safety, security, the environment, health, and other factors. The regulatory body that grants approval for the import of medical equipment is called EFDA.

Approval for a foreign exchange payment and the unstable state of foreign exchange availability. An essential first step in any international commercial transaction, whether conducted through a bank or franco-valuta, is the payment of foreign currency. Making a bank payment involves two steps. First, authorization in foreign currency needs to be acquired. The importer will be able to pay for the imported products in foreign currency with this approval, which is required by the in place foreign exchange regulations. If the items are being imported on a franco-valuta basis—which is only feasible in extraordinary circumstances and in situations where no foreign exchange is payable—a foreign currency approval is not necessary. Second, the importer's bank must approve the payment arrangements. Approvals for foreign exchange must be obtained through the importer's bank account, which will be utilized for the import. The importer is required to include a pro forma invoice from the supplier and a copy of their current business license with their request. It follows that to import, you must have a bank account. As an alternative, the mining, industrial, or investment license may be shown. In addition to listing any additional fees that might be incurred throughout the transaction, the pro forma invoice should include a description of the imported items, the unit price, quantity, and total price.

At the moment, commercial banks issue and electronically process permissions for foreign exchange; the length of time it takes to get approval depends on the availability of the desired foreign exchange. Making arrangements with the bank for the payment method and obtaining a bank permit constitutes the second task related to the payment concerns. In this context, Ethiopia uses the following payment methods for imports:

Letter of credit (L/C), whereby the bank agrees to pay the supplier a predetermined amount of money within a specified window of time in exchange for the supplier providing the paperwork required for the goods to be released from customs;

Cash against document (CAD), in which the importer receives the necessary documentation from the importer's bank in exchange for full payment to release the items from customs;

Advance payment, when the importer instructs the bank to send money to the seller via SWIFT before the seller ships or provides the service. The importer must have a bank account and the necessary authorized foreign currency (obtained in the previous step) in order to use any of the payment options. Unnecessary delays occur in foreign currency approvals because of the National Bank of Ethiopia's unstable foreign currency reserves.

2.2 Empirical Literature Review

In 2010, the International Trade Center focused on antimalarial medicines and conducted one of the few surveys on NTMs (International Trade Center 2011). 29 importers and 6 exporters of antimalarial products—the bulk of whom were based in poor countries—participated in the phone survey. Despite the relatively small sample size, the results clearly show that NTMs constitute a considerable barrier to international trade in health products. The authors found that, with 60% of interviewees expressing heavy NTMs, only international organizations and nongovernmental groups did not report major NTMs. The criteria for product registration and inspection were the subject of the most often reported NTM.

Nearly half of NTMs were thought to be onerous because of lengthy administrative processes, exorbitant fees, a lack of transparency, and the requirement for bribes. There have been numerous reports of product registrations taking several months or even a year. Due to port congestion and customs' limited capacity, inspections at customs appear to take a lengthy time. In addition, several

respondents stated that they were required to pay supplementary fees and taxes, which varied from 5% to 10%, in addition to customs duties. Lastly, the high cost of transportation both inside and between nations drives up the price of medications. The survey conducted by the International Trade Center regarding antimalarial medications demonstrates how NTMs significantly raise the ultimate cost of healthcare products (Misganaw A, 2014).

The main and longest-taking workflow of the customs clearance procedure involves issues with product valuation and products classification. The clearing procedure will be significantly impacted by any delay or issue in these areas (Fiker Yigletu 2020). Particularly for new and diverse products, products imported by importers with little prior experience, and products accused of undervaluation, valuation might not be as simple. Every importer is concerned about the time it takes to clear goods. The movement of products at the port or customs office is impacted by reducing the time required for clearance, which is dependent on the custom valuation of commodities (Marsha Sisay, 2016).

According to Tsegaye Teklu and Endris Negus (2011), thirty percent of all import items have valuation issues most of the time. Commercial invoices are used to complete declarations, according to a study by Minwagaw, however there is a good probability that the commercial invoices will be rejected by customs officers when they are used as the foundation for customs valuation. The office's suspicion of the importers is the reason for this. Customs officers refuse to accept the invoices that importers present, notwithstanding their claims that they are authentic. The issue is that, according to Minwagaw Erkie (2016), customs officers have the authority to reject bills if they feel that any one or more of the Proclamation's provisions have not been satisfied. Matthias Helble's (2012) study demonstrates that tariffs affect the ultimate cost of health items. Although it primarily examined the effect of tariffs on prices, it also noted the influence of non-tariff measures on health product prices.

Non-tariff barriers affect the price that consumers pay for drugs, according to a poll conducted in 2011 by Ursula Hermelink and Carla Vaca-Eyzaguirre, even though the researcher is not aware of any empirical research conducted in Ethiopia in this area. Eight out of the 21 reported NTM cases, or more than one-third, are linked to product registration in the nation of import, according to the study. Five cases noted how onerous inspection procedures were, and two mentioned how difficult product testing measures were. Over 70% of instances that have been documented can be attributed

to these first three groups combined. According to the survey, 38.1% of all NTMs mentioned in the survey had to do with product registration, making it the regulation that respondents found most difficult to comply with. Product accessibility to the general public was delayed in five of these eight cases (62.5%) due to issues with product registration. According to the poll, issues with product registration have always resulted in a decrease in the product's price.

According to a study conducted by Fiker Yigletu (2020), custom valuation and goods classification are two of the elements that influence the custom clearance of pharmaceuticals at Bole Airport. In this survey, 25.6% of participants stated that an issue with products categorization and valuation is the reason for the delay in customs clearance. In a related survey, it was strongly agreed (by 60.8%) and agreed (by 35.7%) that Ethiopian revenue and customs authority's overall performance in customs valuation practice is unacceptable. According to the findings, almost 95% of importers are dissatisfied with the Ethiopian Revenue and Customs Authority's custom valuation procedure or system (Mersha Sisay 2016).

According to the results of a study on the estimation of non-tariff barriers' price effects, core NTBs continue to be extremely restrictive for a wide range of traded items and countries. Although NTBs and tariffs seem to go hand in hand, in some industries the tariff's pricing impact is lessened in the presence of the tariff. The findings also imply that, in certain industries, the degree of NTB restriction is strongly associated with the GDP of the nation (Judith M. Dean, Robert Feinberg, José E. Signoret, Michael Ferrantino, and Rodney Ludema, November 2008).

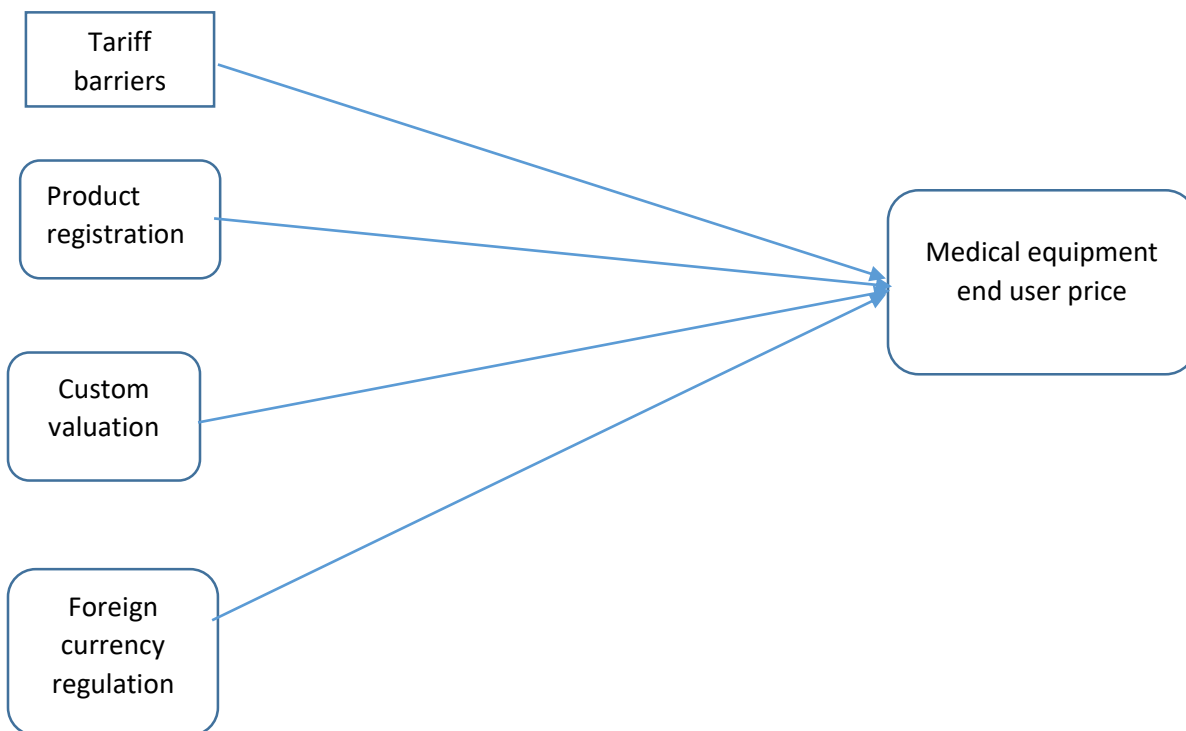
The findings of a study on the evaluation of price effects of non-tariff barriers indicate that core NTBs remain very restrictive for a variety of traded goods and nations. NTBs and tariffs appear to go hand in hand, although in some industries the tariff reduces the influence of the price tariff. According to the studies (Judith M. Dean, Robert Feinberg, José E. Signoret, Michael Ferrantino, and Rodney Ludema, November 2008), there appears to be a considerable correlation between the

According to Bauer, and Matthias' study, the final cost of a medicinal product in the BRICS-MINT countries is significantly increased even by low nominal import tariffs and tariff equivalents associated with ineffective trade facilitation procedures. The study also reveals that, depending on the characteristics of each country, the total financial burden borne by end users in the importing

countries varies from 6 to 11 percent of the import value in Turkey to 39 to 80 percent of the import value in Brazil and India. Matthias Bauer (2017).

The results of Matthias Helble's study provide conclusive proof that developing nations impose tariffs and non-tariff barriers (NTMs), which raise costs and reduce the supply of health-related goods such as prescription drugs, vaccines, and medical supplies. Shepherd, B. and Helble, M. (2017). The author of this study investigated the primary elements influencing the pricing of imported medical equipment based on the empirical research findings that have been presented above.

2.3 Conceptual framework



Source: Reviewed from different related literature

1.4 Research Hypothesis

Based on the literature review and the hypothesized connections presented in the conceptual framework the following four hypotheses will be test:

H1: There is significant effect of Tariff barriers on the price determination of imported Medical equipment.

H2: There is significant effect of Product registration on the price determination of imported Medical equipment.

H3: There is significant effect of custom valuation on the price determination of imported Medical equipment.

H4: There is significant effect of foreign currency regulation on the price determination of imported Medical equipment.

2.4 Identified literature gap

Despite trade barriers having an impact on limiting product availability in the market and increasing product prices, as far as the knowledge of the researcher there are no studies made in the country which show exactly to which extent these barriers have impacts on the price of medical equipment in the market and on the significant impact of each barriers.

Various studies reviewed previously Ursula Hermelink and Carla Vaca-Eyzaguirre (2011), (Judith M. Dean, Robert Feinberg, and José E. Signoret and Michael Ferrantino and Rodney Ludema, November 2008), Fiker Yigletu (2020) have not adequately indicated extensively the impact of non-tariff barriers on the end user price of imported medical equipment. The studies done on non-tariff barriers are from the point of the obstacles for international trade; they didn't explore their impact on the end-user price. There is no published paper done in Ethiopia on the impact of non-tariff barriers on the end-user price of medical equipment.

The Pakistani embassy in Addis Ababa (2020) listed these obstacles as commercial challenges but neglected to discuss how they would affect costs. Ethiopia's health sector, particularly the students who use the health services, is being negatively impacted by the occasional increase in the end-user price of medical equipment, even when the manufacturer price has not changed all that much. Therefore, more research is required to find a solution to this significant price increase. To the best of the researcher's knowledge, no thorough study has been conducted on the variables that ultimately influence the cost of medical equipment for end users, particularly the obscure ones. This study's goal is to close this gap, so it.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter covered the type of data and the techniques used to evaluate the effect of trade barriers on the price determination of imported medical equipment in Ethiopia. research approach, research design, sampling design, source of data, methods of data interpretation and analysis, and interpretation of data including validity, reliability, and ethical considerations have all been addressed to achieve this.

3.2 Research Approach

A research approach is a strategy and process that includes three types of data collection methods: mixed, qualitative, and quantitative. It extends from general assumptions to specific techniques (Creswell John W, 2015). The researcher analyzed the impact of trade barriers on the price determination of imported medical equipment in Ethiopia using both quantitative and qualitative research methods. When combined, these approaches would be more effective in treating the data and information holistically, with the qualitative approach supporting the quantitatively produced conclusions.

3.3. Research Design

This study had used descriptive& explanatory in nature. The reason being why the researcher chose descriptive type of research is to identify and clearly describe the price determination of imported medical equipment and explanatory to explain briefly the price determination on imported medical equipment. Additionally, a cross-sectional survey approach would be used in this investigation. Zikmund (2000) defines a cross-sectional survey design as one in which a specific collection of people is surveyed at one point in time to get the necessary data. Therefore, in order to determine any causal relationships between variables and to evaluate various trade barriers in the medical equipment import business, both explanatory and descriptive study designs have been used. In terms of the chronological aspect, cross-sectional data—data collected at a

single point in time—was gathered. A case study on specific medical equipment and importers will be conducted for the study's qualitative component.

3.4. Population and Sampling

The total target population of this study was all medical equipment importer companies, which are 187. Hence, this study used a census study. Moreover, for the triangulation purpose case study was conducted on selected 3 medical equipment from two importers.

3.3 Data Sources and Types

Primary and secondary data are the two categories that a researcher should take into account, according to Kothari (2004). To gather pertinent data, both primary and secondary data sources were consulted. By using surveys, primary sources of data were gathered straight from the respondents. Secondary data was gathered from the company database as well as unpublished materials, journals, and books. Secondary data is historical data that has previously been gathered and tallied through the use of graphs, charts, and reports.

3.4 Data Collection Procedures

All that is required of the questionnaire is a structured list of inquiries designed to extract data (Kothari, 2004). The research includes creating a Likert scale, and structured surveys to collect accurate and valid data about how trade barriers affect the price determination of imported medical equipment. The researcher gathered information by creating surveys. Every question was examined from several angles about the research field. It was created in a way that covers the pertinent areas of the study and is easy for responders to read, comprehend, and shorten.

The investigator employed a combination of primary and secondary data collection techniques. Primary data were gathered through surveys, interviews, and in-person observations; secondary data came from a variety of publications, including books, reports, business invoices, and recorded files. Likert scale questionnaires were used in this study; they were taken from several articles. The Likert scale is a psychological measurement tool used to assess opinions, attitudes, and values (Alen Bryaman, 2012). The device was distributed to several importers of medical goods. A five-point rating system was used to develop the questionnaires: strongly agree (5 points), agree (4

points), neutral (3 points), disagree (2 points), and strongly disagree (1 point). In addition, each variable is assigned a unique set of questionnaires, which are then averaged to investigate the impact of the intervening and dependent variables. Furthermore, a face case study was conducted on particular imports and equipment.

3.5 Data Analysis Techniques

Following the collection of data via questionnaires, SPSS would be used to code, verify, and enter the data into the computer. The Statistical Package for Social Sciences (SPSS) was the application software package that was used to analyze the data. The five-point Likert scale or rating scale was used to examine the questionnaire's scoring. As a result, tables were used to exhibit the data to make it clear and easy to understand. Finally, the data was evaluated using statistical conclusions. The demographic characteristics of the respondents were broadly understood through the use of descriptive statistics, including frequency, percentage, means, standard deviations, and suitable graphic presentations.

The test was performed using inferential statistics and SPSS Correlation and SPSS multiple regressions were utilized for analysis. The correlation and multiple regressions of the survey data were analyzed to show the relationship between two variables (dependent and independent) or the effect of one variable on another. Additionally, multiple regression analysis was employed to investigate the effect of independent variables on the price determination of imported medical equipment.

The study used the following regression model specification.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where, Y = price determination of imported medical equipment

X1 = Tariff barriers

X2 = Product registration

X3 = Custom valuation

X4 = Foreign currency regulation

β_0 = constant

$\beta_1 - \beta_4$ = the beta coefficient of Tariff barriers, Product registration, Custom valuation and Foreign currency regulation, respectively.

ε = Std. Error of the Estimate.

3.7 Data Validity and Reliability

3.7.1 Validity

Whether the results address the topics they seem to be about is what validity is all about. According to Kazi (2010), a measure's validity is determined by how well it captures the intended meaning. To guarantee the validity of the questionnaire, the questions were developed using pertinent literature. The questionnaires used in this study were taken from earlier, similar research projects. Thus, a variety of pertinent literature and prior research questionnaires were employed in this study to ensure the validity of the research instrument.

The research advisor had also carefully examined the questionnaire's validity. In order to ensure that the survey instrument was straightforward and clear, a pilot test of the draft questionnaire was conducted with a subset of respondents. Subsequent to the aforementioned methods and preliminary testing, the investigator integrated the participants' input into the development of the ultimate survey instrument. The study instrument will then be distributed to the respondents after going through each of these procedures.

3.7.2 Reliability

A measurement is considered reliable if it consistently yields identical values (Blumberg et al., 2005). Cronbach's alpha was utilized in the reliability test to gauge the internal consistency of the research instruments' items. The Cronbach's alpha rule of thumb results show that: if $\alpha \geq 0.9$, it indicates an excellent correlation; if $0.9 > \alpha \geq 0.8$, it indicates strong internal consistency; if $0.8 > \alpha \geq 0.7$, it is acceptable; if $0.7 > \alpha \geq 0.6$, it is problematic; and if $0.6 > \alpha \geq 0.5$, it indicates the bad (low reliability).

Table 4. 1 Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.758	5

Source: Survey data (2024)

3.8 Ethical Consideration

When conducting research, researchers should abide by regulations about authorship, copyright and patenting policies, data sharing policies, and confidentiality (Akaranga and Makau, 2016). People should be invited to participate in research willingly based on their knowledge of the study field, as stated by Kothari, C.R. (2004).

It was necessary to fully disclose the goal of the study as well as the status and responsibilities of the researcher to set the respondents free and informed. For the respondents to feel confident that the data they submitted would be kept private and utilized only for scholarly purposes. Additionally, to decrease the blatantness of the response, they are instructed not to indicate their preference in the questionnaire.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This chapter presents, analyzes, and interprets the data that was gathered from the respondents to investigate how trade barriers affect the price determination of imported medical equipment. The questionnaire, response rate, and instrument reliability are covered in the first section of the section. In the second section, variables are analyzed both descriptively and inferentially, and the findings are displayed.

4.2 Questionnaire Respondent Rate

The questionnaire was distributed to all 187 target populations of the medical equipment importer, 171 responses were correct and used for the analysis of this study, which is a response rate is 92%. This percentage is acceptable for the analysis.

Based on the information provided in the above figure analysis, it appears that the uploaded image is a computer screen displaying a reliability statistics page for Cronbach's Alpha. The figure shows a reliability score of 0.76, along with other statistics such as the number of items and participants.

4.3 Demographic of the respondents

This section presents the respondents' background information in terms of their Company representative, Age, education level, years of experience, and current work position.

4.3.1 Gender

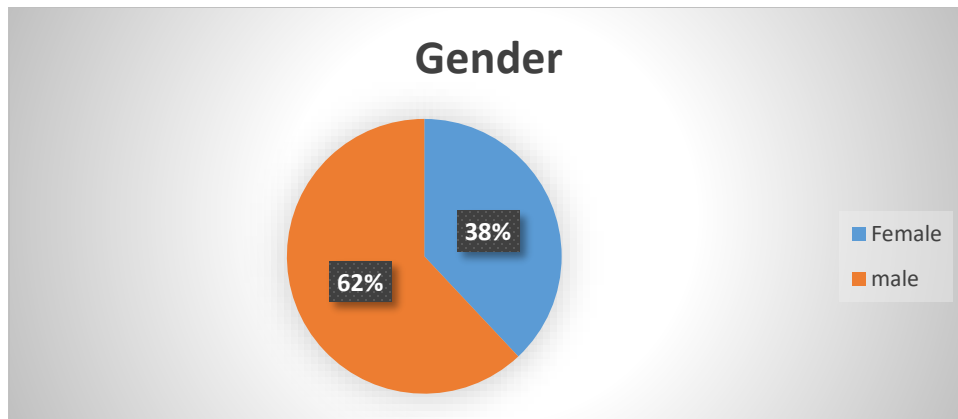


Figure 4. 1 Gender Pi Chart

The data provided presents the gender distribution within a specific population. Out of the total 172 individuals, 38% are female, while 62% are male. The analysis reveals a clear majority of males in the population, accounting for a higher percentage compared to females.

4.3.2 Age

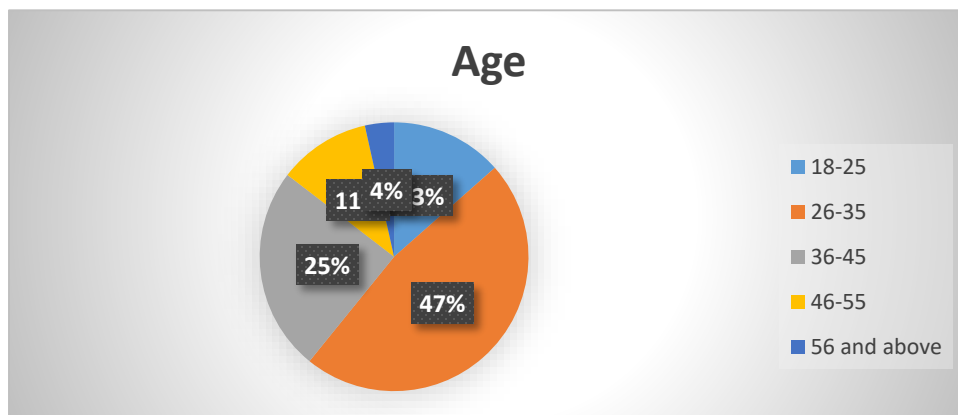


Figure 4. 2 Age Pi Chart

The data provided represents the age distribution within a specific population. The analysis reveals that out of the total 172 individuals, the majority falls within the age ranges of 26-35, accounting for 47.4%. The second largest age group is 36-45, comprising 24.6% of the population. The age groups of 18-25, 46-55, and 56 and above make up smaller proportions of the population at 13.5%, 11.1%, and 3.5% respectively. The cumulative percentages indicate the overall distribution of age

groups within the population. This data provides insights into the age composition of the population and can be useful for demographic analysis and targeted planning.

4.3.3 Educational Qualification

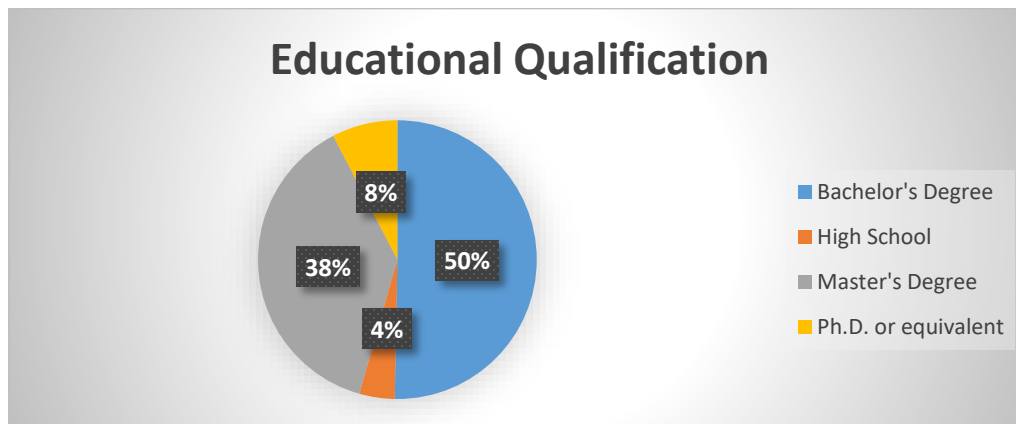


Figure 4. 3 Educational Qualification Pi Chart

The data provided represents the educational qualification distribution within a specific population. The analysis indicates that out of the total 172 individuals, the highest percentage (50.3%) holds a Bachelor's Degree. Following that, 38% of the population holds a Master's Degree, while 7.6% have a Ph.D. or equivalent qualification. A smaller proportion (4.1%) has completed High School as their highest educational qualification. The cumulative percentages demonstrate the overall distribution of educational qualifications within the population. This data provides insights into the educational attainment levels of the population, which can be valuable for understanding the educational landscape and workforce composition.

4.3.4 Job Position

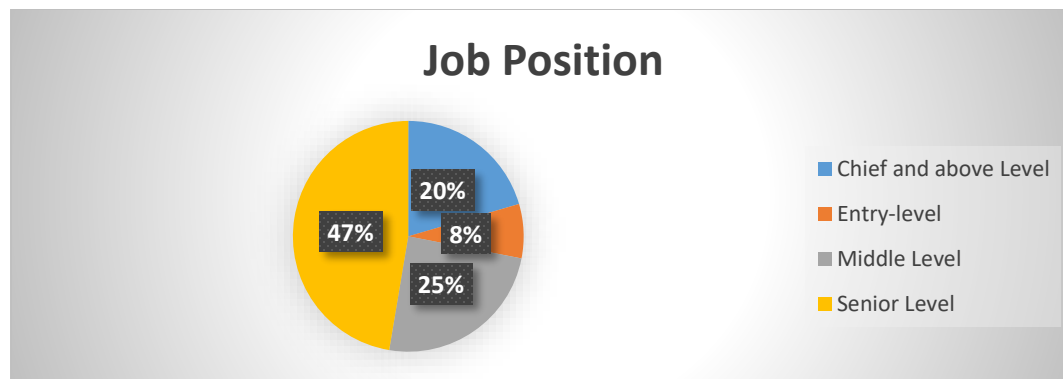


Figure 4. 4 Job Position Pi Chart

The data provided represents the distribution of job positions within a specific population. The analysis reveals that out of the total 171 individuals, the largest proportion (47.4%) holds senior-level positions. The middle-level positions account for 24.6% of the population, while the chief and above level positions represent 20.5%. Entry-level positions make up the smallest proportion at 7.6%. The cumulative percentages depict the overall distribution of job positions within the population. This data provides insights into the hierarchical structure and job roles within the population, which can be valuable for understanding the workforce composition and organizational dynamics.

4.4 Descriptive data analysis

The fundamental characteristics of the data in a study are described using descriptive statistics. They offer concise synopses of the measurements and the sample. They serve as the foundation for almost all quantitative data analyses, along with basic graphic analysis (Conjointly, 2022). The ensuing assumptions formed the basis of the mean statistical value approaching: According to Burns (2008), a mean value of 1. to 1.8 indicates that the respondents strongly disagreed, a mean value of 1.8 to 2.6 indicates that the respondents disagreed, a mean value of 2.6 to 3.61 indicates that the respondents were neutral, a mean value of 3.4 to 4.20 indicates that the respondents agreed, and a mean value of 4.21 and above indicates that the respondents strongly agreed (Burns, 2008).

The square root of the variance is used to compute the standard deviation, a statistic that expresses how dispersed a dataset is about its mean. Typically, an $SD \geq 1$ denotes a rather large fluctuation, whereas an $SD < 1$ might be regarded as low. Accordingly, distributions that have a coefficient of

variation greater than one are categorized as high variance, while distributions that have a standard deviation less than one are classified as low variance.

4.4.1 Tariff Barriers

Tariffs are a kind of trade barrier that governments impose to increase the relative cost of imported goods relative to domestic ones. Usually, tariffs take the form of taxes or duties that are imposed on importers and then passed on to final consumers. Tariffs are frequently used as a protectionist measure in international trade to benefit domestic producers and increase revenue. On January 17, 2024, the government of Ethiopia imposed an 8% tariff on pharmaceuticals and medical equipment imports.

Table 4. 2 Tariff Barriers Descriptive Statistics

Descriptive Statistics				
	N	Sum	Mean	Std. Deviation
I believe that the tariff barriers (tax and duty) imposed on imported medical equipment at custom is reasonable.	171	620	3.63	1.381
I believe that tariff barriers (tax and duty) contribute to an increase in the end user price of imported medical equipment.	171	617	3.61	1.382
I believe that tariff barriers (tax and duty) make imported medical equipment less affordable for healthcare providers or institutions.	171	626	3.66	1.209
I think tariff barriers affect the competitiveness of imported medical equipment compared to domestically produced alternatives.	171	496	2.90	1.417
I believe that tariff barriers (tax and duty) can limit the number of brands importing to the country, and reduce the availability of many alternative products in the market.	171	586	3.43	1.153
Valid N (listwise)	171			

Source: Survey data (2024)

Looking at the data, it is evident that opinions are somewhat divided. Statement 3, which suggests that tariff barriers make imported medical equipment less affordable for healthcare providers or institutions, received the highest mean score of 3.66. On the other hand, statement 4, indicating that tariff barriers affect the competitiveness of imported medical equipment compared to domestically produced alternatives, received the lowest mean score of 2.90.

The standard deviations for each statement range from 1.153 to 1.417, suggesting a moderate level of variability in the responses. Overall, the data highlights the differing beliefs regarding the impact of tariff barriers on imported medical equipment. While some individuals perceive them as reasonable and non-disruptive, others believe they contribute to increased prices and limited market availability.

4.4.2 Product Registration

Table 4. 3 Product Registration Descriptive Statistics

Descriptive Statistics				
	N	Sum	Mean	Std. Deviation
I believe that all of the documents required during products registration at EFDA (Ethiopian food and drug authority) are important to assure the safety and quality of the products.	171	580	3.39	1.432
I believe that the requirements and fees associated with product registration add to the overall cost of imported medical equipment.	171	483	2.82	1.625
I believe that the availability of so many alternative products in the market will have an impact on reducing the price of the product.	171	486	2.84	1.723
Product registration has great impact on the accessibility of imported medical equipment for healthcare providers or institutions.	171	800	4.68	.683
I believe that the product registration requirements and process contribute to delays in availability of imported medical equipment.	171	728	4.26	.916
The product registration process can limit the accessibility of alternative products in the market by limiting the number of brands entering to the market.	171	794	4.64	.691
I prefer to import already registered products instead of registering new brands due to long process of product registration.	171	795	4.65	.771
Overall the product registration process contributes to an increase in the end user price of imported medical equipment.	171	758	4.43	.901
Valid N (listwise)	171			

Source: Survey data (2024)

The given data presents the results of a survey regarding product registration at the Ethiopian Food and Drug Authority (EFDA) and its impact on the safety, quality, cost, accessibility, and availability of imported medical equipment in the market. The survey includes responses from 171 participants. On average, the participants rated the importance of all required documents for product registration as 3.39 out of 5, indicating a moderate level of significance. The associated standard deviation of 1.432 suggests a considerable variability in opinions. Similarly, opinions were divided regarding the impact of registration requirements and fees on the overall cost of imported medical equipment, with an average rating of 2.82 and a relatively high standard deviation of 1.625. The availability of alternative products in the market was believed to have a slight impact on reducing prices, with an average rating of 2.84 and a higher standard deviation of 1.723. On the other hand, participants strongly agreed that product registration has a significant positive impact on the accessibility of imported medical equipment, as indicated by the high average rating of 4.68 and a low standard deviation of 0.683. However, they also expressed concerns about potential delays caused by the registration process, rating it 4.26 on average with a standard deviation of 0.916. Additionally, the participants believed that the registration process may limit the accessibility of alternative products in the market, with an average rating of 4.64 and a low standard deviation of 0.691. The majority preferred importing already registered products due to the lengthy registration process, with an average rating of 4.65 and a standard deviation of 0.771. Finally, participants generally agreed that the product registration process contributes to an increase in the end-user price of imported medical equipment, rating it 4.43 on average with a standard deviation of 0.901. These findings highlight the various perspectives and concerns regarding product registration and its implications for the safety, quality, cost, and accessibility of imported medical equipment in Ethiopia.

4.4.3 Custom Valuation

Table 4. 4 Custom Valuation Descriptive Statistics

Descriptive Statistics				
	N	Sum	Mean	Std. Deviation

The manufacturer invoice of imported medical equipment has value to calculate tax and duty at custom.	171	693	4.05	1.108
The criteria that the custom office used to estimate the price of imported medical equipment are transparent, and they enable to know the accurate price of the goods.	171	479	2.80	1.707
There is the chance that the custom office estimate the price of imported medical equipment more than its actual price.	171	425	2.49	1.699
There is the chance that the custom office estimate the price of imported medical equipment less than its actual price.	171	748	4.37	1.029
Price estimation based custom valuation practices may leads to improper custom valuation and it expose the system for corruption.	171	462	2.70	1.662
I believe that inaccurate or inflated customs valuations lead to higher costs for imported medical equipment.	171	801	4.68	.681
Inaccurate or inflated customs valuations has an impact on the accessibility of imported medical equipment for healthcare providers or institutions.	171	740	4.33	.846
I believe that price estimation based custom valuation practices contribute to delay in the clearance and which increase the cost of imported medical equipment.	171	685	4.01	1.049
Price estimation based custom valuation practices contribute to an increase in the end user price of imported medical equipment.	171	788	4.61	.698
Valid N (listwise)	171			

Source: Survey data (2024)

The provided data presents the results of a survey related to custom valuation practices for imported medical equipment and their impact on tax calculation, transparency, accuracy, accessibility, cost, and clearance delays. The survey includes responses from 171 participants. On average, participants recognized the value of the manufacturer invoice for calculating tax and duty at customs, rating it 4.05 out of 5, with a moderate standard deviation of 1.108. However, opinions varied regarding the transparency and accuracy of the criteria used by the custom office to estimate the price of imported medical equipment, resulting in an average rating of 2.80 and a higher standard deviation of 1.707. There was also a perception that the custom office may overestimate the price of imported medical equipment (average rating of 2.49 with a standard deviation of 1.699) or underestimate it (average rating of 4.37 with a standard deviation of 1.029). Participants expressed concerns that price estimation practices based on customs valuation can lead to improper valuation and corruption within the system, rating it 2.70 on average with a standard deviation of 1.662. Moreover, they believed that inaccurate or inflated customs valuations result in higher costs

for imported medical equipment, with an average rating of 4.68 and a low standard deviation of 0.681. Participants also perceived that such valuation practices impact the accessibility of imported medical equipment for healthcare providers or institutions, rating it 4.33 on average with a standard deviation of 0.846. Additionally, they believed that these practices contribute to clearance delays and increased costs, rating it 4.01 on average with a standard deviation of 1.049. Lastly, participants agreed that price estimation practices based on customs valuation lead to an increase in the end-user price of imported medical equipment, rating it 4.61 on average with a low standard deviation of 0.698. These findings shed light on the perceptions and concerns regarding custom valuation practices and their implications for tax calculation, transparency, accuracy, accessibility, and cost of imported medical equipment.

4.4.4 Foreign Currency Regulation

Table 4. 5 Foreign Currency Regulation Descriptive Statistics

Descriptive Statistics				
	N	Sum	Mean	Std. Deviation
the extent to which foreign currency regulation affects the price of imported medical equipment	171	769	4.50	.910
I believe that foreign currency regulation adds to the overall cost of imported medical equipment	171	712	4.16	.986
foreign currency regulation affect the competitiveness of imported medical equipment compared to locally procured alternatives	171	760	4.44	.834
the impact of foreign currency regulation on the accessibility of imported medical equipment for healthcare providers or institutions	171	702	4.11	1.337
I believe that foreign currency regulation contributes to delays in the procurement and availability of imported medical equipment	171	432	2.53	1.643
Valid N (listwise)	171			

Source: Survey data (2024)

As shown the above table the results of a survey regarding the impact of foreign currency regulation on the price, cost, competitiveness, accessibility, and availability of imported medical equipment. The survey includes responses from 171 participants. On average, participants believed that foreign currency regulation has a significant impact on the price of imported medical

equipment, rating it 4.50 out of 5, with a moderate standard deviation of 0.910. They also agreed that foreign currency regulation adds to the overall cost of imported medical equipment, with an average rating of 4.16 and a standard deviation of 0.986. In terms of competitiveness, participants believed that foreign currency regulation affects the competitiveness of imported medical equipment compared to locally procured alternatives, rating it 4.44 on average with a low standard deviation of 0.834. Furthermore, participants perceived that foreign currency regulation has an impact on the accessibility of imported medical equipment for healthcare providers or institutions, rating it 4.11 on average with a higher standard deviation of 1.337. They also expressed concerns that foreign currency regulation contributes to delays in the procurement and availability of imported medical equipment, rating it 2.53 on average with a standard deviation of 1.643. These findings highlight the perceived effects of foreign currency regulation on the price, cost, competitiveness, accessibility, and availability of imported medical equipment, indicating the concerns and challenges faced by healthcare providers and institutions in obtaining such equipment.

4.4.5 The price of Imported Medical Equipment

Table 4. 6 Price of medical equipment descriptive statistics

Descriptive Statistics				
	N	Sum	Mean	Std. Deviation
The price of Imported medical equipment is affordable for healthcare service providers in the current market.	171	570	3.33	1.526
I believe the pricing of imported medical equipment aligns with its quality and value	171	430	2.51	1.603
Healthcare service providers or institutions are very price sensitive during medical equipment procurement.	171	502	2.94	1.507
Most of Healthcare service providers or institutions prefer lower price medical equipment by compromising the quality and features of the equipment.	171	744	4.35	.871
There is the selling price increase for imported medical equipment within a year even though the manufacture's price is remain constant.	171	651	3.81	1.294
Healthcare service providers or institutions have alternative source of options for medical equipment due to high prices of imported equipment.	171	731	4.27	1.106
Valid N (listwise)	171			

Source: Survey data (2024)

Concerning with price of imported Medical Equipment, the results of a survey related to the affordability, pricing, price sensitivity, preference for lower-priced equipment, price increases, and alternative options for imported medical equipment. The survey includes responses from 171 participants. On average, participants considered the price of imported medical equipment to be moderately affordable for healthcare service providers in the current market, rating it 3.33 out of 5, with a standard deviation of 1.526. However, opinions varied regarding the alignment of pricing with the quality and value of the equipment, resulting in an average rating of 2.51 and a higher standard deviation of 1.603. Participants generally agreed that healthcare service providers or institutions are price-sensitive during medical equipment procurement, rating it 2.94 on average with a standard deviation of 1.507. Additionally, most participants believed that healthcare providers tend to prefer lower-priced medical equipment, even if it means compromising on quality and features, rating it 4.35 on average with a low standard deviation of 0.871. Moreover, participants perceived that the selling price of imported medical equipment increases within a year, despite the manufacturer's price remaining constant, rating it 3.81 on average with a standard deviation of 1.294. They also believed that due to the high prices of imported equipment, healthcare providers or institutions have alternative sourcing options for medical equipment, rating it 4.27 on average with a standard deviation of 1.106. These findings highlight the perceptions and preferences of healthcare service providers regarding the affordability, pricing, quality-value alignment, price sensitivity, price increases, and alternative options for imported medical equipment, reflecting the challenges and decision factors involved in procurement processes.

4.5 Inferential Statistics Analysis

For the EAL scenario, multiple regression analysis was employed to ascertain the correlation between the five independent variables and the adoption of the strategy. The study's regression model, which was chosen, is:

4.5.1. Correlation Analysis

The degree of link between the independent and dependent variables under examination was measured using Pearson correlation. The range of Pearson correlation coefficients is -1 to +1. Positive numbers show a positive correlation, whereas negative values show a negative correlation.

Rule of thumb for interpreting the size (strength) of a Pearson correlation coefficient (Parvez, 2016).

- .90 to 1.00 (-.90 to -1.00) Very strong high positive (negative) correlation
- .70 to .90 (-.70 to -.90) Strong positive (negative) correlation
- .50 to .70 (-.50 to -.70) Moderately strong positive (negative) correlation
- .30 to .50 (-.30 to -.50) weak positive (negative) correlation
- .00 to .30 0.00 to -.30 negligible correlation

Table 4. 7 Correlations

		Correlations				
		Tariff barriers	Product Registration Factors	custom evaluation Factors	Foreign currency regulation Factors	price of Imported Medical Equipment
Tariff barriers	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	171				
Product Registration Factors	Pearson Correlation	.203**	1			
	Sig. (2-tailed)	.008				
	N	171	171			
custom evaluation Factors	Pearson Correlation	.269**	.628**	1		

	Sig. (2-tailed)	.000	.000			
	N	171	171	171		
Foreign currency regulation Factors	Pearson Correlation	.311**	.336**	.522**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	171	171	171	171	
price of Imported Medical Equipment	Pearson Correlation	.099	.528**	.694**	.534**	1
	Sig. (2-tailed)	.199	.000	.000	.000	
	N	171	171	171	171	171

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Survey data (2024)

The correlation analysis reveals the relationships between various factors related to imported medical equipment, including tariff barriers, product registration factors, custom evaluation factors, foreign currency regulation factors, and the price of imported medical equipment. The results indicate significant correlations between these factors. Tariff barriers show a weak positive correlation with product registration factors ($r = 0.203$, $p = 0.008$) and a moderate positive correlation with custom evaluation factors ($r = 0.269$, $p < 0.001$), suggesting that higher tariff barriers are associated with more stringent product registration and custom evaluation processes. Moreover, foreign currency regulation factors demonstrate a moderate positive correlation with tariff barriers ($r = 0.311$, $p < 0.001$), product registration factors ($r = 0.336$, $p < 0.001$), and custom evaluation factors ($r = 0.522$, $p < 0.001$), indicating that stricter foreign currency regulations are linked to increased tariff barriers, product registration requirements, and custom evaluation procedures. Notably, the price of imported medical equipment exhibits strong positive correlations with custom evaluation factors ($r = 0.694$, $p < 0.001$) and foreign currency regulation factors ($r = 0.534$, $p < 0.001$), suggesting that higher custom evaluation scores and more stringent foreign currency regulations are associated with increased prices of imported medical equipment. These findings provide insights into the interrelationships between various factors impacting the pricing and regulatory aspects of imported medical equipment.

4.5.2. Regression Assumption Test

Before proceeding, the researcher has checked whether multiple regression has met assumptions.

4.5.2.1 Multicollinearity test

When independent variables in a regression model have correlations, this is known as multicollinearity. Since independent variables ought to be independent, this correlation is problematic. When fitting the model and interpreting the findings, there may be issues if there is a significant degree of correlation between the variables (Jim Frost, 2019). Determining the link between each independent variable and the dependent variable is a fundamental objective of regression analysis. When all other independent variables are held constant, a regression coefficient can be understood as the mean change in the dependent variable for every unit change in an independent variable (Jim Frost, 2019).

Table 4. 8 Collinearity Statistics

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Tariff barriers	.886	1.129
	Product Registration Factors	.604	1.656
	custom evaluation Factors	.493	2.029
	Foreign currency regulation Factors	.696	1.436

a. Dependent Variable: price of Imported Medical Equipment

Source: Survey data (2024)

The collinearity statistics, represented by tolerance and variance inflation factor (VIF), provide insights into the multicollinearity among the independent variables in the model predicting the price of imported medical equipment. The tolerance values range from 0 to 1, with higher values indicating lower collinearity. The VIF values are the reciprocal of the tolerance and indicate how much the variance of the regression coefficient is inflated due to multicollinearity. In this model, all independent variables demonstrate tolerances above 0.4, suggesting a relatively low level of collinearity. The highest tolerance is observed for the custom evaluation factors (0.493), followed by the foreign currency regulation factors (0.696), tariff barriers (0.886), and product registration factors (0.604). The VIF values, which should ideally be below 5 or 10, indicate that collinearity is not a significant issue in the model. Overall, the collinearity statistics suggest that the

independent variables in the model have acceptable levels of multicollinearity, allowing for reliable analysis of their contributions to predicting the price of imported medical equipment.

4.5.2.2 Linearity Assumption

According to Balance (2004), linearity describes how closely the change in the independent factors affects the dependent variable. By creating Normal Probability Plots illustrating the relationships between each independent variable and the organization's dependent variable, the linearity assumption was put to the test. Standardized findings, as shown in figure 4.1 below, lay in a normally straight diagonal line from bottom left to top right in a normal probability plot of the regression:

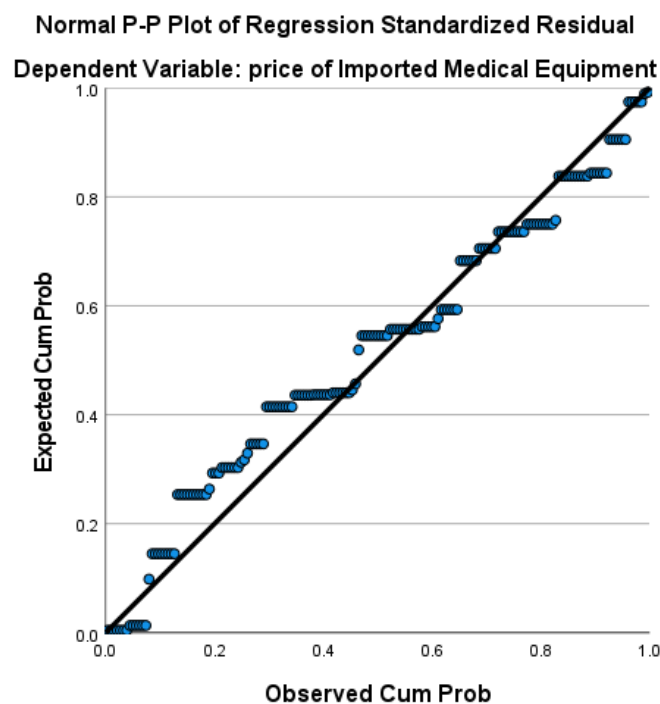


Figure 4. 5 Normal p - p Plot of Regression Standardized Residual

Source: Survey data (2024)

The figure presented in the image is a scatter plot with a line of best fit, suggesting a relationship between two variables. Each data point represents a specific observation, and the line of best fit represents the overall trend of the data points. From the plot, it can be inferred that there is a positive correlation between the cost of custom evaluation factors and the price of imported medical equipment. As the cost of custom evaluation factors increases, the price of imported medical equipment tends to increase as well. The line of best fit provides a visual representation of this linear relationship, as it passes through the majority of the data points. Overall, the figure indicates a direct association between the cost of custom evaluation factors and the price of imported medical equipment.

4.5.2.3 Normality Assumption:

A symmetrical, bell-shaped curve with the highest frequency of scores in the middle and lower frequencies near the extremities is referred to as normal. The normal distribution of the variables is assumed in a multiple regression. This indicates that the residual values will roughly follow a normal curve and that the errors are normally distributed. A histogram with a superimposed normal curve is an often used tool to verify the normality assumption.

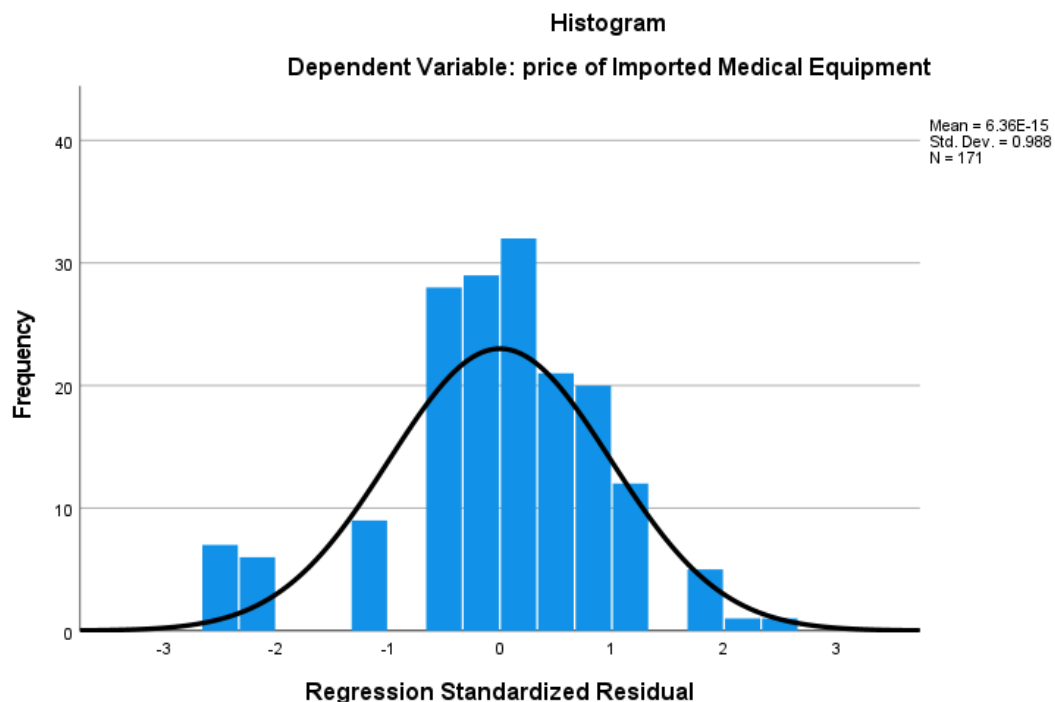


Figure 4. 6 Histogram

Source: Survey data (2024)

Based on the figure provided, which depicts a histogram with a line of best fit, it can be observed that there is a positive correlation between the cost of custom evaluation factors and the price of imported medical equipment. The histogram displays the distribution of the price of imported medical equipment, with different bars representing specific ranges of values. The line of best fit, which passes through the majority of the data points, indicates the overall trend of the relationship between the cost of custom evaluation factors and the price of imported medical equipment. The positive slope of the line suggests that as the cost of custom evaluation factors increases, the price of imported medical equipment tends to increase as well. This finding highlights the potential influence of custom evaluation factors on the pricing of imported medical equipment.

4.5.2.4 Autocorrelation Assumption:

By calculating the association between the observations at various times, autocorrelation analysis looks for patterns or trends in the time series. According to Georgiou (2019), it is the degree of correlation between the same variables over two subsequent time intervals. However, the traditional linear regression model makes the assumption that the error terms do not serially correlate. Autocorrelation is commonly detected using the Durbin Watson (DW) test. If the Durbin-Watson statistic is around two, the residuals are not correlated and are found between 1.50 and 2.50, which are acceptable ranges.

Table 4. 9 Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746 ^a	.556	.545	.38408	2.138

a. Predictors: (Constant), Foreign currency regulation Factors, Tariff barriers, Product Registration Factors, custom evaluation Factors

b. Dependent Variable: price of Imported Medical Equipment

Source: Survey data (2024)

The Durbin-Watson statistic of 2.138 indicates that there is no significant autocorrelation present in the residuals. Overall, the model demonstrates a moderate level of predictive power, with the included predictors explaining a substantial portion of the variability in the price of imported medical equipment.

4.5.3. Multiple Regression Analysis

A statistical technique called regression analysis is employed to ascertain the correlation between a dependent variable and one or more independent variables. It can be applied to anticipate the future values of the dependent variable, model the future relationship, and evaluate the strength of the link.

The independent variable in a regression analysis is often referred to as the predictor variable, while the dependent variable is also referred to as the response variable. Finding the best-fit line that depicts the relationship between the dependent and independent variables is the aim of regression analysis.

4.5.3.1 Model Summary

A model summary in research is a brief description of the statistical model used to analyze the data. It typically includes information about the variables included in the model, the statistical tests used to assess the significance of the variables, and the goodness-of-fit of the model.

The model summary is an important part of any research study because it provides readers with a clear understanding of the statistical methods used to analyze the data and the results of those analyses.

Table 4. 10 Model Summary^b

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.746 ^a	.556	.545	.38408	2.138

a. Predictors: (Constant), Foreign currency regulation Factors, Tariff barriers, Product Registration Factors, custom evaluation Factors

b. Dependent Variable: price of Imported Medical Equipment
Source: Survey data (2024)

The model summary table provides an overview of the regression model's performance in predicting the price of imported medical equipment. The coefficient of determination (R-squared) value of 0.556 indicates that approximately 55.6% of the variance in the price of imported medical equipment can be explained by the independent variables included in the model. The adjusted R-squared value of 0.545 considers the number of predictors in the model and suggests that around 54.5% of the variance is accounted for, taking into account the degrees of freedom. The standard error of the estimate, which measures the average distance between the actual and predicted values, is 0.38408.

4.5.3.2 ANOVA

A statistical technique called analysis of variance (ANOVA) is used to compare two or more means. It is comparable to the t-test; however, an ANOVA is utilized when there are more than two means to compare, whereas the t-test is often employed to compare two means. The foundation of an ANOVA is the comparison of the variance (or variation) inside each sample to the variance between the data samples. There is proof that the group means differ significantly if the within-group variance is low and the between-group variance is high.

In experimental research, ANOVA is commonly employed to ascertain whether the means of distinct groups differ in a statistically significant way. Regression analysis also makes use of it to determine the significance of the

Table 4. 11 ANOVA^a

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.652	4	7.663	51.946	.000 ^b
	Residual	24.488	166	.148		
	Total	55.140	170			

a. Dependent Variable: price of Imported Medical Equipment

b. Predictors: (Constant), Foreign currency regulation Factors, Tariff barriers, Product Registration Factors, custom evaluation Factors
Source: Survey data (2024)

The ANOVA table provides information about the significance of the regression model in predicting the price of imported medical equipment. The table reveals that the regression model as a whole is statistically significant, as indicated by the low p-value of .000. This suggests that the inclusion of the predictors (Foreign currency regulation Factors, Tariff barriers, Product Registration Factors, custom evaluation Factors) significantly improves the model's ability to explain the variability in the price of imported medical equipment. The F-statistic of 51.946 further supports this, indicating a strong overall fit of the model. The sum of squares decomposition shows that the regression component accounts for 30.652 units of the total sum of squares, while the remaining 24.488 units of sum of squares are attributed to the residual (unexplained) variation. In summary, the ANOVA results confirm the statistical significance of the regression model in predicting the price of imported medical equipment.

4.5.3.3 Regression coefficients

The degree and direction of the link between the independent variable(s) and the dependent variable are indicated by the regression coefficient. With all other variables held constant, it shows the change in the dependent variable for a one-unit change in the independent variable.

Table 4. 12 Coefficients^a

		Coefficients ^a		Standardized Coefficients		
		Unstandardized Coefficients				
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.049	.226		4.633	.000
	Tariff barriers	-.112	.041	-.151	-2.739	.007
	Product Registration Factors	.116	.049	.157	2.353	.020
	custom evaluation Factors	.491	.073	.496	6.730	.000
	Foreign currency regulation Factors	.229	.053	.269	4.345	.000

a. Dependent Variable: price of Imported Medical Equipment
Source: Survey data (2024)

The coefficients table provides information about the estimated coefficients of the independent variables in the regression model predicting the price of imported medical equipment. The constant term, represented by the "Constant" row, has a coefficient of 1.049 with a standard error of 0.226, indicating that it is statistically significant ($p < 0.001$) and represents the expected value of the dependent variable when all independent variables are zero.

The hypothesis, Ho1, states that there is no significant effect of Tariff barriers on the price determination of imported medical equipment. The analysis of the coefficients table reveals that Tariff barriers indeed have a negative coefficient of -0.112 ($p = 0.007$), suggesting that there is a statistically significant relationship between Tariff barriers and the price of imported medical equipment. Since the p-value is less than the significance level of 0.05 ($p < 0.05$), **we accept the alternative hypothesis** and conclude that Tariff barriers do have a significant effect on the price determination of imported medical equipment. The negative coefficient indicates that as tariff barriers increase, the price of imported medical equipment tends to decrease. This finding implies that higher tariff barriers imposed on imported medical equipment can potentially lead to lower prices for such equipment.

The hypothesis, Ho2, states that there is no significant effect of Product registration on the price determination of imported medical equipment. However, the analysis of the coefficients table reveals that Product Registration Factors have a positive coefficient of 0.116 ($p = 0.020$), indicating a statistically significant relationship between Product registration and the price of imported medical equipment. With a p-value less than the significance level of 0.05 ($p < 0.05$), **we accept the alternative hypothesis** and conclude that Product registration does have a significant effect on the price determination of imported medical equipment. The positive coefficient suggests that higher scores in product registration are associated with higher prices for imported medical equipment. This finding implies that stricter or more demanding product registration requirements can contribute to increased prices for imported medical equipment.

The hypothesis, Ho3, states that there is no significant effect of custom valuation on the price determination of imported medical equipment. However, the analysis of the coefficients table reveals that custom evaluation Factors have a positive coefficient of 0.491 ($p < 0.001$), indicating

a statistically significant relationship between custom valuation and the price of imported medical equipment. With a p-value less than the significance level of 0.05 ($p < 0.05$), **we accept the alternative hypothesis** and conclude that custom valuation does have a significant effect on the price determination of imported medical equipment. The positive coefficient suggests that higher custom evaluation scores are associated with increased prices for imported medical equipment. This finding implies that a more rigorous or comprehensive custom evaluation process can contribute to higher prices for imported medical equipment.

Similarly, the hypothesis, H4, states that there is significant effect of foreign currency regulation on the price determination of imported medical equipment. The analysis of the coefficients table also reveals that Foreign currency regulation Factors have a positive coefficient of 0.229 ($p < 0.001$), indicating a statistically significant relationship between foreign currency regulation and the price of imported medical equipment. With a p-value less than the significance level of 0.05 ($p < 0.05$), we accept the alternative hypothesis and conclude that foreign currency regulation does have a significant effect on the price determination of imported medical equipment. The positive coefficient suggests that stricter regulations on foreign currency are associated with higher prices for imported medical equipment. This finding implies that when there are more stringent controls or restrictions on foreign currency exchange, it can contribute to increased prices for imported medical equipment.

These standardized coefficients provide insights into the relative importance of each predictor in influencing the price of imported medical equipment.

4.6 Case Analysis

How importers calculate the cost of imported medical equipment.

Case analysis in the context of selected imported medical equipment refers to the examination and evaluation of specific cases or instances related to the importation and use of medical equipment. It involves studying and analyzing the details of individual cases to gain insights into various aspects such as pricing, regulatory compliance, market dynamics, and the impact on healthcare systems.

The purpose of case analysis is to understand the specific challenges, opportunities, and factors that influence the importation and pricing of medical equipment in different scenarios. It involves a detailed examination of real-world examples, which could include specific medical devices, equipment manufacturers, importers, regulatory frameworks, market conditions, and pricing strategies.

During a case analysis, relevant data and information are collected and analyzed to uncover patterns, trends, and relationships between different variables. This may involve reviewing financial data, market reports, regulatory documents, import/export statistics, pricing information, and qualitative data from interviews or surveys.

The analysis aims to provide a comprehensive understanding of the factors affecting the pricing of imported medical equipment in specific cases. It may involve assessing the impact of factors such as tariffs, product registration requirements, custom valuation processes, foreign currency regulations, local market competition, reimbursement policies, and demand-supply dynamics.

CASE ONE: portable color Doppler ultrasound machine.

costs	amount	remark
Buying price (BP)	USD 4000 = (4000×120) = 480,000 birr	currency rate; 1\$ = 120 birr
Fright cost	6000 birr	the gross weight of the machine is 10Kg
Bank charge (10 %)	$4000 \times 58 \times 10 / 100 = 23,200$	it is calculated by bank rate
Tax and duty (8% of BP)	$14,000 \times 58 \times 8 / 100 = 64,960$ birr	because the custom office estimate the price of the machine USD14,000, and the currency exchange rate is (\$1 = 58 ETB)
Warehousing fee	3500 birr	
inspection fee	350 birr	
fee for transit	3000 birr	

Other costs (loading, unloading, etc.)	1500 birr	
total cost	591,010 birr	
selling price		The selling price depends on the importers profit margin the market situation.

Buying price (BP): it is the price that the importer buy the good from the manufacturer, this price include the transport cost from the manufacturer store to the port of loading. So the buying price in ETB will be $4000 \times 58 = 232,000$, but in this case as the customer got the foreign currency by the black market rate, the buying price is calculated as $4000 \times 120 = 480,000$. So there is **248,000 ETB** difference

Fright cost: it is the transport cost from port of loading (in this case from Guangzhou airport, China) to port of destination (in this case bole international airport, Addis Ababa, Ethiopia). It is calculated based on the gross weight of the good, in this case since the weight of the machine is 10 kg, the freight cost is calculated as: $10 \times 600 = 6000$ birr (as the price for 1kg is 600 birr).

Bank charge (10 %): when the importer buy any good, the bank where he conduct the payment will charge the importer 10% of the good price, so in this case since the buying price of the good is \$4000, the bank charge will be: $\$4000 \times 10/100 = \$400 = 400 \times 58 = 23,200$ ETB

Tax and duty (8% of BP): it is the fee that the importer pay during custom clearance, it is calculated as 8% of the buying price of the good, but the custom office don't use the buying price of the good from the invoice instead they use their own estimated price, so in this case they had estimate the price of the good as \$14,000 even Thoth its actual price is \$4000, and they had calculate Tax and duty as: $\$14000 \times 8/100 = \$1120 = 1120 \times 58 = 64960$ ETB. But if they were accept the price on manufacturer invoice, the amount for tax and duty will be $4000 \times 8/100 \times 58 = 18,560$, so there is **46,400 ETB** difference.

Warehousing fee: it is the fee that the importer pay for the custom warehouse, it is calculated based on the weight of the good and the number days that the good stay at custom warehouse, so in this case the weight of the good is 10kg and the good stay for 30 day at custom warehouse, and the fee is 3000 ETB.

Inspection fee: it is the service fee that the importer pay for Ethiopian Food and Drug Authority (EFDA), the experts from EFDA will do inspection for the imported goods to check whether the

good are registered or not before the custom clearance is done, the fee is fixed for any item, it is 350 ETB.

Service fee for transit: it is the fee that the importer pay for the person who do custom declaration, the amount is based on negotiation, and in this case it was 3000 ETB.

Other costs: it include fee for loading, unloading, etc. the amount vary based on the type of item, in this case the importer expense 1500 ETB

The data provided highlights the various costs and factors involved in the importation of medical equipment in Ethiopia. The buying price (BP) of the equipment is influenced by the foreign currency exchange rate, resulting in a significant price difference when obtained through the black market. Freight costs depend on the weight of the equipment, while bank charges and taxes contribute to additional expenses during the customs clearance process. Warehousing fees, inspection fees, service fees, and other miscellaneous costs further add to the overall expenses. These findings emphasize the complexities and financial implications associated with importing medical equipment, underscoring the need for careful consideration of all cost factors when determining the final price of imported medical equipment in Ethiopia.

Case two: Operating table

costs	amount	remark
Buying price (BP)	$\$3,300 = 3300 \times 120 = 396,000 \text{ ETB}$	currency exchange rate; $1\$ = 120 \text{ birr}$
Frighr cost (KG X 600)	10,400 ETB	as the good is delivered by sea transport, the amount is calculated based on the size of the container
Bank charge (10 %)	$3300 \times 10 / 100 = \$330 = 18,579$	it is calculated by bank currency exchange rate ($\$1 = 56.3 \text{ ETB}$)
Tax and duty (8% of BP)	$5200 \times 8 / 100 = \$416 = 23,421 \text{ ETB}$	because the custom office estimate the price of the machine \$5200, and the currency exchange rate is rate ($\$1 = 56.3 \text{ ETB}$)

Warehousing fee	3250	
inspection fee	350	
fee for transit	360	
Other costs (loading, unloading, commission)	2000	
total cost	454,360 ETB.	
selling price		The selling price depends on the importers profit margin the market situation.

Buying price (BP): it is the price that the importer buy the good from the manufacturer, this price include the transport cost from the manufacturer store to the port of loading. So the buying price in ETB will be $3300 \times 56.3 = 185,790$ ETB, but in this case as the customer got the foreign currency by the black market rate, the buying price is calculated as $3300 \times 120 = 396,000$ ETB, so there is 210,210 ETB difference.

Fright cost: it is the transport cost from port of loading (in this case from Hong Kong, China) to port of destination (Mojo dry port, Ethiopia). It is calculated based on the size of the container, as the importer imports may items together within a 20 ft. container, the cost for this specific item is estimated as 10,400 ETB

Bank charge (10 %): when the importer buy any good, the bank where he conduct the payment will charge the importer 10% of the good price, so in this case since the buying price of the good is \$3300, the bank charge will be: $\$3300 \times 10/100 = \$330 = 18,579$ ETB.

Tax and duty (8% of BP): it is the fee that the importer pay during custom clearance, it is calculated as 8% of the buying price of the good, but the custom office don't use the buying price of the good from the invoice instead they use their own estimated price, so in this case they had estimated the price of the good as \$5200 Even though its actual price is \$3300, and they had calculate Tax and duty as: $5200 \times 8/100 = \$416 = 23,421$ ETB. But if they were accept the price on

manufacturer invoice, the amount for tax and duty will be $3300 \times 8/100 \times 58 = 14,863$, so there is 8,558 ETB Difference.

Warehousing fee: it is the fee that the importer pay for the custom warehouse, it is calculated based on the number days that the container stay at moja dry port, so in this case the container stays for 15 days at the port, and the fee for this specific item is 3250 ETB.

Inspection fee: it is the service fee that the importer pay for Ethiopian Food and Drug Authority (EFDA), the experts from EFDA will do inspection for the imported goods to check whether the good are registered or not before the custom clearance is done, the fee is fixed for any item, it is 350 ETB.

Service fee for transit: it is the fee that the importer pay for the person who do custom declaration, the amount is based on negotiation, and in this case as the declaration is done for many items together, the amount for this specific item is 360 ETB.

Other costs: it include fee for loading, unloading, etc. the amount vary based on the type of item, in this case the importer expense 2000 ETB

In this case, the analysis reveals the various costs involved in importing a specific medical equipment item into Ethiopia. The buying price (BP) is influenced by both the exchange rate and the method of currency acquisition, resulting in a significant price difference. Freight costs are determined based on container size, while bank charges and taxes contribute to additional expenses during customs clearance. Warehousing fees, inspection fees, service fees, and other miscellaneous costs further impact the overall expenditure. This analysis highlights the complex nature of importing medical equipment and emphasizes the need for careful consideration of all cost factors to determine the final price.

Case three: Surgical light

costs	amount	remark
Buying price (BP)	$\$3,113 = 3113 \times 120 = 373,560$ ETB	it is calculated by the black market currency exchange rate (1\$ = 120 birr)

Fright cost	10,000 ETB	as the good is delivered by sea transport, the amount is calculated based on the size of the container
Bank charge (10 %)	$\$3,113 \times 10/100 = \$311.3 = 17,526 \text{ ETB}$	it is calculated by the bank currency exchange rate (\$1 = 56.3 ETB)
Tax and duty (8% of BP)	$\$5000 \times 8/100 = \$400 = 22,520 \text{ ETB}$	because the custom office estimate the price of the machine \$5000, and the currency exchange rate is (\$1 = 56.3 ETB)
Warehousing fee	3100	
inspection fee	350	
fee for transit	355	
Other costs (loading, unloading, etc.)	2000	
total cost	429,411 ETB	
selling price		The selling price depends on the importers profit margin the market situation.

Buying price (BP): it is the price that the importer buy the good from the manufacturer, this price include the transport cost from the manufacturer store to the port of loading. So the buying price in ETB will be $3113 \times 56.3 = 175,262 \text{ ETB}$, but in this case as the customer got the foreign currency by the black market rate, the buying price is calculated as $3113 \times 120 = 373,560 \text{ ETB}$, so there is 198,298 ETB difference.

Fright cost: it is the transport cost from port of loading (in this case from Hong Kong, China) to port of destination (Mojo dry port, Ethiopia). It is calculated based on the size of the container, as the importer imports may items together within a 20 ft. container, the cost for this specific item is estimated as 10,000 ETB

Bank charge (10 %): when the importer buy any good, the bank where he conduct the payment will charge the importer 10% of the good price, so in this case since the buying price of the good is \$3300, the bank charge will be: $\$3113 \times 10/100 = \$311.3 = 17,526 \text{ ETB}$.

Tax and duty (8% of BP): it is the fee that the importer pay during custom clearance, it is calculated as 8% of the buying price of the good, but the custom office don't use the buying price of the good from the invoice instead they use their own estimated price, so in this case they had estimated the price of the good as \$5200 Even though its actual price is \$3113, and they had calculate Tax and duty as: $500 \times 8 / 100 = \$400 = 22,520$ ETB. But if they were accept the price on manufacturer invoice, the amount for tax and duty will be $3113 \times 8 / 100 = 24,904$ ETB, so there is 8,499 ETB Difference.

Warehousing fee: it is the fee that the importer pay for the custom warehouse, it is calculated based on the number days that the container stay at moja dry port, so in this case the container stays for 15 days at the port, and the fee for this specific item is 3100 ETB.

Inspection fee: it is the service fee that the importer pay for Ethiopian Food and Drug Authority (EFDA), the experts from EFDA will do inspection for the imported goods to check whether the good are registered or not before the custom clearance is done, the fee is fixed for any item, it is 350 ETB.

Service fee for transit: it is the fee that the importer pay for the person who do custom declaration, the amount is based on negotiation, and in this case as the declaration is done for many items together, the amount for this specific item is 355 ETB.

Other costs: it include fee for loading, unloading, etc. the amount vary based on the type of item, in this case the importer expense 2000 ETB.

In this case, the analysis focuses on the costs associated with importing a surgical light. The buying price (BP) is calculated based on the black market currency exchange rate, resulting in a higher value in Ethiopian Birr. Freight costs are determined by the container size and delivery method. Bank charges, taxes, warehousing fees, inspection fees, transit fees, and other miscellaneous costs contribute to the overall expenditure. The total cost of importing the surgical light amounts to 429,411 ETB. The selling price will depend on factors such as the importer's profit margin and the prevailing market conditions. This case highlights the financial considerations involved in importing medical equipment and underscores the significance of setting appropriate selling prices based on various factors.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.2 Summary

Demographic characteristics (sex of respondents, age of respondent, work experience of respondents and educational status) of respondents were analyzed. After the analysis of the demographic characteristics, all items or questionnaires were analyzed by frequency and mean values. And the data highlights the differing beliefs regarding the impact of tariff barriers on imported medical equipment. While some individuals perceive them as reasonable and non-disruptive, others believe they contribute to increased prices and limited market availability. Regarding product registration factor participants generally agreed that the product registration process contributes to an increase in the end-user price of imported medical equipment, rating it 4.43 on average with a standard deviation of 0.901. Participants agreed that price estimation practices based on customs valuation lead to an increase in the end-user price of imported medical equipment, rating it 4.61 on average with a low standard deviation of 0.698. These findings shed light on the perceptions and concerns regarding custom valuation practices and their implications for tax calculation, transparency, accuracy, accessibility, and cost of imported medical equipment. On average, participants believed that foreign currency regulation has a significant impact on the price of imported medical equipment, rating it 4.50 out of 5, with a moderate standard deviation of 0.910. These findings highlight the perceived effects of foreign currency regulation on the price, cost, competitiveness, accessibility, and availability of imported medical equipment, indicating the concerns and challenges faced by healthcare providers and institutions in obtaining such equipment. Following these the inferential statistics were done by regression analysis and four of the independent variables, tariff barrier factor, product registration factor, customs valuation factor and foreign currency regulations factor has shown a significant association with the dependent variable. When we look at the detail to what extent each independent variable influence the dependent variable, custom valuation factors (Beta=.491) Foreign currency regulation Factors (Beta=.229), Product Registration Factors (Beta=.116), and Tariff barriers (Beta=-.112) were found to be determinants of price of imported medical equipment in their descending order.

5.1 Conclusions

In conclusion, the analysis of the coefficients table provides strong evidence to accept the hypotheses for all four factors examined in relation to the price determination of imported medical equipment. Tariff barriers, which were hypothesized to have no significant effect, exhibit a negative coefficient, indicating that higher tariff barriers are associated with lower prices for imported medical equipment. This implies that when countries impose higher tariff barriers on imported medical equipment, it can lead to reduced prices for such equipment. However the finding of the case study shows the reverse, when tariff barrier increase the price of medical equipment will increase.

Product registration, custom valuation, and foreign currency regulation, which were also hypothesized to have no significant effect, all show positive coefficients. This suggests that stricter requirements in terms of product registration, more comprehensive custom evaluation processes, and tighter regulations on foreign currency are associated with higher prices for imported medical equipment. These findings highlight the importance of considering these factors when analyzing the price determination of imported medical equipment.

Taken together, the results indicate that tariff barriers, product registration, custom valuation, and foreign currency regulation all play significant roles in influencing the prices of imported medical equipment. Policymakers, manufacturers, and other stakeholders should take these factors into account when formulating trade policies, designing regulatory frameworks, and making pricing decisions. Additionally, further research may be warranted to explore the specific mechanisms through which these factors impact price determination and to assess their implications for accessibility and affordability of medical equipment in different markets.

5.2 Recommendations

Based on the findings of the analysis, several recommendations can be made to policymakers, manufacturers, and other stakeholders involved in the import and pricing of medical equipment:

Tariff Barriers: The negative coefficient associated with tariff barriers suggests that reducing or eliminating tariff barriers can potentially lead to lower prices for imported medical equipment. Policymakers should consider reviewing and revising tariff structures to facilitate the affordability

and accessibility of medical equipment, particularly in regions where healthcare systems heavily rely on imports.

Product Registration: The positive coefficient for product registration indicates that stricter product registration requirements are associated with higher prices for imported medical equipment. While ensuring product safety and quality is crucial, policymakers should aim to strike a balance between regulatory requirements and cost considerations. Streamlining and harmonizing product registration processes across different markets can reduce unnecessary burdens and potentially lower prices for imported medical equipment.

Custom Valuation: The positive coefficient linked to custom valuation implies that more rigorous or comprehensive custom evaluation processes contribute to increased prices for imported medical equipment. Customs authorities should collaborate with relevant stakeholders to develop efficient and transparent evaluation procedures that prioritize accuracy while minimizing delays and additional costs. This can help maintain appropriate levels of scrutiny without unduly burdening importers and end-users.

Foreign Currency Regulation: The positive coefficient associated with foreign currency regulation highlights the impact of stricter regulations on foreign currency exchange on the pricing of imported medical equipment. Policymakers should carefully assess the potential consequences of such regulations on the affordability of medical equipment. Consideration could be given to implementing measures that ensure stability and predictability in foreign currency exchange, facilitating smoother transactions and potentially mitigating price increases.

5.3 Suggestion for further research

The analysis provides valuable insights into the relationship between these factors and the price determination of imported medical equipment. However, additional research is needed to delve deeper into the specific mechanisms through which these factors influence prices and their impact on different stakeholders. Such research can inform evidence-based policy decisions and help identify strategies to balance cost considerations with quality, accessibility, and affordability goals.

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Annex:

QUESTIONNAIRE

Appendices - Questionnaire

Questionnaire: to be filled by medical equipment importer

Dear respondent:

This is a questioner prepared to gather data from your company on issue related to “**The effects of Trade barriers on the price determination of imported medical equipment in Ethiopia**”. This study is purely for academic purpose and I would like to confirm that the information obtained from you will be confidential; it will not negatively affect your personal status or the institution. Therefore, the researcher kindly request you to show cooperation by providing relevant information by filling out the questionnaire provided.

The principal Investigator.

Many thanks

Instruction: Dear respondent there is no need of writing your name and indicate the letter of your answer for multiple choice questions and provide clearly and briefly for open ended questions.

Part I. Background information about respondent

1. Gender:

1. Male 2. Female

2. Age:

1. 18-25 2. 26-35 3. 36-45 4. 46-55 5. 56 and above

3. Educational Qualification:

1. High School 2. Bachelor's Degree 3. Master's Degree 4. Ph.D. or equivalent

4. Job Position:

1. Entry-level 2. Middle management 3. Senior management 4. Other (please specify): _____

Part II: Likert scale Questions

Tariff barriers factors

N	Description	SDA	DA	N	A	SA
1	I believe that the tariff barriers (tax and duty) imposed on imported medical equipment at custom is reasonable.					
2	I believe that tariff barriers (tax and duty) contribute to an increase in the end user price of imported medical equipment.					
3	I believe that tariff barriers (tax and duty) make imported medical equipment less affordable for healthcare providers or institutions.					
4	I think tariff barriers affect the competitiveness of imported medical equipment compared to domestically produced alternatives.					
5	I believe that tariff barriers (tax and duty) can limit the number of brands importing to the country, and reduce the availability of many alternative products in the market.					

Product Registration (non – tariff) Factors

NO	Description	SDA	DA	N	A	SA
1.	I believe that all of the documents required during products registration at EFDA (Ethiopian food and drug authority) are important to assure the safety and quality of the products.					
2.	I believe that the requirements and fees associated with product registration add to the overall cost of imported medical equipment.					
3.	I believe that the availability of so many alternative products in the market will have an impact on reducing the price of the product.					
4.	Product registration has great impact on the accessibility of imported medical equipment for healthcare providers or institutions.					
5.	I believe that the product registration requirements and process contribute to delays in availability of imported medical equipment.					
6.	The product registration process can limit the accessibility of alternative products in the market by limiting the number of brands entering to the market.					
7.	I prefer to import already registered products instead of registering new brands due to long process of product registration.					

8.	Overall the product registration process contributes to an increase in the end user price of imported medical equipment.					
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Custom evaluation (non-tariff) Factors

No.	Description	SDA	DA	N	A	SA
1.	The manufacturer invoice of imported medical equipment has value to calculate tax and duty at custom.					
2.	The criteria that the custom office used to estimate the price of imported medical equipment are transparent, and they enable to know the accurate price of the goods.					
3.	There is the chance that the custom office estimate the price of imported medical equipment more than its actual price.					
4.	There is the chance that the custom office estimate the price of imported medical equipment less than its actual price.					
5.	Price estimation based custom valuation practices may leads to improper custom valuation and it expose the system for corruption.					
6.	I believe that inaccurate or inflated customs valuations lead to higher costs for imported medical equipment.					

7.	Inaccurate or inflated customs valuations has an impact on the accessibility of imported medical equipment for healthcare providers or institutions.					
8.	I believe that price estimation based custom valuation practices contribute to delay in the clearance and which increase the cost of imported medical equipment.					
9.	Price estimation based custom valuation practices contribute to an increase in the end user price of imported medical equipment.					

Foreign currency regulation Factors

No.	Description	SDA	DA	N	A	SA
1.	the extent to which foreign currency regulation affects the price of imported medical equipment					
2.	I believe that foreign currency regulation adds to the overall cost of imported medical equipment					
3.	foreign currency regulation affect the competitiveness of imported medical equipment compared to locally procured alternatives					
4.	the impact of foreign currency regulation on the accessibility of imported medical equipment for healthcare providers or institutions					

5.	I believe that foreign currency regulation contributes to delays in the procurement and availability of imported medical equipment					
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The price of Imported Medical Equipment

No.	Description	SDA	DA	N	A	SA
1.	The price of Imported medical equipment is affordable for healthcare service providers in the current market.					
2.	I believe the pricing of imported medical equipment aligns with its quality and value					
3.	Healthcare service providers or institutions are very price sensitive during medical equipment procurement.					
4.	Most of Healthcare service providers or institutions prefer lower price medical equipment by compromising the quality and features of the equipment.					
5.	There is the selling price increase for imported medical equipment within a year even though the manufacture's price is remain constant.					
6.	Healthcare service providers or institutions have alternative source of options for medical equipment due to high prices of imported equipment.					

7, which pricing strategy do you mostly used when calculating the selling price of imported medical equipment?

- | | |
|------------------------|--------------------------|
| 1. Penetration pricing | 7. Bundle pricing |
| 2. Skimming pricing | 8. Loss-leader pricing |
| 3. Cost-plus pricing | 9. Psychological pricing |
| 4. Competitive pricing | 10. Premium pricing |
| 5. Dynamic pricing | 11. High-low pricing |
| 6. Economy pricing | 12. Freemium pricing |

Thank you for your cooperation

