



A study into the continuous financial impact of import regulation adherence

By

Dylan Scott van der Schyff

225177181

Submitted in partial fulfilment of the requirements for the degree of

Masters in Maritime Studies

in the

Unit for Maritime Law and Maritime Studies

2026

Supervisors

Dr Sanele Gumede and Dr Mbuso Emmanuel Nzama

SUPERVISORS' PERMISSION TO SUBMIT FOR EXAMINATION

Date: 27/01/2026

Student name: Dylan Scott van der Schyff

Student no: 225177181

Dissertation Title: A quantitative study into the continuous financial impact of import regulation adherence

As the candidate's supervisors, we agree to the submission of this dissertation for examination. Based on the Turnitin report and to the best of our knowledge, the dissertation is primarily the student's work, and he has acknowledged all the sources he has used.

The student has also satisfied the requirements of English language competency.

Names of supervisors: Dr Sanele Gumede & Dr Mbuso Nzama

Signature: _____



ABSTRACT

Import regulations ensure consumer safety and product quality in international trade but often impose financial and operational burdens on importing firms. This study examines the financial impact of regulatory compliance on the landed cost of small electrical appliances imported into South Africa through the Port of Durban from 2020 to 2024.

Using an empirical approach, the research assesses direct and indirect compliance costs, including product testing, certification, documentation, inspections, and conformity assessments required by regulatory authorities. Limited local access to accredited testing facilities frequently forces firms to rely on foreign institutions, increasing costs and lead times.

The findings show that compliance costs extend beyond importation and persist throughout the product lifecycle, creating recurring financial pressures that may affect working capital, delay market entry, and reduce firm competitiveness.

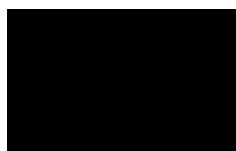
DECLARATION

I, Dylan Scott van der Schyff, declare that:

- (i) The research reported in this dissertation, except where otherwise indicated, is my original research.
- (ii) This dissertation has not been submitted for any degree or examination at any other university.
- (iii) This dissertation does not contain any other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
- (iv) This dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
 - a) their words have been re-written, but the general information attributed to them has been referenced; and
 - b) where their exact words have been used, their writing has been placed inside quotation marks and referenced.
- (v) Where I have reproduced a publication of which I am the author, co-author or editor, I have indicated in detail which part of the publication was actually written by me alone and have fully referenced such publications.
- (vi) This dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source detailed in the dissertation and in the references section.

Student Full Name: Dylan Scott van der Schyff

Student Signature:



Date Signed: 26/01/2026

AI DECLARATION

- a) I made use of generative AI in this thesis in the following areas: methodology, reference management, and for language editing. In all instances, the content generated by AI was fully interrogated for applicability, accuracy of content, and plagiarism. Citations were added to statements (where applicable) to assign credit to authors.
- b) Where generative AI was used in the methodology of this thesis, this is indicated in the relevant methodology section, with full details enclosed.

Student Full Name: Dylan Scott van der Schyff

Student Signature:



Date Signed: 26/01/2026

ABBREVIATIONS

AI: Artificial Intelligence

FCL: Full Container Load

FEU: Forty-foot Equivalent Units

HS: Harmonised System

IoT: Internet of Things

ISO: International Organisation for Standardisation

LCL: Less than Container Load

LOA: Letter of Authority

MSDS: Mandatory Safety Data Sheet

NCC: National Consumer Commission

NRCS: National Regulator for Compulsory Specifications

NTMs: Non-Tariff Measures

ROI: Return on Investment

SA: South Africa

SABS: South African Bureau of Standards

SADC: Southern African Development Community

SAPS: South African Police Service

SARS: South African Revenue Service

TCL: Total Landed Cost

TEUs: Twenty-foot Equivalent Units

TNPA: Transnet National Ports Authority

TRC: Total Regulations Cost

UPI: Unique Product ID

WTO: World Trade Organisation

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my fiancé, whose unwavering support, patience, and encouragement have sustained me throughout this research journey. Your belief in my abilities has been a constant source of motivation, and I am truly grateful for the sacrifices you have made to help me reach this milestone in my academic career.

I also wish to extend my sincere appreciation to the University of KwaZulu-Natal (UKZN) for granting me the opportunity to pursue my master's degree and conduct this research. The academic guidance, resources, and supportive environment provided have been invaluable to my personal and professional growth.

I am deeply grateful to my supervisors, Dr Sanele Gumede and Dr Mbuso Emmanuel Nzama, for their unwavering guidance, insightful feedback, and generous sharing of knowledge, which greatly enriched this research project.

TABLE OF CONTENTS

SUPERVISORS' PERMISSION TO SUBMIT FOR EXAMINATION.....	i
ABSTRACT.....	ii
DECLARATION.....	iii
AI DECLARATION.....	iv
ABBREVIATIONS.....	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF FIGURES AND TABLES.....	x
CHAPTER ONE.....	1
INTRODUCTION.....	1
1.1 CONTEXT AND BACKGROUND.....	1
1.2 BACKGROUND AND OUTLINE OF THE RESEARCH PROBLEM	2
1.3 MOTIVATION FOR THE STUDY	3
1.4 RESEARCH OBJECTIVES	4
1.5 RESEARCH QUESTIONS	4
1.6 STRUCTURE OF DISSERTATION.....	4
1.7 CONCLUSION.....	6
CHAPTER TWO.....	7
LITERATURE REVIEW.....	7
2.1 INTRODUCTION	7
2.2 REVIEW OF EMPIRICAL LITERATURE.....	8
2.3 PREVALENCE OF IMPORT REGULATIONS	13
2.4 SOUTH AFRICA'S PORT SYSTEM	14
2.5 REGULATION COSTS	15
<i>2.5.1. Hypothesis: Import regulations have a statistically significant impact on the cost of goods.</i>	<i>15</i>

2.6	REGULATIONS AND THE FLOW OF GOODS	15
2.6.1.	<i>Hypothesis: Import regulations have a statistically significant impact on the flow of imports.....</i>	<i>17</i>
2.7	COST OF REGULATIONS	17
2.7.1.	<i>Hypothesis: As compliance evolves so the cost increases each year.....</i>	<i>18</i>
2.8	THEORETICAL FRAMEWORK	19
2.9	CONCLUSION.....	22
CHAPTER THREE.....		23
RESEARCH METHODOLOGY.....		23
3.1	INTRODUCTION	23
3.2	RESEARCH DESIGN	24
3.3	RESEARCH SAMPLE.....	24
3.4	RESEARCH PROCEDURES	25
3.5	STATISTICAL ANALYSIS	26
3.6	ETHICAL CONSIDERATIONS	27
3.7	CONCLUSION.....	29
CHAPTER FOUR.....		30
ANALYSIS AND DISCUSSION.....		30
4.1	INTRODUCTION	30
4.2	PORT OF DURBAN OVERVIEW	30
4.3	DATA ANALYSIS AND DISCUSSION	31
4.4	AGENCY FEES	37
4.5	CONTINUOUS FINANCIAL IMPACT	38
4.6	COMPETITIVENESS OF IMPORTERS	38
4.7.	UNRESOLVED ISSUES.....	46
4.8	CONCLUSION.....	48
CHAPTER FIVE.....		49

DISCUSSION OF RESULTS	49
5.1 INTRODUCTION	49
5.2 RESEARCH AIMS AND METHODOLOGY	49
5.3 FINDINGS BASED ON THE RESEARCH QUESTION	50
5.3.1. <i>How do import regulations affect the cost of imported goods in South Africa?</i>	50
5.3.2. <i>How do import regulations have an impact on a firm's product selection?</i>	51
5.3.3. <i>How do import regulations act as import restrictions?</i>	52
5.4 RESEARCH OBJECTIVES	52
5.5 LIMITATIONS RELATED TO THIS DISSERTATION AND FUTURE RESEARCH OPPORTUNITIES	53
5.6 ADVANTAGES AND DISADVANTAGES OF IMPORT REGULATIONS AS WELL AS ADHERENCE	54
CHAPTER SIX	57
CONCLUSION AND RECOMMENDATIONS	57
6.1. CONCLUSION	57
6.2 RECOMMENDATIONS	60
REFERENCES	63
Appendix A: ETHICAL CLEARANCE LETTER	71
Appendix B: ETHICAL CLEARANCE LETTER AMENDMENT APPLICATION	72
Appendix C: CERTIFICATE OF LANGUAGE EDITING	73
Appendix D: TURNITIN REPORT	74

LIST OF FIGURES AND TABLES

Figure 2.1: Research diagram	21
Table 4.1: Product test fees	33
Table 4.2: Adherence costs	34
Table 4.3: NRCS levies	35
Table 4.4: Adherence and compliance cost	36
Table 4.5: Sample/data average	37
Figure 4.1: Compliance & adherence	39
Table 4.6: Amount of LOAs obtained annually	40
Table 4.7: LCL vs. FCL stopped shipments	41
Table 4.8: Sampled shipment files	42

CHAPTER ONE

INTRODUCTION

1.1 CONTEXT AND BACKGROUND

In response to political developments, technical advancements, and shifting economic patterns, import regulations have evolved over the years into a well-structured and self-sufficient trade segment. As such, the roles and responsibilities of government regulatory agencies have also expanded (Widdowson, 2007).

The governance and regulation of international trade have always reflected broader societal needs, ranging from ensuring consumer safety and promoting economic integration to the protection of domestic industries (Horner, 2021). Thus, as the electrotechnical sector continues to expand, driven by rapid innovation, increased consumer demands, and digitalisation, so the importance of regulatory control has become increasingly pronounced. It is of the utmost importance that regulatory frameworks strive to create a balance between supporting local competitiveness and safeguarding consumers, including ensuring compliance charges remain proportionate, transparent, and linked to appropriate determination methods.

Physical inspections are largely focused on ensuring that all goods imported into South Africa are compliant and safe for consumers to purchase and use. The financial costs of these physical inspections add to the importers' costs, over and above the compliance fees incurred prior to importing the actual product (Makhoba, 2000).

This paper thus looked at a five-year period to assess the financial impact of import licencing regulations and physical port inspections, with a particular focus on the small appliances segment in South Africa. The financial implications of import regulations are practical, day-to-day issues, which are faced by, amongst others, fast-moving consumer goods firms (Makhoba, 2000).

This study focused on import activities within the Port of Durban in South Africa, identifying the inner workings and environment experienced by both the authorities and importers. The aim was to understand how regulatory implementation impacts a firm's decision making and their threshold towards import adherence.

1.2 BACKGROUND AND OUTLINE OF THE RESEARCH PROBLEM

Import regulations are the compulsory specification requirements, test reports, Letter of Authority, and labelling requirements and/or standards that are administered by the Department of Trade, Industry and Competition (DTIC) in South Africa. These regulations are enforced by the National Regulatory for Compulsory Specifications (NRCS) (Schwella, 2002). The NRCS ensures and monitors compliance with import regulations through licence applications, imposing import levies, and physical port examinations. The NRCS prioritises the safety of imported products that are available to the consumer market. Despite the good intentions of import regulations, however, Dohlman (2003) noted that the enforcement thereof has resulted in the required standards and selected inspections being at the importer's cost, which has the potential to directly impact the cost of imported goods and reduce an importer's competitiveness.

The central gap in the research that this study aimed to address is the relationship between import regulation costs and the resulting costs over a five-year period. Essentially, this research investigates how import regulation requirements impact the landed cost of imported goods. Although previous literature on the regulations related to imports show that they result in challenges for importers, there is limited quantified data regarding the exact amount such regulations cost.

This study separated out two entangled components of compliance: regulation costs, which refer to application fees, certification approval, inspection charges, and additional obligations enforced by statutory bodies within South Africa; and adherence charges, which include the relevant internal operational costs associated with ensuring products are compliant with the stipulated regulations upon arrival in Durban.

This research aimed to measure the ongoing financial impact of compulsory compliance with import regulations in South Africa on a firm's financial ability, general flow of goods, and competitiveness within the market. This was done by observing how adherence to import regulations, through physical examinations, add to the cost of imported goods; identifying the impact that import regulations impose on product development and selection processes within firms, focusing on the FMCG industry; and determining whether mandatory import regulations function as a technical trade barrier and reduce a firm's financial abilities.

The findings will assist policymakers, industry stakeholders, and importing firms to assess the actual costs linked to regulation and adherence.

1.3 MOTIVATION FOR THE STUDY

Research topics are often driven by curiosity; in this instance, the study was motivated by the writer's continuous exposure to the research material and their curiosity with regards to the outcome of the study. Import regulations and adherence to them are issues that are dealt with daily in the trade industry and in relation to a range of products. The general impression of import regulations is that there is a once-off fee which is necessary for compliance (Omer, 2022), yet the financial costs related to importing small electrical appliances in South Africa are present throughout the product's life cycle, as they include testing, application, renewal, and levy fees, some of which are payable annually. All the aforementioned costs are ultimately the responsibility of the importer, which needs to ensure compliance with the required import regulations. These financial factors have been proven to reduce the competitive ability of firms within this market segment (Bamberger and Guzman, 2008).

Furthermore, port regulatory agencies may stop any shipment for queries and physical examinations over and above the cost of testing, applications, renewals and levies (Tladi, 2021). This contributes to the overall cost of all units of a specific product within the container, even though compliance has been adhered to in full and communicated prior to the import of the products. This may result in a firm's cash flow and financial performance being negatively impacted, yet innovation and collaboration could result in more cost-effective methods that would simultaneously ensure compliance regarding imported goods (Omer, 2022).

Cost reductions can be achieved by understanding the financial impact of import regulations and compliance requirements in South Africa. This study determined that impact by investigating the multiple costs related to adherence to import regulations, specifically focusing on small appliances, which are continuous throughout a product's life cycle.

1.4 RESEARCH OBJECTIVES

- To analyse the financial impact of import regulation adherence.
- To assess the impact of import regulations and inspections on local firms' flow of cargo.
- To examine the correlation between additional import costs and product expansion.

1.5 RESEARCH QUESTIONS

- How do import regulations affect the cost of imported goods in South Africa?
- How do import regulations impact on a firm's product selection?
- How do import regulations act as import restrictions?

1.6 STRUCTURE OF DISSERTATION

Chapter one: Introduction

Chapter one explained the background and relevance of this study, situating the research problem in a broad practical context. The research questions and objectives were identified, as was the aim of the study.

Chapter two: Literature review on import regulations and adherence

The literature review situates the study within the existing body of scholarly knowledge by identifying, analysing, and synthesising relevant theories, empirical findings, and debates related to the research topic. By critically evaluating prior work, the chapter highlights what is already known, where gaps or inconsistencies exist, and how the current study will contribute to addressing these gaps. In this way, the literature review provides the conceptual and theoretical foundation for the research and explains the need for the study.

Chapter three: Research methodology

This chapter offers an in-depth explanation of the methodology framework utilised, including the research design, data collection approach, and procedures followed.

The chapter also includes a comprehensive discussion of relevant academic research related to regulatory compliance, import regulations, and financial implications linked to the research context. This not only identifies how the research was conducted, but

demonstrates how the methodological decisions align with practical, theoretical, and regulatory considerations.

Chapter four: Analysis and discussion regarding import regulations and adherence costs in South Africa

This chapter presents the empirical data collected in connection to the study, using a quantitative research methodology. A structured overview of the data collected allows the reader to view the trends, patterns, and disruptions that emerged. This chapter lays the groundwork for a subsequent interpretation and analysis of the findings.

Chapter five: Discussion of Results

Chapter five critically examines and interprets the empirical findings noted in chapter four. The intention is to move beyond a descriptive presentation of the presented data and expand on the broader meaning, significance, and implications of the results obtained. This is accompanied by a detailed explanation of how the findings link to the research objectives, problems, and theoretical framework.

Chapter six: Conclusion and recommendations

Based on the findings of this study, this chapter provides an overview of the financial impact of adherence to import regulations and offers recommendations regarding the problem statement.

This chapter concludes the study by demonstrating how the research objectives have been addressed and the extent to which the findings respond to the central research questions. In doing so, it consolidates the key insights derived from the analysis and reflects on the implications these insights hold for both industry practitioners and policymakers.

Additionally, the chapter outlines areas where important questions remain unanswered or where the study's limitations may have constrained the depth of analysis. These gaps provide a foundation for further inquiry, and recommendations for future research are therefore presented to guide subsequent academic work.

1.7 CONCLUSION

This chapter outlined the research objectives and established the rationale for the study, which examined the costs associated with compliance with import regulations governing small electrical appliances entering the South African market. Each objective was linked to a corresponding research question, ensuring conceptual clarity and demonstrating how the study will systematically address the problem identified. The motivation for the research stems from the researcher's direct, practical exposure to South Africa's regulatory and compliance landscape, as well as the need to better understand the financial implications that these regulatory processes impose on firms operating within this environment.

By framing the significance of key cost-related variables and illustrating how these variables intersect to influence organisational outcomes, this chapter has set the foundation for the remainder of the dissertation.

Chapter two will build on this foundation by critically reviewing existing literature related to import regulations, compliance costs, and adherence practices. This review will map the current research landscape and situate the present study within broader discussions on regulatory burdens, trade facilitation, and product development in regulated markets within the global supply chain.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter highlights relevant literature related to the objectives of this study and elaborates on the key variables of interest, including an explanation of the history of import regulations and their impact on South African companies.

In addition, the chapter identifies how the theoretical framework of international trade is designed and functions from a South African viewpoint. It also expands on the roles of the regulatory agencies that uphold local and international import regulations within South Africa, and how their roles have developed to the current stage.

The chapter further examines how import regulations impact an importing firm's decision making when it is considering product expansion. It explores whether expansion decisions are based on potential ROI for the firm, consumer demand, or regulations and the associated compliance costs. The chapter then examines if these variables act as import restrictions within the manufacturing, assembly, and importing landscape, and provides an overview of the current import regulations and compliance environment affecting the small appliances segment within South Africa.

Further, this chapter investigates whether importing firms purchase products based on customers' current needs, unidentified demand, or compliance requirements. These issues are linked to the theoretical framework that is discussed in detail in this chapter, with the data presented to the reader to provide a clear understanding of the study's analysis. Finally, the discussion considers whether regulations allow for new avenues of income to the South African market or divert attention from genuine demand in the appliances sector.

Analysing how the current port systems within South Africa function in terms of the theoretical framework will enable a holistic understanding of the flow of goods across South African borders. This is accompanied by an in-depth analysis of previously conducted research related to the study's objectives. This enables the research to link theoretical and practical aspects to realistically depict how import regulations and adherence are experienced by importing firms in South Africa.

2.2 REVIEW OF EMPIRICAL LITERATURE

It is important to remove uncertainty in trade requirements between exporters and importers, which is why international regulatory frameworks form the basis of global trade. Regulations stipulated by the World Trade Organisation (WTO) include documentation requirements, tariff bindings, and trade agreements (WTO, 2022). Organisations such as the International Organisation for Standardisation (ISO) complement both the local as well as the international trade environment. This is done by developing product safety guidelines, labelling requirements, and harmonised standards (Jackson, 2019). This paves the way for current as well as future improvements, such as harmonised tariffs, streamlined customs procedures, licencing, and trade remedies.

Research conducted by Grainger (2011) and Shepherd (2016) showed that harmonised initiatives help eliminate ambiguity surrounding trade regulations. This alignment reduces transaction costs while ensuring a shared understanding of compliance adherence across borders, enabling both importers and exporters to operate with greater certainty, reduced administrative burdens, and improved regulatory coherence.

Sheperd (2016) argued that as global trade grows ever more connected, the alignment of standards and rules is crucial for efficient supply chains. Grainger (2011) added that a misaligned or ineffective implementation of harmonised systems will result in the opposite results intended by policymakers, with significant negative economic implications.

Hill (2022) classified trade regulations into five categories: duties, non-tariff measures (NTMs), customs procedures, import licencing, and trade remedies. Duties are the most common method of regulation, which directly impact the landed cost of goods. These duties are calculated as a percentage of the imported good's value, based on each unit or weight of units imported. NTMs are compliance regulations linked to labelling requirements, technical regulated products, and quality certification (OECD, 2021).

The importer must be able to present the necessary documents prior to importation, which they should obtain from an accredited manufacturer or certified testing facility. These requirements add direct costs to the overall price of the goods, with a failure to provide the documents resulting in inspections, storage, and delay charges. Customs procedures such as Harmonised System (HS) classification, risk-based inspections,

and customs valuation verification also significantly affect both the time required and the costs incurred in moving goods through the global supply chain (Jackson, 2019).

Licensing requirements are subject to governmental approvals or quantitative restrictions, and involve costs such as application fees, expenses linked with meeting compliance standards, and the financial risks caused by delays. Trade remedies, which can be volatile and unpredictable, include anti-dumping measures, safeguard actions, and countervailing duties (Grainger, 2011). Bhagwati (2016) mentioned that such trade remedies can render products that trigger specific import rules and regulations economically unviable, directly reducing the attractiveness of such products.

The World Bank (2021) has argued that compliance costs are neither the sole nor the primary determinant of landed costs, however. It further cautioned that the excessive relaxation of import and export regulations may expose domestic markets to inferior-quality goods, placing significant pressure on local industries to compete with large volumes of low-cost imports, with potentially adverse effects on the broader economy.

Despite international trade rules and regulations, each country also has the ability to add their own laws that are to be adhered to. Understanding the process connected to an importing firm's product selection is thus essential. This process can be divided into three segments (Blind, 2016): demand-orientated purchasing, innovation-orientated purchasing, or purchasing aimed at acquiring products to meet compliance regulations due to the lack of such products in a specific country. Each segment plays a vital role in marketing, the global supply chain, and operational activities. Firms select products based on demand-driven variables, drawing on market-oriented theories that emphasise existing consumers' responses to familiar products. Kotler and Keller (2022) linked this method to reduced risks, as consumers are familiar with the products and have predictable spending habits.

Products selected by companies based on innovation was seen by Saeed et al. (2016) as a technological pushing strategy. These companies are driven by the creation of new markets, where they have a significant headstart as there are no competitors yet. Hill (2023), on the other hand, argued that companies within niche market segments are not driven by consumer demands but rather by product safety and compliance obligations. These are aimed at meeting a government's stipulated standards, attaining international certification, and creating new products. This is particularly true of the chemical,

electrical, and food safety industries, with firms basing their product selection on risks grouped as low, high, and variable yet necessary.

Swann (2010) examined the role of international standards and their economic implications for trade across sectors such as manufacturing, agriculture, and textiles. Their findings concluded that import regulation standards in manufacturing and agriculture have increased trade, however textile import regulations function as trade barriers, limiting imports as well as exports. Import regulations can thus limit the variety of products available to consumers as firms seek to obtain economies of scale in products that are not linked to a specific regulation. Furthermore, countries that adopt national rather than international standards tend to negatively impact import volumes.

Maskus et al. (2005) estimated the short-term financial impact of import regulations using firm-level data. They found that systematic increases in production processes to meet the required standards of a country strengthens firms' compliance and future product selection. They added that countries that impose national standards as opposed to international standards increase the cost of goods between 0.056% and 0.060%. In contrast, research by Dijmgou Tchakounte and Fiankor (2021), which investigated the effects of NTMs with a focus on technical regulations, found that regulatory standards enhance the quality of imported goods. Their findings suggest that higher retail prices are often linked to a significantly higher standard of quality as well as compliance.

Wagner (2016) reviewed the impact of import regulations on the landed cost of goods based on 32 firms' transactional data. They explained that import regulations shape importers' obligations and procedures, which need to be satisfied before goods can be legally imported. They also identified that regulations force importers to improve the quality of their goods. Goods with regulatory requirements do impact the cost of other goods within a shipment, however. Maskus et al. (2005) also found that compliance related to each importing country increases both variable and fixed costs, adding that the implementation of regulatory requirements inflate investment costs by 1% to meet industry standards.

Variable costs increase by 0.06% – 0.13% each year, with fixed compliance costs increasing by 4.7%. The OECD (2013) noted that border procedures, documentation requirements, and custom compliance are significant contributors to the overall cost of imports.

Additional empirical research conducted by Wassie et al. (2025) on import regulations across Africa found that import licencing, when used as a non-tariff barrier, has resulted in many firms reducing their volumes of imports. Their study emphasised that firms facing regulatory burdens may avoid regulated products completely to limit unnecessary operational expenditures, rather than increasing the landed cost of goods. This may result in companies not requiring specialised labour, leading to a ripple effect within the local economy as skilled labour is utilised by foreign countries.

Zameer et al. (2024) used an exploratory sequential design methodology to investigate how trade regulations act as financial and trade barriers. They surveyed 270 importing firms that faced daily import regulations and reviewed transactional data to understand market trends. Their findings indicate that four out of every six import regulations are seen as import barriers by companies in Pakistan, altering a firm's product selection. Import barriers directly increase manufacturing lead times, delay the departure of shipments, and create unnecessary demurrage for importers at the destination port. Any extra costs incurred throughout the logistical process directly impacts a firm's competitiveness in local markets, i.e., import regulations act as systematic or procedural barriers.

The World Bank (2012) conducted research to examine the impact of non-tariff measures, with the aim of improving the understanding of trade policies within an increasingly modernised global trade environment. They argued that technical regulations and standards often act as barriers to entry rather than facilitators by directly raising the cost of compliance, which adds to the landed costs of imported goods.

The tremendous growth related to the Internet of Things (IoT) as well as Artificial Intelligence (AI) has created profound operational, regulatory, and compliance-related trade benefits as well as disadvantages, hence there is a need for additional research (Ozturk, 2024). As digitalisation grows, both the regulatory landscape and firm level utilisation is changing rapidly, reshaping how regulatory agencies, companies, and international institutions manage the global supply chain.

Research by Sharma et al. (2023) demonstrated how technological advancements improve traceability, transparency, and operational efficiency within the global trade environment, as they allow for real-time visibility of goods, automated risk determination, and streamlined customs documentation procedures. The utilisation of AI and the IoT

can significantly reduce human errors and enhance auditability, as monitoring within the import and export environment is improved (Bera et al., 2024).

Ozturk (2024) similarly highlighted the technological advantages linked to automated document verification, including the early detection of fraud, automated tariff calculations, and proactive shipment verifications. AI also enables companies to experience improved social and environmental responsibility, transparent reporting procedures, and strengthened compliance, which may help them prior to importation (Kundu and Rahman, 2025). Therefore, in this context, AI and the IoT are fundamentally disrupting yet also redefining the traditional boundaries of the global trade environment by introducing modernised methods of data-driven visibility, cross-border connectivity, and automation. It is important that digitalisation is not simply an auxiliary tool, however, but plays a vital role in shaping the future landscape of international trade as we know it today.

Despite the advantages of the IoT and AI, Burri (2022) identified some challenges surrounding their utilisation within global trade. They emphasised that there is a need for improved rules and regulatory frameworks, noting that significant research is needed on the impact of algorithmic decision-making processes and the exchange of global trade data. Mansour and Lui (2024) also noted that despite the advantages linked to digitalisation, security and data transparency still require additional interventions. It is important, therefore, to ensure that the utilisation of AI and the IoT does not lead to fragmented information, reduced transparency, limited accountability, and auditability challenges.

Jones (2023) also warned that this technology will largely be utilised by developed countries and financially stable firms, leaving developing countries as well as smaller firms behind. This will increase the global technological gap due to unevenly distributed resources around the world, reducing competition and forming a new trade barrier that will only grow as each decade passes. Therefore, without holistic policy designs, AI and the IoT will reinforce global inequalities leading to new vulnerabilities within the regulation and compliance system.

2.3 PREVALENCE OF IMPORT REGULATIONS

Import regulation standards are designed to control the flow of goods imported into a country, ensure that they are safe for consumers to purchase, and adhere to countries' laws (Lin, 2017). This study focuses on the importation of small electrical products and the costs of compliance with import regulations, such as licencing and applicable adherence. Since all the aforementioned costs incurred for testing and inspections are borne by the importer, these ultimately affect both the importer and the consumer (Herbert, 2011).

The financial costs related to product compliance and physical port examinations remains an understudied research topic within South Africa, which has five import regulatory agencies: the South African Police Service (SAPS), the South African Revenue Services (SARS), Port Health, the NRCS, and the DTIC (Mayer and Onyango, 2005). Each entity has authority over a specific section of import regulations and compliance, as elaborated on below.

The SAPS is tasked with preventing and investigating crimes related to imports and exports, as well as ensuring that the laws of South Africa are applied and adhered to (Amadi, 2015). SARS, on the other hand, is responsible for collecting the revenues due to the state according to national legislation. SARS achieves this by confirming that all imports have no outstanding fees and are compliant with mandatory laws. Port Health aims to safeguard the public's general health by preventing the spread of diseases (Koma, 2010); it has the jurisdiction to conduct tests and inspect shipments and imported goods, if deemed necessary (Passos de Freitas, 2014). The NRCS' mission is to protect the environment and facilitate fair trade, which it does by administering mandatory specifications and technical regulations on imported products to ensure compliance (Meidinger, 2009). Lastly, the DTIC provides for transformation, while facilitating and developing a competitive trade environment and stimulating economic development (Keyter et al., 2018).

Import regulatory agencies thus have the ability to enhance efficiency, volumes of trade, and cost structures, yet research by Maskus et al. (2005) found that they create regulatory friction and increase the cost of imports due to a lack of transparency between policymakers and customs authorities. This misalignment leads to time delays, which act as a trade barrier by increasing uncertainty and inflating inventory costs.

It is important to understand the dual role of custom agencies in South Africa; while customs officials may slow trade and raise the cost of goods at the same time, this implementation also promotes consumer protections, quality assurance, and national security (Galiani et al., 2024).

The improvement of regulations in manufacturing and automation has led to a reduction in trade costs while increasing import volumes, as compliance inspections by customs agencies are seamless as well as more time effective due to the availability of pre-approved licencing documentation. On the other hand, licencing approval requirements on products such as electrical imports substantially restrict imports, limit firms' productivity, and affect market outcomes. This is because electrical compliance includes more goods and customs are continuously faced with new and innovative products. Regular policy updates are thus required and must be adhered to by the relevant importers.

2.4 SOUTH AFRICA'S PORT SYSTEM

The Port of Durban utilises multiple systems to ensure the efficiency of daily operations such as vessel management, regulations, import compliance, duties, and taxes. The following provides a detailed overview and understanding of the existing environment.

This study focuses on the Integrated Port Management System (IPMS) and Import Control System. IPMS is a cloud-based, integrated end-to-end system that monitors operations, terminal movements, system integration, and product flow. The import control of goods is managed by IPMS through two means: product harmonised system (HS) codes and discrepancies. Import control uses HS codes that have been predetermined to flag specific goods that cross the borders of South Africa. Any administrative discrepancy can also be flagged for query or inspection purposes.

Random inspections are also permissible, as all the agencies have the right to ensure compliance at any time. Products that have special import requirements, such as Letters of Authority (LOAs), are separately managed by the NRCS and are subject to the same inspection selection methods.

The IPMS system utilised by Durban reflects a global shift towards digital custom procedures, risk regulations, and port community integration, with the aim of reducing trade delays and improving regulatory efficiency while ensuring that imported goods meet the national specified requirements (Ghodsi et al, 2021). Ghodsi et al. (2021)

argued that this system is yet to reach its full potential and level the import regulations playing field for South African businesses.

2.5 REGULATION COSTS

Any shipments brought into South Africa could be subject to queries or physical inspections related to the products declared for import by the above-mentioned agencies. This can occur even though compliance has been received by the relevant agency prior to importation of the relevant product.

Goods manufactured for the small appliance market are tested in China to European Norm (EN) standards, which is in line with global compliance requirements (Twum-Darko and Mazibuko, 2015). South Africa, however, requires test reports and standards to align with International Electrotechnical Commission (IEC) standards (Patterson and Sahd, 2024), thus importers need to ensure the standards are converted and pay the applicable charge. This lengthens the start-up phase of product development and overall costs, contributing to trade limitations and reduced consumer product selection.

Import regulation standards can influence a firm's expenditure as they might look at product expansion differently based on compatibility and the respective adherence costs (Blind, 2016). Zhang et al. (2023) studied the impacts of import standards and regulations in the United Kingdom, considering both imports and exports. Their study, which was conducted by quantifying the number of regulations and product flow, found that the standards and import regulations increased both imports and exports.

Mutuku and Mbithi (2017), meanwhile, found that import regulations are technical trade barriers that increase consumer demand by widening intensive and extensive margins. They argued that import regulations increase both variable and fixed costs, causing customers to move towards quality products when making their buying choices.

2.5.1. Hypothesis: Import regulations have a statistically significant impact on the cost of goods.

2.6 REGULATIONS AND THE FLOW OF GOODS

Trade flow and regulations have a complex history that has evolved over time in response to political developments, technological advancements, and shifts in economic priorities. As the electrotechnical environment has expanded, driven by rapid innovation and digitalisation, so has the need for effective and sustainable regulations

and controls. This approach emphasises the importance of accounting for regulatory and compliance costs and complementing them with support measures to safeguard local firms. Well-designed regulatory support systems may improve domestic industries and competitiveness while meeting international quality and safety standards.

Monyela and Saba (2019) highlighted that import regulations and adherence costs reduce the accessibility of markets, thereby reducing competitiveness. In addition, more regulations increase the administrative burden faced by government regulatory agencies, increasing overall operational costs and reducing efficiency. Research by Ferrantino (2006) supported the conclusion that NTMs, as well as technical trade barriers such as documentation procedures, certification, and testing, impose unnecessary financial burdens on importers. Grainger (2011) added that this not only impacts importers but imposes additional administrative work on customs agencies. Djankov et al. (2010) also contributed to the literature by emphasising how regulations slow trade activities, inflate transactional costs, and lead to systematic inefficiencies of overall supply chain performance.

Local firms that import goods that require a specific test standard are faced with limited testing facilities in South Africa (Gensen, 2019), forcing them to source testing services abroad. Paying for these tests in US Dollars is expensive given the exchange rate with the South African Rand, plus these funds leave the South African economy, which is a lost opportunity (Gensen, 2019). Blind's (2017) examination of technical trade barriers also highlighted that the limited accessibility of local testing results in prolonged lead times and reduced competitiveness. Similarly, Swann (2010) argued that inefficient testing ecosystems have the potential to create a bottleneck effect, whereby local firms face greater financial obligations than those in countries with better technical infrastructure.

Hoekman and Kostecki (2009) noted that international testing facilities operate at a much larger scale, have better technical capabilities, and provide modern international accreditation certifications. International laboratories also deliver more reliable results with a reduced possibility of non-compliance at foreign borders. Outsourcing testing may thus reduce long-term costs by limiting the need for duplicate testing, while ensuring a smoother customs clearance process upon a product's arrival at the destination port.

By using a static model, Martincus et al. (2025) found that additional import regulation costs reduce a firm's competitive advantage and lead to fluctuating costs. Further research has shown that regulation adherence costs could reduce productive investment and minimise needed growth by means of the Porter hypothesis (Dechezleprêtre and Sato, 2017). As per English and Hammond (2019), it has also been found that import regulation requirements not only reduce a firm's resources but also increase the cost of skilled employees. This comes as companies need to hire employees who specialise in import regulation adherence. The cost of compliance is thus continuous throughout a product's life cycle. Previous research further indicates that import restrictions act as trade barriers (Kasahara and Lapham, 2013), which can create friction and reduce the general flow of goods in developing countries (Herbert, 2011).

2.6.1. Hypothesis: Import regulations have a statistically significant impact on the flow of imports.

2.7 COST OF REGULATIONS

The landscape of import regulations has innovated and changed over time, resulting in compliance undergoing radical changes and widening duties (Taylor, 2005). This involves identifying the challenges associated with rising compliance costs, which increasingly influence the daily decision-making processes of importers and exporters.

The cost of regulatory compliance is linked to importers obtaining the required test reports or mandatory safety data sheet (MSDS). However, Leverty and Liu (2019) highlighted the growing technological complexity in consumer goods, noting that testing laboratories are not yet able to assess these advanced goods. As a result, laboratories must expand and therefore charge higher fees, indirectly impacting the cost of regulations and adherence.

Charles (2016) reviewed the potential of trade facilitation to reduce the costs of import regulations, suggesting streamlined business-to-government communication. Trade facilitation would enable regulatory agencies to focus on tasks that require more attention, while compliance could be achieved through the implementation of digital communications platforms. This could reduce costs and time delays, as seen with the trade facilitation implemented for cocoa exports from Cameroon.

2.7.1. Hypothesis: As compliance evolves so the cost increases each year.

Quak (2019) stated that import compliance regulations have both a positive and negative impact that varies from country to country. The cost function should thus always be the focus point when looking at import regulations and adherence from a financial angle. They further highlighted the importance of government policy and strategy alignment, as a strategy that works for one economy will not necessarily work for another.

Grainger (2014) described the difficulty of ascertaining the actual cost of import regulations and connecting this to the real tax values of imported or exported goods. This highlights the need for holistic research within the customs and regulations environment.

Safaeimanesh and Jenkins (2021) estimated the total cost of compliance for goods imported through South Africa increase at a rate of 1.67% every year. They added that should administrative and border inefficiencies be removed, the cost savings to the South African Development Community (SADC) may be as much as \$2.2 – \$3.7 billion annually. They concluded that import regulations and inefficiencies not only impact imported goods but also have a devastating impact on SADC-related trade opportunities. The effective implementation of a single-window system may reduce such inefficiencies and unnecessary expenses, while having the potential to boost future trade opportunities.

Research within the South African context is limited regarding the quantified financial impact of import regulations on the cost of imported goods, especially if physical inspection fees are considered (Kalaba, 2014). Kalaba added that the majority of empirical research conducted on the cost of regulation is aimed at aggregated trade flow or costs on a macro level, i.e., no research has measured the incremental costs of shipments subject to physical inspections versus those cleared without inspections. They also noted that the main difficulty in assessing NTMs is data unavailability.

This study thus examines the additional financial costs incurred by containers subjected to physical inspection. It further analyses how these incremental costs may function as trade barriers for local firms operating within the small electrical appliance market. The research aims to highlight the importance of holistic and integrated communication systems among government regulatory authorities in South Africa. In doing so, it

contributes to a deeper understanding of the financial environment surrounding the importation of goods and the specific regulatory standards.

2.8 THEORETICAL FRAMEWORK

Three assumptions were made regarding this research, the first of which was that the explanatory variables lead to the fluctuation of the landed cost of goods imported into South Africa, with the potential to increase the financial cost of these goods when they affect a specific shipment (Taylor, 2005).

- Adherence fees = Inspections cost + storage charges + demurrage
- Testing fees = Application fees + laboratory charges + documentation fees
- Levies = Fixed cost per bundle of units imported
- Total regulations cost (TRC) = Adherence fees + testing fees + levies

Tracking the number of LOAs obtained each year was essential to determine if importers' confidence regarding products with compliance obligations increased or decreased due to import regulations and adherence thereto. This is expressed as:

- Total LOAs issued = LOAs Y1 + LOAs Y2 + LOAs Y3 + LOAs Y4 + LOAs Y5

The second assumption was related to the intermediary and logistical costs linked to forwarding and clearing agencies that offer services throughout the logistical process (Quak, 2019). These were included in the total invoice used to determine the landed cost of imported goods.

- Freight charges = Charges issued by the shipping line for services rendered
- Agency fees = Percentage of total invoice value

The third assumption, known as the time variable, tracked changes in the regulatory environment over a set period. In this study, changes in costs and regulations were monitored over a five-year period, allowing for an analysis of importing firms' temporal dynamics (Herbert, 2011). The approach enabled the researcher to identify if firms develop increased resilience to continuous changes in import regulation requirements or adjust their product selections every year.

Therefore, the total landed cost may be written as follows:

- Total Landed Cost (TLC) = Invoice value + Freight charges + Agency fees + Adherence fees + Testing fees + Levies + Inspection fees + Storage charges.

All products within a shipment that is subject to additional adherence charges are affected, regardless of if there are regulation requirements for all the units. Therefore, the average cost of adherence may be expressed as follows:

$$\text{Average cost of adherence} = \frac{\text{TC}}{\text{SAMPLE SIZE}}$$

The theoretical framework underpinning this research provides a structured foundation for understanding how import regulations and adherence affect the financial performance of South African importing firms. By integrating the three core assumptions into one unified cost structure represented by the TLC equation, the framework offers a quantifiable method to analyse how regulations impact the landed cost of imported goods. The comprehensive approach adopted not only facilitated year-on-year assessments but also incorporated firms' resilience to regulatory requirements over a five-year period. The theoretical framework is therefore positioned to meaningfully evaluate the long-term financial impact of imported goods as well as the impact on a firm's future product selection.

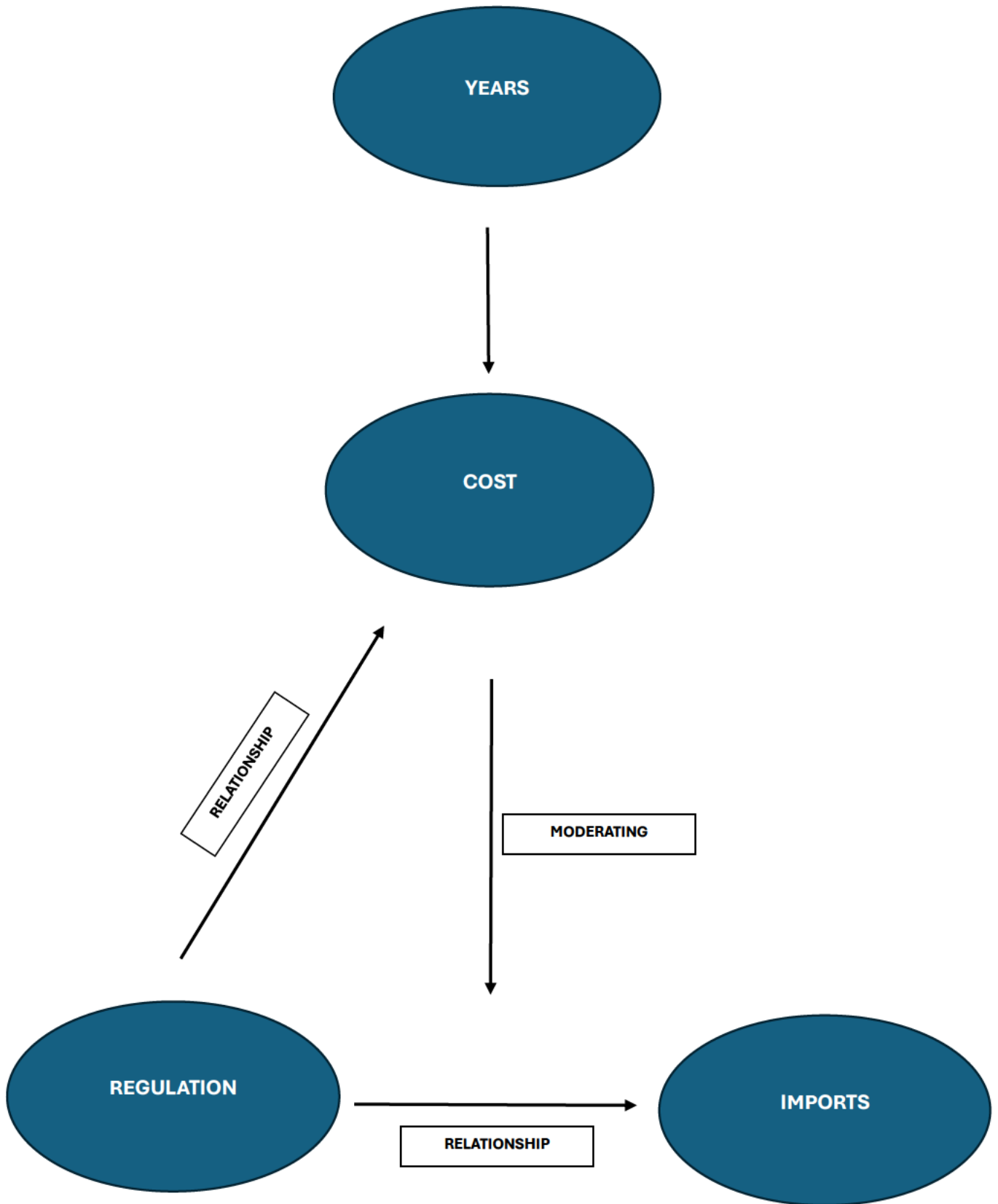


Figure 2.1: Research diagram
Source: Author's own work

This research diagram sets out the structure of the overall research while highlighting the logical flow of the study. The key components are included in the form of a roadmap. This approach demonstrates coherence among the selected variables, linking each phase of the research into a unified and holistic framework. It also visually outlines the research methodology pathway, guiding the reader progressively through the context and structure of the study.

2.9 CONCLUSION

This chapter presented a practical and theoretical understanding of the current environment related to import and export rules, regulations, and compliance. Cost is positioned as the central focus, forming a foundation for the following chapters. The chapter also highlighted potential issues related to import regulations and how these are costly for importers. A five-year period was utilised to fully understand the impact and costs of import rules and regulations, with an acknowledgment that all goods crossing South Africa's borders must be regulated. This study specifically examines these dynamics within the small appliance sector in South Africa (Garrett and Mitchell, 2020).

Chapter three will build on this foundation by outlining the research methodology employed and detailing the data collection strategies, analytical techniques, and procedural steps used to investigate the financial implications of import regulations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This study researched the cost of import compliance related to electrical products by investigating shipments containing electrical products that required additional measures, as well as non-regulated products. The research data were collected by obtaining and analysing fast-moving consumer goods' import shipments over five years. In the process of analysing the aforementioned research data, the cost variables over and above standard freight charges, which include inspection charges, agency fees, licencing fees, and import levies, were investigated (Rajamaki and Rusanen, 2002). The study's sample comprised 83 shipping files drawn from a population of 700 covering the period from 2020 to 2024. The identified variables were tabulated and statistically analysed based on additional costs above the ordinary. Furthermore, the research assessed the financial impact on goods within shipments that incurred additional costs.

The effect of import regulations, specifically for electrical products, on the product selection process within firms was also assessed. The research data were reviewed to determine whether the number of goods imported that required additional import compliance had increased or decreased over the five-year period (Rajamaki and Rusanen, 2002). The number of electrical products imported each year was compared to determine if the costs thereof were affected, in order to identify the significance of the expansion of compliance.

A question about whether regulation variables acted as trade barriers for local import firms was also answered by assessing if they impacted the cost of goods and by identifying the correlation between cost and compliance (Wassie et al., 2025). In order to evaluate this, the study examined the extent to which such regulatory limitations impacted the landed cost of goods. Understanding this correlation was vital to assess if the regulatory landscape unintentionally creates structural disadvantages for firms in South Africa. The study further identified if such characteristics mirror trade barriers, thereby limiting imports and exports.

The study used a quantitative approach to identify trends, similarities, differences, and patterns related to import regulations (Zhang et al., 2023). An in-depth examination into financial variables such as costs for product testing, licencing, physical inspections, and

agency fees was conducted within the small appliances import market in an attempt to reduce the current research gap regarding how companies are impacted by import regulation requirements and compliance measures (Havenga et al., 2017).

3.2 RESEARCH DESIGN

A deductive approach was utilised as it offered a well-structured and theory-driven framework that enabled the researcher to investigate the actual financial implications of import regulations, as well as adherence to those regulations, for imported goods. A top-down approach was applied by starting with a theory and regulatory frameworks, before the researcher proceeded to test the specified hypotheses (Imperial, 2021). Following the sample rationale outlined by Zhang et al. (2023), this research employed a non-probability, cross-sectional data collection method. Convenience sampling was used due to the relevance and accessibility of the available operational and financial data linked to this research.

The selected methodology enabled the researcher to examine the actual financial impact related to import compliance within a well-defined time period. This path supported a detailed exploration into how regulations increase the pressures faced by importing firms, indicating capacity constraints and the impact of product selection.

The collected data were not only utilised to quantify the direct financial impacts linked to import regulation and adherence, but also to assess the broader strategic, operational, and organisational implications. This included an examination of regulatory compliance costs, delay costs, documentation requirements, and the volatility linked to regulatory enforcement towards firms operating within the import market of South Africa. The research thus provides a clear and holistic understanding of the current regulatory environment that ultimately shapes firms' behaviours and international resilience.

3.3 RESEARCH SAMPLE

This study adopted a cross-sectional approach to data collection as the data were readily available. The study's sample comprised 83 shipping files drawn from a population of 700 covering the period from 2020 to 2024.

The analysis of the research data focused on stopped and non-stopped containers that entered the Port of Durban. These containers held products that required adherence to set import regulations as well as goods with no import restrictions. Although cross-sectional and convenience data present several limitations, such as the inability to

establish causal relationships, the potential for selection bias, and challenges in accurately estimating error margins, they remain useful for exploratory analysis and for identifying patterns and associations within a defined context when interpreted with appropriate caution.

The dataset consists of non-representative observations, as the data apply specifically to the importation of small electrical appliances and the associated additional charges. These charges may extend beyond standard testing and licencing fees, potentially highlighting supplementary cost burdens incurred by importers (Haque et al., 2022). The data sample, while non-representative due to the focus placed on a specific product category (small electrical appliances), provided a contextual and detail-rich foundation for the study.

The geographical focus of this research was Durban, South Africa, which is a major commercial and logistical hub that hosts a number of FMCG firms that rely heavily on imported products to sustain their supply chains. The study focused on a defined cluster of FMCG firms operating in the region, utilising their import-related transactional data. This setting provided the relevant context for examining the effects of import regulations, customs procedures, and compliance mechanisms among firms whose business models depend on rapid product turnover and consistent cross-border replenishment.

3.4 RESEARCH PROCEDURES

Defining the systematic steps undertaken to collect, structure, and analyse the data for this research was important in order to provide a transparent view of how the methodology was operationalised to ensure the findings' reliability, replicability, and validity.

A quantitative data collection method was employed to allow for the systematic measurement and statistical analysis of import-related financial burdens. The research design integrated a standard data sampling procedure as outlined by Zhang et al. (2023), together with the linear firm level data panel method implemented by Li and Miao (2018). This ensured that the analysis captured both temporal trends and cross-sectional variability. Secondary data were sourced from 700 shipping files covering a five-year period (2020 - 2024).

The analytical process focused on highlighting and identifying inspection-related charges, including charges incurred when shipments are stopped for any reason.

Descriptive statistical measures such as the medium, mean, and standard deviation were used to determine year-over-year fluctuations, while identifying potential patterns related to inspection frequency as well as cost accumulation (Hauk, 2012). Additional financial variables such as testing fees, agency charges, licencing costs, and compliance-related expenditures were also examined to provide a comprehensive understanding of regulatory financial burdens faced by importing firms.

Subsequently, the study explored whether a statistically significant correlation exists between product regulation costs and the rate of product expansion within small appliance divisions of FMCG companies. This helped to determine whether heightened regulatory expenses act as a constraint on innovation and product development. Given that approximately 40% of the required data were stored digitally while the remaining 60% existed in hard-copy format, time was allocated for data retrieval, manual extraction, and preprocessing to ensure accuracy and completeness before the formal statistical analysis began.

The data collected positioned the study to generate reliable insights regarding the relationship between regulation costs and product expansion within the FMCG sector. By integrating well-established sampling methods with firm-level analysis techniques, this approach ensured that the financial impact of regulatory inspections was examined accurately and comprehensively.

3.5 STATISTICAL ANALYSIS

This section outlines the statistical procedures employed to analyse the sample data used in this study. The purpose of these procedures was to ensure a rigorous, evidence-based examination of the patterns, trends, and relationships relevant to the research objectives. By applying appropriate statistical techniques, the study sought to generate reliable insights that support valid, empirical conclusions.

Firstly, the research examined how many containers had been subject to any form of inspection and adherence stops relative to the total number of imported containers. This involved an analysis of if the average annual amount of stopped containers had increased or decreased in the five-year period, following the methodological guidance utilised by Goksu and Arslan (2020).

The research next assessed the financial impact linked to containers that underwent physical inspections (Goksu and Arslan, 2020). Descriptive data such as average,

standard deviation, and mean were utilised to compare variations over time to detect potential patterns as well as anomalies (Hauk, 2012).

Third, the study determined how agency fees were influenced by import regulation adherence stops, given that agency fees are typically calculated as a percentage of each shipment's total import charges. Understanding the fluctuations in such agency charges provided deeper insight into the broader cost impact of regulatory and adherence interventions.

Finally, the research combined these financial charges to determine the actual economic burden linked to inspection-related delays, as well as to determine the opportunity cost in Rand terms. This highlighted what financial resources could rather have been allocated towards development, product innovation, and expansion. This comprehensive financial assessment thus helps to illustrate the strategic significance of compliance for importers.

Together, the above analytical procedures provide a robust foundation for interpreting the empirical findings, ensuring that the study's results are meaningfully connected to the broader research questions and situated within the context of existing literature.

3.6 ETHICAL CONSIDERATIONS

To ensure constructive validity, this study measured the financial impact of physical regulatory stops by comparing the total costs related to import regulation adherence each year (Golafshani, 2003). This information was obtained by retrieving the complete tax invoices for each imported container, which included all costs.

Within international trade, cost is referred to as the total monetary outlay that accompanies the movement of goods from the point of manufacturing to the final destination. This encompasses all expenses incurred throughout the logistical process, including transportation, insurance, freight, customs duties, compliance fees, inspection charges, handling charges, and any form of additional administrative charges that are the responsibility of the cargo owner (Dechezleprêtre and Sato, 2017). Collectively, these costs determine the overall landed cost of imported goods, serving as a key variable in pricing decisions and exerting a direct influence on firm competitiveness.

Regulations specify what manufacturing standards products need to comply with to obtain customs clearance. Importers thus need to ensure that their incoming products

are compliant (Kriek, 2017), which is done by presenting a report to the NRCS and obtaining an import LOA (Twum-Darko and Mazibuko, 2015).

Product compliance testing costs were determined by calculating the total financial expenditure associated with obtaining the mandatory test reports required for the issuance of import licences. These costs were measured using invoice data that corresponded to each small electrical appliance submitted for testing within the South African import market.

While quantifying the testing fees, the researcher divided the costs between those related to obtaining a licence prior to import and those incurred due to compliance and adherence upon entry to South Africa. This approach aligned the data with the conceptualisation of compliance-related financial costs as a continuous process.

For the purposes of this research, importers were defined by the specific number of individual containers. Each shipment was linked to one TEU, being either an LCL, 20FT, or 40FT HQ, allowing for a one-to-one connection between shipment records and container movements, and therefore a consistent measurement of import activity throughout the sample period. The dataset was comprised of physical import transactions focusing on products within the FMCG sector. This selection was made due to the importers' vital importance, product cycle, and sensitivity to the current importing environment.

Freight costs were excluded from each invoice (Kan, 2014) as they can be volatile and could have impacted the cost data required for this research. This ensured that the study reviewed only mandatory and additional fees. Future studies on different industries (Caesar, 2024) can follow the same procedure to measure applicable costs.

All of the import companies were informed about the nature of the research and its objectives, with written consent being obtained prior to the start of the study. As these companies were actively trading, their registered names were changed to protect their identities. This reduced any risk to the participants and generated integrity throughout the study. Prior approval was obtained before any deviation from the stipulated data or methods was made, ensuring transparency.

3.7 CONCLUSION

This chapter explained the critical role of the research methodology, which employed a quantitative approach with a cross-sectional time horizon, and outlined the guidelines necessary for conducting this study within a deductive framework. It highlighted the significance of understanding the impact of costs on imports, regulatory requirements, and temporal variations across the years under study. Measures to ensure validity and reliability were described in alignment with the research objectives, while ethical considerations were addressed holistically to guide the conduct of the study. Collectively, these methodological steps established a clear roadmap for the research, enhancing understanding of the factors influencing import costs. Furthermore, the chapter provided essential insights into additional charges beyond standard import requirements and underscored the potential benefits of a harmonised regulatory communication system for import processes.

Chapter four provides a detailed account of the research results obtained from the research data collected. It also interprets their significance, patterns, relationships, and the trends that surround the day-to-day challenges faced by South African importers.

CHAPTER FOUR

ANALYSIS AND DISCUSSION

4.1 INTRODUCTION

This chapter presents a discussion and analysis of import regulation and adherence costs over a five-year period, using data drawn from a cluster of firms operating within the FMCG sector. The chapter also examines the frequency of inspections and the associated financial impacts faced by importers, and analyses the relationships between regulations, costs, adherence, and their effects over time. This enabled the researcher to determine whether the theory and empirical data aligned with the study's hypotheses.

Collaboration and communication between regulatory agencies remain limited, as one in every six shipments scheduled for entry to the Port of Durban are stopped by one or more agencies. Online communication between the importer and regulatory authorities is necessary, as is allowing the various agencies to access data across all regulatory entities to avoid multiple inspections (Notteboom et al., 2021). While import regulations and adherence to those are essential for the safety of any country, they should be implemented innovatively and guided by sustainability goals while ensuring import/export attractiveness.

4.2 PORT OF DURBAN OVERVIEW

Understanding the port of entry utilised by importers was critical for accurately interpreting the import regulatory environment faced by firms importing small appliances within South Africa's FMCG market (Kalaba, 2014). Operational issues occasionally arise from insufficient infrastructure capacity, limited staffing levels, enforcement intensity, and/or port-specific operational procedures, therefore port selection can significantly influence the flow of goods as well as the associated costs. Recognising port-level heterogeneity therefore allows for a more nuanced understanding of logistical procedures while allowing for greater predictability (Jones, 2023).

Durban is the largest port in Sub-Saharan Africa in terms of number of containers handled and provides significant benefits to the African continent, especially the South African Development Community (SADC). Yet while the port has a designed capacity of 3.6 million TEUs, it only handles approximately 60% of this amount. In 2024 it was ranked 398 of 405 ports by the Container Port Performance Index (CPPI) due to

significant challenges caused by a lack of investment, poor management, and operational delays. Despite these challenges, however, the port is a lifeline for Africa and plays a vital role in inter-African connectivity (Scholvin, 2020).

On 24 October 2023, Maersk released a statement indicating that their vessels were experiencing lead times of five to seven days at the port. This was further reinforced on 10 November when Maersk confirmed that delays persisted despite the implementation of the port's recovery plan. Durban's Pier Two recorded the longest delays (18 days) in 2023 (Maersk, 2023).

4.3 DATA ANALYSIS AND DISCUSSION

Data collection and analysis relating to import regulation and adherence began with a review of shipments that incurred charges associated with compliance. It is important to note that the sampled shipments contained no data on costs related to noncompliance with the stipulated rules and regulations. This distinction is essential as the study analysis was focused on routine import compliance issues as opposed to punitive scenarios.

For the purposes of this evaluation, shipments were classified into the following four distinctive categories:

- **Total invoice:** This variable represents the total landed cost (TLC) related to imported goods from the point of manufacturing to their final destination. This includes all administrative, logistical, and regulatory charges incurred throughout the supply chain process, but excludes the cost price of the goods purchased.
- **Freight charges:** These charges capture the financial expenses associated with the maritime transportation of goods from the point of origin to the destination port. These costs are included in the analysis as ocean freight rates are extremely volatile and influenced by global demand, capacity constraints, fuel charges, and market dynamics. By documenting these charges separately, the study allows the reader to distinguish between freight-related costs and other variables. This separation enabled a more accurate assessment of regulatory and compliance-related charges, without freight volatility distortion.
- **Agency fee:** This variable represents a percentage of the total invoice value payable to the relevant clearing and forwarding agent for professional services rendered throughout the logistics process. These services typically include

coordination of international and local transportation, processing of custom documents, port handling arrangements, and warehousing if required. By remunerating the agent on a percentage basis, the fee structure reflects both the administrative intensity and complexity of the supply chain process. Including this agency fee in the data analysis ensures a clear understanding of the intermediary operational costs embedded in the overall import process.

- Adherence fee: These fees reflect the direct costs incurred from import-related procedures, such as physical inspections, regulatory queries, and associated storage charges imposed by the applicable customs agency. Such inspections are typically initiated to verify compliance with import standards, product safety, and documentation accuracy. Consequently, the adherence charges capture the financial implications of meeting the stipulated procedural obligations, even when products are fully compliant. Including these costs in the analysis provides insight into the financial burden caused by routine compliance inspections, highlighting the operational and financial impact of regulatory oversight on the overall import process.

Further, this chapter examines the full spectrum of costs associated with regulatory compliance, building on the earlier discussion regarding regulation and compliance. In particular, it analyses the financial impact of mandatory testing, technical specifications, safety standards, continuous adherence, and the levies imposed at the various stages of the compliance process.

By systematically evaluating the data, this chapter aims to provide a quantifiable estimate of the total cost implications of import compliance, capturing both the direct and indirect expenses placed on importers on a day-to-day basis. Additionally, it offers an in-depth understanding of how the regulatory framework impacts the overall financial capacity of companies operating within South Africa.

Table 4.1: Product test fees

YEAR	TESTING	
2020	R	61,051.05
2021	R	91,058.25
2022	R	281,377.25
2023	R	794,244.66
2024	R	294,165.16
TOTAL COST	R	1,521,896.37

Source: Author's own work

All products imported into South Africa are subject to product specifications, as stipulated by the SABS standards which differ from those of the European and Asian markets (Kareem et al., 2023). An importer must adhere to the SABS standards for entry into South Africa, which adds costs as the majority of products are tested according to European standards due to larger volumes being exported to Europe than to other regions.

All testing of the products in this study was conducted in China due to the inflated cost and time to test goods in South Africa. The testing fee includes the cost of aligning products with the required specifications or retesting entirely, as well as the cost of licencing fees. This is essential to quantify as this cost is over and above the purchase and transport costs of the actual good in question. Testing fees grew on average 94% year-on-year over the five-year period analysed, due to an expansion of product ranges by the companies under study. This amounted to R1,521,896.37 payable amongst importers within this study.

Table 4.2: Adherence costs

YEAR	ADHERENCE
2020	R 109,513.07
2021	R 129,429.58
2022	R 143,706.31
2023	R 77,180.14
2024	R 295,999.12
TOTAL COST	R 755,828.22

Source: Author's own work

Adherence costs are linked to the expenditure applicable to shipments that are stopped for queries or inspections. The yearly adherence cost consists of all agencies' queries, inspections, and storage fees, but excludes any penalties that may have been issued on behalf of a regulatory agency due to non-compliance.

The data collected showed that 83 of 700 (11.86%) shipments were subject to additional charges in the form of storage, inspection, and query fees. Quantifying the proportion of affected shipments established a basis from which to assess the financial impact of regulatory-related interruptions and offered insight into potential vulnerabilities experienced within the import environment.

Over five years, these costs increased at an average annual rate of 66.61%, amounting to a cumulative total of R755,828.22. The trend was characterised by two significant fluctuations: a pronounced 46.29% decrease between year three and year four, followed by a substantial 283.52% increase from year four to year five. Such volatility and the overall upward trajectory in associated costs will have had a direct effect on each company's financial performance, as rising and unpredictable expenses reduce profitability, constrain cash flow, and limit an organisation's ability to allocate resources towards future expansion initiatives or strategic investment projects. Understanding these fluctuations is therefore essential for forecasting, budgeting, and long-term operational planning.

Table 4.3: NRCS levies

YEAR	LEVY
2020	R 8,617.73
2021	R 15,629.01
2022	R 26,424.90
2023	R 19,083.50
2024	R 31,154.21
TOTAL COST	R 100,909.35

Source: Author's own work

Once the required permits and licences have been obtained, all import units that flow through the borders of South Africa are subject to a compulsory levy that is payable to the NRCS, regardless of the shipment's size (Makhoba, 2024). This recurring financial expense contributes to the total compliance burden for South African importers. Understanding these expectations is essential for a firm's profitability, product pricing structure, and long-term financial planning.

The companies included in this study primarily deal in products classified as small electrical imports, as defined by the NRCS (Makhoba, 2024). The classification codes below are used to categorise products imported into South Africa, ensuring that all traders have access to a structured framework for operations and cost assessment-related activities.

- 7512: Socket outlet adaptors, including "Janus" couplers. The levy payable is based on a fixed cost per 100 units imported.
- 7720: Hand-held electric power tools. The levy payable is based on a fixed cost per 10 units imported.
- 7811: Small appliances, e.g., vacuum cleaners, heaters, electric irons, heated blankets, fans, hairdryers, kettles, motor-operated appliances, instantaneous water heaters, soldering irons, batter chargers, etc. The levy payable is based on a fixed cost per 10 units imported.

The levy is payable twice a year based on the units imported over the previous six months (Makhoba, 2024), i.e., period A (January to June) and period B (July to December). These charges are independent of the actual cost of importation, and it is the responsibility of the importer to ensure the calculation is correct and payment is made within the stipulated period. The cost of the levy is directly influenced by the volumes of goods imported subject to compliance regulations.

Table 4.4: Adherence and compliance costs

YEAR	ADHERENCE	TESTING	LEVY	TOTAL COST
2020	R 109,513.07	R 61,051.05	R 8,617.73	R 179,181.85
2021	R 129,429.58	R 91,058.25	R 15,629.01	R 236,116.84
2022	R 143,706.31	R 281,377.25	R 26,424.90	R 451,508.46
2023	R 77,180.14	R 794,244.66	R 19,083.50	R 890,508.30
2024	R 295,999.12	R 294,165.16	R 31,154.21	R 621,318.49
TOTAL COST	R 755,828.22	R 1,521,896.37	R 100,909.35	R2,378,633.94

Source: Author's own work

Understanding all the regulations and associated adherence fees provides insight into the extensive costs of import regulations. The total cost of import regulations and adherence is summarised in Table 4.4, which highlights the annual costs as well as the cumulative costs over a five-year period. All the fees in Table 4.4 are payable by the importer.

The companies in this study faced a total cost of R2,378,633.94 for the specified period, which equates to an average of R475,726.79 per year. Firms need to budget for these charges each year to avoid any unwanted financial issues due to the additional expenditure.

These charges are linked to the number of units imported that require an NRCS-issued LOA. Of the imported products, 71 required LOAs. Table 4.4 shows a systematic growth in expenses between 2020 and 2024, with a significant increase in 2023 and a sharp decrease in 2024.

- Testing reached the highest Rand value in 2023 with a total expenditure of R794,244.66.
- Adherence costs and levies both peaked in 2024; adherence was R295,999.12, while levy charges were R31,154.21.

Both adherence and levy obligations are directly dependent on the extent and frequency of product testing. This highlights the central role of product testing as a vital cost-driving factor within the regulatory framework.

Table 4.5: Sample/data average

COST OF ADHERENCE BASED ON SAMPLE SIZE			BASED ON ALL FILES
COST OF ADHERENCE (FIVE YEAR AVERAGE)	R9,106.36		R1,058.88

Source: Author's own work

On average, the data indicate that each stopped container faced an increased average cost of R9,106.36, based on the sampled data of 83 import files. If the cost was to be averaged across the data selection, the average cost would be R1,058.88 per shipment. Continuous costs impact the cost of all goods imported, whether the goods are subject to compliance or not.

4.4 AGENCY FEES

Agency fees are linked to the services received by freight forwarding and clearing agents throughout the logistics process. Kisil et al. (2023) noted that agency fees are often overlooked, yet they add to the overall cost of goods imported that flow across the borders of any country. Forwarding agent fees are 1% of the total invoice value, including all applicable charges.

When shipments are subject to import adherence, the overall cost of the shipment is increased, thus the fee payable to the nominated forwarder increases (Rosita, 2017).

The data show that shipments stopped for regulation and adherence reasons have a 1.91% higher agency fee payable by the importer due to the increase in total invoice value. This means that the average agency fee for shipments stopped are 2.91% higher based on the 1% payable for each shipment, leading to an increase in the cost of landed units.

4.5 CONTINUOUS FINANCIAL IMPACT

The cost of import regulations and compliance continues throughout a product's life cycle, directly increasing the cost of goods imported by 2.13% on average for shipments subject to such costs. The testing fee and adherence fee account for 46.58% of the total cost of import adherence, after which levy fees are payable backdated to the previous six months.

The sample data indicates that 11.86% of all shipments are stopped or subject to adherence cost in one of the forms discussed. This is across all shipments, whether there are goods that require import regulations or not. It is therefore vital for importers to identify all the potential costs before they determine a price for their products. This is critical for a firm's market strategy and future planning, as import compliance aspects may affect their profitability.

4.6 COMPETITIVENESS OF IMPORTERS

An import market is judged by returns on investments (ROI) (Rosita, 2017), i.e., the environment of a local market needs to attract business and investment. An increase in costs throughout the logistical process directly impacts the landed cost of imported goods, which can therefore impact competitiveness. The cost of import regulations and adherence thereto for the firms in this study was R2,378,633.94 over a five-year period. This is a substantial amount that excludes freight, customs, and clearance fees.

Small firms are unable to bear these costs over and above the standard fees, leaving the market open to just a few larger firms that have better economies of scale (Gunasekaran et al., 2011). This reduces the selection of products available to customers while increasing costs, as additional fees are eventually passed on to the consumer.

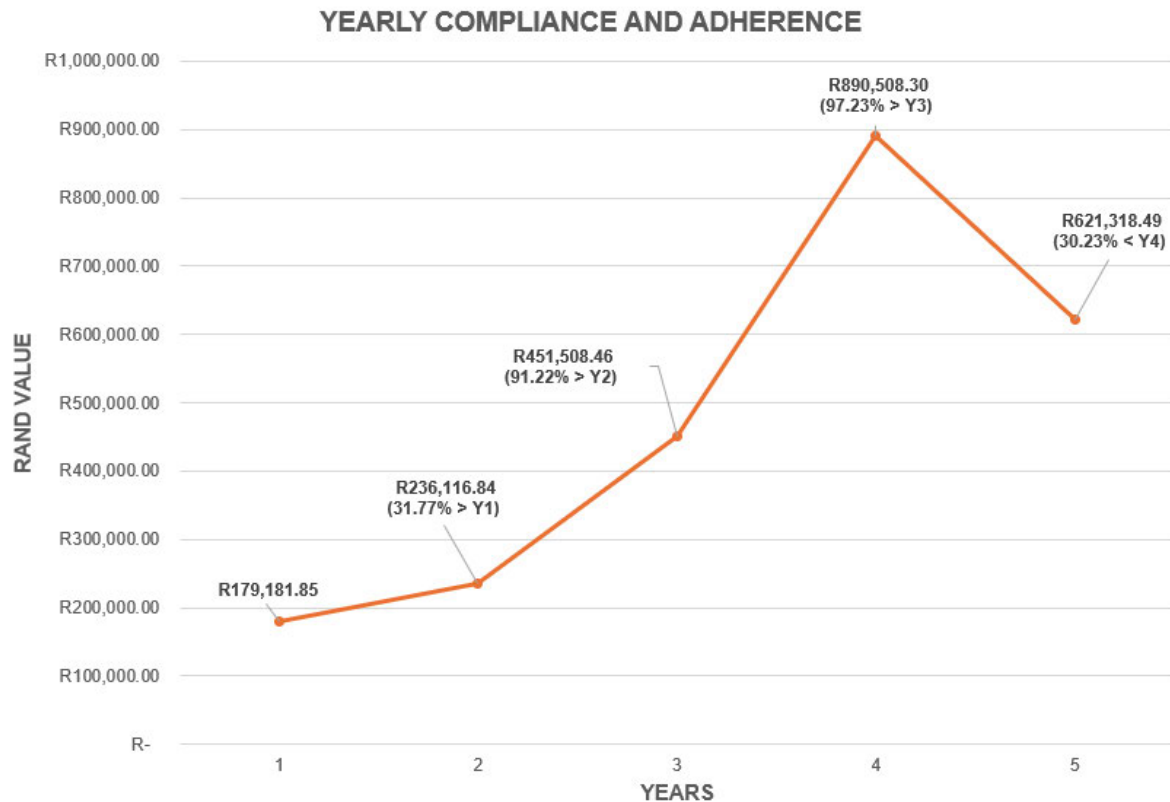


Figure 4.1: Compliance and adherence

Source: Author's own work

Figure 4.1 illustrates the total cost of import regulations, compliance, and adherence year on year. This information was selected to identify the trajectory and possible trends that may emerge. The data indicate that there was a significant increase in costs between years two and four, at 91.22% and 97.23% respectively. The trajectory then changed between years four and five, with a 30.23% reduction due to the reduced testing expenditure by the companies in the study. Despite the overall cost decrease, however, adherence and levy fees were at a peak (see Table 4.4), accounting for more than 50% of the total cost in year five.

Table 4.6: Number of LOAs obtained annually

PERIOD	NUMBER OF LOAs
2020	5
2021	7
2022	14
2023	27
2024	18
TOTAL ACTIVE LOAS	71

Source: Author's own work

Table 4.6 presents the number of new LOAs obtained each year, amounting to a total of 71 active LOAs across the firms included in the study. Analysing this dataset provided important insights into the rising cost patterns observed across all the variables, as the growing number of LOAs issued corresponded directly with higher compliance obligations. This relationship underscores the financial impact of regulatory requirements, demonstrating that growth in LOAs is closely associated with increased costs of import adherence.

The reduction in product expansion can be viewed in two ways, the first of which is that the companies had settled on their desired product range and ordering based on demand. This explains why testing had lowered but levy and adherence costs increased significantly from year four to five. The second view is that the cost of compliance reached a point that removed viability and sustainability, i.e., the companies were unable to penetrate the small appliance market within South Africa.

Before importing goods, companies embark on market research and identify all the necessary import requirements (Gunasekaran et al., 2011). Based on this, the number of LOAs obtained each year has been identified as indicating that firms are systematically entering the small appliance markets of South Africa.

Accompanied by an increase in demand, this directly increases the volume of regulated goods ordered each year. The peak of adherence and levy fees was in 2024 and is projected to increase further in the next two years.

All variables demonstrated substantial growth over the five years, with categories reflecting high average increases. This upward trend is reflected in a 50% increase in the volume of imported goods subject to regulatory compliance over the analysed period, indicating a concurrent rise in associated costs. The simultaneous increase in compliance-related imports and cost variables highlight an intensified regulatory environment, as well as growing financial and administrative burdens on firms engaged in cross-border trade.

Table 4.7: LCL vs. FCL stopped shipments

SHIPMENTS SUBJECT TO INSPECTION STOPS		% OF TOTAL SHIPMENTS
LCL	9	10.84%
FCL	74	89.16%
TOTAL	83	100%

Source: Author's own work

Table 4.7 notes important differences between less than container load (LCL) and full container load (FCL) shipments imported into South Africa. Of the 700 shipping files reviewed, 83 of which were sampled for this research as they had been subject to query or physical compliance adherence stops, just nine were LCL containers. These LCL shipments incurred an additional cost of an average of 30% of the total cargo value due to port delays of up to five days and therefore storage, demurrage, and delay charges, impacting the importers' competitive ability.

Table 4.8 provides a detailed summary of the 83 shipments sampled that were subject to a form of adherence fee. Freight charges have been included to provide the reader with a comprehensive understanding of the total landed cost structure, as well as to highlight the volatility commonly experienced within international freight markets. Freight charges were intentionally excluded from the original data interpretation due to

unpredictable fluctuations which can distort the data being reviewed. Given that this research prioritised the financial impact of regulatory and compliance factors, including freight would have artificially inflated the cost variables and obscured the true effects that were under investigation.

Agency fees are a percentage of the total invoice payable, which were agreed upon between the firms and forwarding agents in this study to be 1.91%. Adherence fees increase the payable amount to the nominated forwarder by an additional 1%, therefore the 83 sampled shipments are linked to a forwarding fee of 2.91%, as opposed to the agreed upon 1.91%. This increases the costs faced by importers within the small electrical appliances import environment.

Table 4.8: Sampled shipment files

YEAR	TOTAL INVOICE VALUE	FREIGHT CHARGES	AGENCY FEES	ADHERENCE FEES
Jan-20	R104,188.38	R3,157.00	R1,998.63	R20,777.20
Jan-20	R211,543.02	R105,475.26	R4,901.76	R15,782.00
Feb-20	R178,234.60	R4,465.00	R3,864.17	R16,450.00
Mar-20	R544,564.67	R68,552.39	R4,465.00	R35,895.00
May-20	R446,678.59	R93,225.18	R5,648.00	R8,565.87
Jun-20	R129,863.90	R18,055.37	R4,805.00	R11,520.00
Nov-20	R26,173.64	R5,615.71	R2,320.00	R523.00
Jan-21	R186,081.82	R27,300.00	R2,248.36	R6,082.00
Jan-21	R392,486.35	R101,200.00	R14,614.53	R1,380.00
Jan-21	R166,068.73	R40,232.88	R969.00	R705.00
Jan-21	R56,705.35	R3,900.96	R2,116.83	R4,939.20

Feb-21	R468,912.82	R112,002.36	R9,419.74	R45,502.69
Apr-21	R285,603.62	R54,718.05	R3,748.24	R8,492.81
Apr-21	R297,846.55	R21,065.00	R11,144.33	R1,615.00
May-21	R215,290.60	R17,219.53	R3,290.33	R590.00
Jul-21	R76,773.18	R4,358.98	R1,534.42	R4,405.68
Aug-21	R447,927.18	R121,940.30	R16,685.58	R19,316.20
Sep-21	R326,786.30	R76,235.00	R6,421.11	R16,442.00
Dec-21	R210,551.89	R18,556.68	R4,352.58	R11,718.00
Dec-21	R275,260.76	R122,625.00	R6,537.89	R8,241.00
Jan-22	R504,946.91	R83,160.00	R18,886.91	R26,115.00
Feb-22	R459,336.24	R166,889.89	R11,946.27	R24,663.40
Mar-22	R177,638.94	R3,137.80	R5,238.00	R13,862.20
May-22	R102,450.40	R39,127.14	R2,052.19	R2,257.40
May-22	R45,174.35	R5,735.97	R1,669.81	R595.00
Jul-22	R385,167.49	R25,664.10	R7,479.48	R4,572.87
Sep-22	R704,263.39	R100,772.68	R9,976.56	R6,788.00
Oct-22	R742,338.46	R89,166.39	R10,525.62	R4,502.44
Oct-22	R1,020,409.64	R35,020.43	R15,211.81	R31,155.00
Oct-22	R152,437.74	R7,300.00	R5,972.00	R395.00
Dec-22	R703,698.25	R77,950.11	R14,482.63	R500.00
Dec-22	R183,155.04	R28,663.24	R6,082.00	R28,300.00

Jan-23	R345,004.00	R57,842.06	R4,563.23	R11,130.89
Mar-23	R478,537.95	R52,663.69	R9,397.88	R9,080.76
Aug-23	R153,944.13	R26,401.48	R6,688.00	R553.00
Aug-23	R55,905.47	R1,871.70	R2,041.34	R6,906.50
Sep-23	R435,547.73	R28,403.08	R9,371.40	R11,715.00
Oct-23	R30,657.65	R1,831.50	R665.00	R5,904.71
Nov-23	R59,407.07	R5,970.20	R2,207.14	R1,148.52
Nov-23	R25,574.68	R3,645.52	R998.50	R7,098.80
Dec-23	R66,678.13	R7,077.12	R2,482.30	R500.00
Dec-23	R239,568.07	R27,840.00	R8,933.70	R550.00
Dec-23	R474,620.38	R26,825.00	R17,817.59	R550.00
Dec-23	R396,704.72	R30,400.00	R14,868.28	R550.00
Dec-23	R307,928.65	R11,582.48	R4,122.00	R21,491.96
Jan-24	R25,009.84	R820.80	R907.92	R306.70
Jan-24	R26,691.45	R3,176.10	R968.50	R9,813.70
Feb-24	R89,431.92	R5,927.04	R3,342.02	R2,370.40
Feb-24	R199,468.52	R3,025.70	R7,499.61	R1,037.40
Feb-24	R17,679.72	R2,016.00	R630.96	R595.00
Feb-24	R207,733.27	R7,923.00	R7,644.44	R14,191.70
Feb-24	R26,963.81	R957.40	R911.24	R3,315.90
Feb-24	R376,922.82	R29,055.23	R7,268.99	R31,067.00

Mar-24	R213,395.51	R40,005.00	R7,929.42	R14,477.00
Apr-24	R234,594.45	R24,213.60	R8,826.79	R595.00
Apr-24	R28,290.89	R1,881.90	R1,031.89	R1,732.16
May-24	R45,174.35	R5,735.97	R1,669.81	R1,050.00
May-24	R100,240.65	R4,198.00	R2,370.00	R3,950.00
May-24	R212,134.75	R31,506.88	R7,406.00	R52,365.30
Jul-24	R47,900.11	R2,423.17	R1,772.80	R646.17
Jul-24	R62,006.38	R3,556.80	R2,305.78	R1,138.74
Aug-24	R442,039.24	R148,000.00	R16,424.80	R25,638.80
Aug-24	R138,283.30	R23,255.43	R5,187.00	R3,033.74
Aug-24	R230,715.90	R6,039.34	R2,985.00	R740.00
Aug-24	R402,179.24	R99,600.00	R4,825.00	R5,891.00
Aug-24	R458,837.74	R90,856.00	R4,825.00	R6,154.00
Sep-24	R613,113.94	R148,000.00	R22,888.63	R12,901.10
Sep-24	R255,771.55	R19,530.00	R9,557.83	R8,550.30
Sep-24	R308,774.80	R98,050.00	R11,455.65	R11,356.00
Sep-24	R139,727.71	R30,563.52	R5,242.38	R2,821.80
Sep-24	R400,685.87	R127,160.00	R14,889.62	R2,980.00
Sep-24	R239,402.18	R6,036.52	R3,572.19	R3,050.00
Oct-24	R83,272.81	R18,513.00	R3,109.31	R2,019.60
Oct-24	R443,650.91	R122,060.00	R16,520.71	R18,900.00

Nov-24	R459,192.50	R153,160.76	R4,825.00	R560.00
Nov-24	R216,436.26	R19,690.00	R8,070.34	R18,557.43
Nov-24	R611,067.38	R99,680.00	R22,876.11	R9,709.00
Nov-24	R198,370.74	R6,999.73	R3,050.00	R2,949.18
Dec-24	R84,167.46	R1,880.88	R942.08	R650.00
Dec-24	R431,350.77	R99,680.00	R16,085.76	R16,565.00
Dec-24	R301,393.35	R103,240.00	R11,170.78	R1,720.00
Dec-24	R362,545.21	R93,840.00	R13,492.98	R1,300.00
Dec-24	R323,302.58	R93,840.00	R12,010.25	R1,300.00

Source: Author's own work

4.7. UNRESOLVED ISSUES

The South African market is not as developed in product testing as many other nations (Hegde, 2010), and the cost of testing is significantly more expensive than in China. The number of service providers is also limited, and testing can take up to three months compared to four weeks in China. There is thus a dire need for more testing facilities that are accessible, competitive, and compliant. The cost of testing should be standardised through the creation of a competitive market with more firms entering the environment.

It was noted that LCL shipments were less likely to be stopped for any form of customs inspections over the five-year period reviewed. This could be due to the convenience of stopping a FCL that has all the stock belonging to one importer, as this enables regulatory agencies to reach their inspection quota with the least number of administrative requirements. Alternatively, the more frequent stopping of FCL shipments could be a way to ensure the regulation of more goods into South Africa (Notteboom et al., 2021). Understanding the reasons behind these data is essential.

Another area that requires further research is the disproportionate charges associated with LCL shipments that are stopped. Understanding why LCL shipments are subject to such high inspection charges is essential to determine the true impact on smaller importers that cannot reach FCL volumes.

Comprehensive, data-driven research is required based on data obtained from importing firms operating within the borders of South Africa to determine the actual regulatory impact on small, medium, and large importing firms. This may support a shift in regulatory functionality through the implementation of modernised frameworks that ensure product compliance while simultaneously enabling growth for South African businesses. Ultimately, this would highlight the realistic financial implications of the current regulatory and adherence environment for both importing and exporting firms.

Regulatory agencies function independently, and shipments can be stopped by one or more of them (Notteboom et al., 2021). The data indicate that, within the sample, one in every six stopped shipments experienced inspections by more than one regulatory agency, thereby increasing the storage and inspection fees payable by the importer. Improved inter-agency communication and coordination are essential to enhance efficiency and sustainability. This could significantly reduce the cost of adherence and enable the regulatory agencies to allocate resources more effectively, thereby reducing the landed cost of goods and increasing local firms' competitiveness.

Communication between regulatory agencies and importers is limited and time-consuming. Ineffective communication platforms, potentially compounded by staff capacity constraints, may contribute to delays and increase the costs payable by the importer. The current procedures and administrative requests could be simplified through automated systems, which would improve system integration across customs, regulatory agencies, and private stakeholders. This could significantly reduce administrative issues while strengthening regulatory compliance and transparency. Systems that are capable of handling large volumes, ensuring security, and maintaining the flow of goods are essential to efficiency. As the global trade landscape increasingly digitalises, the South African compliance landscape presents substantial opportunities for advanced academic research into how automation might support compliance and

product safety in the most cost-effective manner, while ensuring the safety and competitiveness of the South African economy.

As knowledge of the import and export environment is limited, particularly regarding regulations, adherence, and compliance, additional training and knowledge-sharing initiatives are thus needed to ensure alignment between importers and the relevant regulatory agencies.

4.8 CONCLUSION

A firm's ability to maintain a competitive advantage is largely determined by its capacity to stabilise its manufacturing and logistical expenditures. Ongoing compliance-related costs undermine this ability, as the data indicate that such costs are sporadic and exacerbated by inadequate communication systems between importers and the various regulatory agencies.

Chapter four identified and analysed all the costs associated with import regulations related to small appliances imported into South Africa over a five-year period. This analysis focused on expenditure faced by local firms, excluding the cost of the actual goods and routine logistical charges.

The study's findings highlight the costs faced by importing firms, with variables such as product testing, compliance inspections, regulatory agency fees, and storage charges being evaluated both individually and together. The results reveal the multi-layered and unpredictable nature of this adherence, underscoring the need for improved interdepartmental communication to avoid unnecessary expenditures for firms and to utilise agency resources more effectively.

Chapter five presents the study's overarching conclusions by synthesising the key findings in relation to the research objectives and questions. It also outlines the theoretical and practical recommendations drawn from the results, identifies limitations, and proposes areas for future research in order to enhance the understanding of South Africa's importing environment.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.1 INTRODUCTION

This chapter presents the study's conclusions as well as recommendations, which are informed by the discussion pertaining to the financial impact of import regulation adherence on importers. It emphasises the important role regulatory agencies play within the logistics process, both operationally and financially. Cost is identified as the moderating factor in the relationship between regulatory requirements and import activity. The broader implications of the study are shown by connecting the study's research objectives and questions with the data presented.

Regulatory agencies, the TNPA, and port operations function as monopolies within the import and export environment (Makhoba, 2024), operating autonomously within their respective regulatory mandates. Ports are essential to the growth and well-being of an economy, as they control the flow of goods.

This chapter provides a holistic discussion on the study's data and makes recommendations linked to the research methodology and objectives, connecting practical insights and theoretical concepts. In doing so, the chapter combines the perspectives of both importers and regulatory agencies, while highlighting areas of convergence and tension related to operational efficiency, regulatory oversight, and compliance requirements.

This approach enables a nuanced interpretation of the results presented in Chapter Four, situating them within the broader context of import process improvements, effective trade facilitation, and supply chain management practices. The discussion is accompanied by considerations for future policies, practices, and research.

5.2 RESEARCH AIMS AND METHODOLOGY

The aim of this study was to quantify the cost of regulatory compliance and to examine how these costs are linked to product expansion and the landed cost of goods imported into South Africa. An in-depth study of import compliance costs was undertaken by evaluating relevant variables identified through the research. This was achieved through critical content analysis and statistical analysis of the costs faced by firms within this study.

To address the stated objectives, the research assessed all the variables that contribute to companies' overall compliance expenditures, including regulatory documentation, customs procedures, clearance delays, and the frequency at which containers are stopped for any form of compliance inspection. A combination of strategical and critical contextual analysis was employed to evaluate the empirical costs of the research data obtained.

Using a mixed-methods approach, the research sought not only to quantify companies' costs, but also to contextualise these in the broader international trade dynamics of South Africa. The findings provide a foundation for identifying trade facilitation strategies, systemic inefficiencies, and potential areas for future regulatory reforms.

5.3 FINDINGS BASED ON THE RESEARCH QUESTION

This research was structured around three core research questions, each of which was examined through the analytical procedures presented in Chapter Four. The results of that chapter are consolidated in the discussion to follow, which concludes the empirical analysis while situating the findings within the broader theoretical and regulatory context.

This approach provides a coherent progression from data analysis to critical interpretation, enabling a deeper understanding of how the research questions are addressed, as well as the implications that emerge from the findings.

5.3.1. How do import regulations affect the cost of imported goods in South Africa?

Any costs that are added to the logistical and regulatory process are ultimately absorbed by the importer. This directly increases each unit's cost, eroding profit margins and limiting a company's financial performance. In practice, the FMCG firms included in this study allocate such costs across an entire shipment, regardless of the specific product that triggered the additional expense. This approach leads to broader cost inflation and may result in distortions in unit pricing and inventory management.

The following section outlines the primary financial contributors to increased landed costs, providing a simplified overview of the challenges faced by importers operating within South Africa:

- Shipments stopped by more than one regulatory agency.
- Storage charges are applicable as shipments have multiple inspections scheduled.
- The regulatory agency that issues compliance licencing is the agency that stops the shipment for an adherence inspection upon entry to South Africa. This comes after a full review, product description, and visual illustrations are provided to the agency.
- Forwarding and clearing agent fees are also inflated as their fees are based on a percentage of the total logistical cost from the point of origin to the specific point of delivery.
- Additional logistical delays occur due to the above-mentioned.

Import regulations increase not only logistical costs but also operational expenses, directly impacting an importer's ability to sell their goods in the South African market at the most competitive prices. Delays also reduce a firm's competitiveness as goods reach the market later than anticipated due to unavoidable delays.

The data presented in Chapter Four provides clear evidence that import regulations and compliance requirements impose continuous financial burdens on all importers. These costs affect the overall price of shipments that are subject to inspections, with an average increase of between 2.5% and 4.8% over the five-year period analysed. As a result, firms are often compelled to implement annual price increases to maintain effective day-to-day business operations.

5.3.2. How do import regulations have an impact on a firm's product selection?

To understand the impact of important regulations on product selection, it was necessary to look at the number of LOAs that were applied for by the firms in this study (see Table 4.6). The number of products requiring import regulation approval increased steadily across the firms' product ranges over the five-year period. By the end of year two, a 40% increase was observed, followed by a 100% increase in year three and a 93% increase in year four. Although year five delivered a 33% reduction in products added, the data indicate that 18 new products were added, showing continued growth and the companies' ability to absorb the additional financial burden. Overall, this represents an approximate 50% year-on-year increase over the five-year period.

The data further indicates that 11.86% of all imported shipments were subject to adherence charges, which exclude the testing and levy costs involved with imports. This highlights the continuous cost of import regulation compliance. Despite the reduction in range expansion between years four and five, 18 new licences were obtained in year five, demonstrating that growth in the small appliance sector remains robust.

It is therefore argued that import regulations and the cost of compliance do not impact a firm's product selection. The 83 sample firms had 71 LOAs, which are predicted to grow to over 100 within the next three years.

5.3.3. How do import regulations act as import restrictions?

Import regulations can act as barriers that directly influence the behaviour of importers and a country's domestic market (Milner, 2017). These barriers could take the form of regulatory requirements, adherence obligations, or compliance measures, all of which were reviewed in this study. Following an analysis and discussion of the data, the study observed that despite steadily increasing compliance expenditures and regulations, the number of products that were subject to import specifications increased by an average of 50% over the time period, bringing the total number of regulated products to 71 units by the end of the period.

The data indicate that, in the context of this study, import regulations do not act as a significant trade barrier. The firms analysed show sufficient financial resilience, market reach, and expansion capacity to manage a vast range of regulated and unregulated goods. Their ability to invest in market research and product development allows them to achieve medium-term returns, even when facing delayed ROIs and limited cash flows.

It is important to note that this study only focuses on the small appliance market, which is a limitation in terms of generalisability given the lack of data on alternative product categories. The study findings may also not extend to smaller importing firms that do not have the same financial capacity.

5.4 RESEARCH OBJECTIVES

This study successfully achieved its objectives by analysing the financial impact of import regulation adherence. Compliance costs were quantified to highlight the substantial annual financial burden of adherence to regulations. In addition, the study examined if regulations and inspections impact the flow of goods, finding that there is no significant effect.

Finally, the study explored the relationship between landed costs and product expansion, demonstrating that import regulations and adherence directly impact the cost of imported goods. This impact was observed in two areas, i.e., expenditure on product development and adherence-related costs. By connecting the study's hypotheses with the empirical findings, the research aligns its objectives with the data obtained, providing a clear understanding of the financial and operational implications of import regulation compliance.

5.5 LIMITATIONS RELATED TO THIS DISSERTATION AND FUTURE RESEARCH OPPORTUNITIES

This study did not consider the fee structures imposed by the regulatory agencies. Understanding how the inspection, storage, and documentation costs when shipments are stopped would provide valuable insights and inform potential changes that could assist importers and promote a more attractive importing environment across all regulated goods in South Africa.

The firms selected for this study have the ability to absorb the continuous compliance costs and market entry requirements until their goods deliver a return on investment. This might not be the same for smaller firms, however, which could reduce their ability to participate in the market, thereby reducing competitiveness and product selection (Milner, 2017).

It is recommended that the methodology used in this study be applied to small and medium enterprises (SMEs) to fully understand the impact, restrictions, and limitations of import regulations across the market. Comparing data from both SMEs and larger corporates would provide a more comprehensive understanding of regulatory effects on the South African import landscape.

Bargain and wholesale stores sell regulated products at significantly lower costs than large importing firms. This raises the question of whether the price differences are due to them making use of LCL shipments that have fewer customs regulations, or differences in margins. Understanding this could result in more effective regulatory frameworks being implemented.

Research into the benefits of effective and sustainable communication between regulatory agencies is limited. In particular, there is a gap in understanding how agencies can function independently while maintaining open lines of communication.

Improved agency and importer communication could enhance resource allocation and reduce the number of shipments experiencing multiple inspection stops.

5.6 ADVANTAGES AND DISADVANTAGES OF IMPORT REGULATIONS AS WELL AS ADHERENCE

It is essential that all goods that cross a country's borders are properly documented and meet applicable standards in order to ensure consumer safety and product compliance. Compliance plays a critical role in managing the flow of goods within the dynamic maritime environment, ensuring that standards are consistently upheld across all stages of importation (French, 2016). Duties and fees are also a revenue source for governments, which can help public enterprises such as Transnet offset their deficits. Import regulations can also protect and promote local businesses through anti-dumping duties and by reducing dependency on imported goods. Despite these potential advantages, regulatory agencies largely focus on achieving compliance, with very limited variation.

Compliance with import regulations is associated with substantial fees that are levied prior to a product being ordered, limiting a firm's capacity to invest in expansion projects and potentially constraining growth. The ineffective implementation of regulations can also lead to an increase in the number of counterfeit goods into a country (Haugh, 2016). Firms need to hire employees who are skilled in compliance, directly increasing salary expenditure. These costs are indirectly passed onto the consumer, along with the previously mentioned expenses, impacting a firm's competitiveness and reducing their profitability. From the firm's perspective, it is important to keep fixed and variable costs as stable as possible, which contrasts with the priorities of regulatory agencies.

An important consideration for importers is at what point the costs outweigh the market opportunities. When compliance and logistical expenses inflate the cost of goods above the fair market price, they are a potential trade barrier. Product selection is an important consideration for importing companies, as it helps determine the point at which the cumulative cost of compliance and logistics outweighs the return on investment of regulated electrical products (Grainger, 2011).

Academic research conducted by Maskus et al. (2005) similarly emphasised that excessive compliance costs, especially for SMEs, may discourage imports and restrict product variety.

Understanding the threshold at which regulatory compliance costs might be a trade barrier is crucial for both policymakers as well as importers. It is important to strike a balance between market accessibility and economic competitiveness to ensure sustainable trade and growth.

The importing companies in this study have shown a resilience to import regulations within the electrical small appliance sector. They have acquired enough knowledge and experience to expand into other areas of regulated imports, such as textiles, agriculture, and large electrical appliances. This provides them with a competitive advantage and the possibility of offering value-added services, representing a significant strategic asset.

5.7. CONCLUSION

The purpose of this chapter was to synthesise the empirical findings of the study, critically interpret their implications, and provide informed recommendations grounded in both the research objectives and the broader regulatory and trade facilitation context of South Africa. Building on the results presented in chapter four, this chapter consolidated the study's key insights regarding the continuous financial impact of import regulation adherence on importing firms, with particular emphasis on landed costs, product expansion, and competitiveness.

The chapter demonstrated that regulatory compliance costs represent a persistent and cumulative financial burden that extends beyond the point of physical importation. Compliance costs are embedded throughout the logistics and supply chain process, influencing pricing strategies, operational efficiency, and firms' ability to remain competitive in the domestic market. Cost was identified as a critical moderating variable shaping the relationship between regulatory requirements and import activity, reinforcing the central argument that while compliance is necessary, its current implementation generates sustained financial pressures for importers.

By addressing each research question in turn, the chapter confirmed that import regulations directly increase the landed cost of goods through inspection-related delays, storage charges, and associated administrative and agency fees. However, within the specific context of the small electrical appliance sector, these regulations were not found to significantly restrict product selection or act as binding trade barriers for the firms studied. The findings suggest that financially resilient firms are able to absorb

compliance costs and continue expanding their regulated product ranges. Financial resilience towards the cost of compliance, however, may not be representative of smaller or less capitalised firms, thereby raising concerns about market inclusivity and long-term competitiveness.

The chapter further contextualised the role of regulatory agencies, port authorities, and logistics infrastructure as monopolistic actors operating with distinct mandates. While their functions are essential for ensuring safety, quality, and revenue generation, the lack of coordination and the duplication of inspections were identified as key contributors to inefficiency and elevated compliance costs. The discussion highlighted areas of both convergence and tension between importers and regulators, particularly in balancing regulatory oversight with operational efficiency.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

Chapter one established the contextual and conceptual foundation for the study by situating import regulations within the evolving global and South African trade environment. It also articulated the growing importance of regulatory oversight in the electrotechnical sector, while highlighting the tension between consumer protection objectives and the financial burdens imposed on importing firms. The distinction drawn between regulation costs and adherence-related operational costs provided conceptual clarity and framed the analytical lens adopted throughout the study. In doing so, the chapter demonstrated the relevance of examining import regulations not as isolated compliance events, but as continuous cost drivers that influence firm-level decision-making, competitiveness, and product strategy.

This research does not seek to diminish the importance of product compliance within South Africa, nor does it question the necessity of regulatory oversight to ensure safety, quality, and consumer protection. Rather, it contends that while compliance itself is essential, the financial and administrative burden associated with adherence at the point of importation is excessive and warrants a restructured regulatory approach. The study argues for a more proportionate, efficient, and risk-based compliance framework that maintains regulatory objectives while reducing unnecessary costs and procedural inefficiencies for importing firms.

Chapter two critically reviewed the existing theoretical and empirical literature on import regulations, regulatory compliance, and their economic implications for firms engaged in international trade. By examining global trade frameworks, non-tariff measures, and the role of regulatory agencies, the chapter demonstrated that while regulations serve essential governance and safety functions, their implementation often generates significant cost and efficiency challenges for importers.

The literature review highlighted inconsistencies and gaps in prior research, particularly a lack of firm-level, longitudinal analyses quantifying the incremental costs associated with regulatory adherence and physical inspections. Further demonstrating that import regulations can influence product selection, innovation, and trade flows, sometimes functioning as indirect trade barriers rather than facilitators. The discussion of

digitalisation, artificial intelligence, and port system modernisation introduced an important contemporary dimension, emphasising both the potential efficiencies and emerging inequalities associated with technological adoption. This positioned this study as a necessary and timely contribution to understanding the financial and strategic implications of import regulation adherence within regulated product markets.

Chapter three focused on the methodological framework employed to investigate the financial impact of import regulations and adherence on small electrical appliance imports. It justified the use of a quantitative, deductive research design and explained how cross-sectional firm-level data were utilised to test the study's hypotheses over a five-year period, clearly outlining the sampling strategy, data collection procedures, and statistical techniques.

The findings of this study contribute to the existing body of research on the current import regulatory environment by providing empirical evidence on the financial impacts of the current regulatory processes, compliance methods, and operational practices. The results identify areas of bottlenecks, inefficiencies, and previously unidentified regulatory issues, which could support policymakers, customs agencies, and industry stakeholders to identify opportunities for improved collaboration, innovative approaches, and enhanced regulatory methods towards import management. These findings may also strengthen importer-regulator engagement and contribute to a more resilient and responsive trade environment.

Chapter four's main objective was to emphasise that the cost of compliance is ongoing throughout a product's life cycle, thus it presented and analysed the empirical findings relating to import regulation and adherence costs incurred by firms importing small electrical appliances imported through the Port of Durban. The analysis revealed that although a relatively small proportion of shipments were subject to regulatory inspections and queries, the financial impact of these interventions was substantial and cumulative. Testing fees, adherence costs, and statutory levies collectively imposed a significant and ongoing financial burden on importing firms over the five-year period.

The findings demonstrated clear cost escalation trends, marked by volatility and year-on-year fluctuations, which directly affected firms' cash flow, pricing strategies, and competitive positioning. The analysis further highlighted how regulatory costs extend beyond affected shipments, influencing agency fees and increasing the landed cost of

all units within a shipment. The relationship between the growing number of LOAs and rising compliance expenditure underscored the strategic implications of regulatory requirements for product expansion and long-term planning.

By contextualising these findings within the operational realities of the Port of Durban, the chapter illustrated how infrastructure constraints, enforcement practices, and limited inter-agency coordination exacerbate regulatory costs. It also provided compelling empirical evidence that import regulation adherence constitutes a significant cost driver with systemic implications for firm performance.

Chapter five focused on the critical interpretation of the empirical findings presented in chapter four, with the primary objective being to evaluate the study's hypotheses in relation to the research questions and objectives. The chapter moved beyond descriptive analysis to examine the broader financial, operational, and strategic implications of import regulations and adherence requirements within the South African small electrical appliance sector.

The findings confirmed that import regulations have a significant impact on the landed cost of imported goods. Compliance-related expenses, including testing fees, adherence costs arising from inspections and queries, and statutory levies, were shown to accumulate over time and impose a sustained financial burden on importing firms. The results demonstrated that these costs are not isolated to individual products or shipments, but often affect entire consignments, thereby amplifying their effect on pricing structures and firm profitability.

The chapter further examined the impact of import regulations on the flow of goods through the Port of Durban. While the majority of shipments were not subject to regulatory intervention, a relatively small proportion of inspected or queried shipments generated disproportionate delays and additional costs. These disruptions contributed to increased storage, demurrage, and agency fees, introducing uncertainty into supply chain planning and weakening operational efficiency. The findings therefore support the conclusion that import regulations influence cargo flow primarily through procedural friction rather than direct volume restrictions.

In addition, chapter five analysed the relationship between regulatory compliance and product expansion. The observed increase in the number of LOAs over the study period corresponded with rising compliance costs, indicating that regulatory requirements play

a meaningful role in shaping firms' product selection and expansion strategies. While some growth in regulated product ranges was evident, escalating and volatile compliance costs were identified as potential constraints on future expansion, particularly for smaller firms with limited economies of scale.

Overall, chapter five demonstrated that import regulations function as both a protective mechanism and a structural cost driver within the South African import environment. The discussion confirmed that regulatory adherence imposes continuous and escalating costs that affect competitiveness, cash flow, and long-term strategic decision-making. These insights provided a coherent basis for the conclusions and policy-oriented recommendations presented in the following section.

6.2 RECOMMENDATIONS

This study presents six key recommendations that emerged directly from the research findings, data analysis, and overall conclusions. These recommendations aim to address the systemic inefficiencies identified, enhance regulatory effectiveness, and promote a more equitable and sustainable import environment in South Africa:

- There is a significant need for a harmonised, digitalised, and integrated compliance communication system in South Africa, which would enable sustainable communication between regulatory agencies, port stakeholders, importers, and exporters. This would also reduce unnecessary expenditures that could otherwise be used by the regulatory agencies and importers.
- Given the rapid pace of innovation in contemporary product development, firms often prioritise speed-to-market in order to capture early competitive advantages and secure market share, however this accelerated development cycle can lead to insufficient awareness of the regulatory and compliance requirements associated with new products. This gap in regulatory understanding highlights a critical need for enhanced education and training on standards, conformity assessment, and import regulations within South Africa. Only relying on individual employees' experience within the import environment is inadequate for ensuring consistent organisational compliance. Strengthening formal training and institutional knowledge would not only improve firms' strategic decision-making but also reduce avoidable errors, thereby minimising unnecessary administrative interventions and resource allocation.

- South African importers and exporters need greater access to local, affordable testing laboratories that would ensure products adhere to regulations and standards. The development and operation of such facilities could be managed by the private sector under the oversight of the government. This could reduce testing delays, lower compliance costs, and improve cross-border trade, while keeping money within the borders of South Africa rather than going to foreign markets. This will ultimately strengthen the competitiveness of local firms and boost the local economy.
- Importers and exporters should have access to a platform that allows goods to be precleared before crossing the border, which would enable the regulatory agencies to inspect shipments prior to arrival at a port. This would force importers to ensure their products are compliant prior to importation and alleviate customs agencies' current resource constraints. Such a system would strengthen South African import regulations, improve the regulatory agencies' resource allocation, and improve the international perception of South Africa's import environment.
- Due to the significant costs linked to inspections that lead to unnecessary storage fees, importers should be allowed to have the goods selected for inspection reviewed at the importer's premises. This could be subject to the importer being preapproved by the regulatory agency in question and the stock to remain in the container to limit tampering. The booking of such inspections should also be the responsibility of the importer and not the regulatory agency, which would result in more effective resource allocation and increased sustainability. This privilege could be removed if there is non-compliance.
- Strengthening trust between importers and regulatory agencies is essential for improving import management. This can be done by ensuring that imported goods meet manufacturing, packaging, and labelling requirements, supported by a portal for unique product IDs (UPIs) linked to all internationally sourced products. The portal would store each product's MSDS, hazard information, manufacturing methods, factory audit approvals, applicable international standards, and country of origin. Importers could then upload branding, product images, user manuals, packaging artwork, dimensions, carton sizes, and any pre-approved import licences. Because each product is linked to a scannable UPI, customs could review and flag items before shipment, improving importer awareness of local

regulations and digitising most port inspection processes. This would reduce congestion, speed up goods movement, and limit physical inspections to non-compliant products. Using secure blockchain technology, the platform could be accessed by manufacturers, importers, exporters, forwarders, shipping lines, and customs agencies.

This research set out to identify the financial implications of import regulation adherence within the South African small appliance sector, with specific attention on how compliance influences logistics costs, product selection, and market behaviour. Using critical content analysis and a statistical evaluation of firm level data over a five-year period, the research presents clear evidence that import regulations and adherence thereto add ongoing costs to the overall landed costs of goods imported into South Africa.

Despite the substantial expenses linked to regulated products, the study concludes that the firms in the study have not limited their product expansion, i.e., product regulations for a well-resourced firm do not act as a constraint or barrier to entry. In fact, the firms have demonstrated operational resilience and an ability to amortise additional compliance-related costs. Nevertheless, the reforms listed above have the potential to improve resource allocation, reduce port congestion, strengthen regulatory effectiveness, and enhance South Africa's competitiveness.

Ultimately, this research underscores the importance of product regulations while quantifying the associated financial costs. If these costs are inequitably distributed or inefficiently managed, they have the potential to distort competitiveness, inflate consumer prices, and limit economic growth. This firms in this study have experienced financial pressure, yet on a smaller scale than companies with fewer financial resources. The study's conclusions offer practical pathways for creating a more integrated, cost-efficient, and transparent compliance environment. The findings do, however, highlight the disparity between large importing firms and smaller businesses, signalling inequality in market accessibility that warrants further investigation.

REFERENCES

- Alessandria, G.A., Ding, J., Khan, S.Y. and Mix, C.B. (2025) *The Tariff Tax Cut: Tariffs as Revenue*. National Bureau of Economic Research.
- Amadi, V. (2015) *Customs reform as a means to enhancing trade facilitation for increased market access: A South African perspective*. Doctoral dissertation. University of the Western Cape.
- Bamberger, K.A. and Guzman, A.T. (2008) 'Keeping imports safe: A proposal for discriminatory regulation of international trade', *California Law Review*, 96, p. 1405.
- Bera, S., Chatterjee, S. and Ghosh, A. (2024) 'AI-driven organisational compliance: A systematic analysis', *Journal of Knowledge Systems Management*, 12(2), pp. 33–48.
- Bhagwati, J. (2016) *Protectionism*. MIT Press.
- Blind, K. (2016) 'The impact of regulation and standards on innovation', *Research Policy*, 45(2), pp. 392–404.
- Blind, K. (2017) *The Impact of Standards and Regulation on Innovation*. Edward Elgar Publishing.
- Bryant, D.B. (2003) 'The Export-Import Bank: It's History, Function, and the Reauthorization Act's Impact on the United States and Latin America', *Law & Bus. Rev. Am*, 9, p. 743.
- Burri, M. (2022) 'Regulating data flows in international economic law', *Journal of International Economic Law*, 24(4), pp. 804–832.
- Caesar, L.D. (2024) 'Justifying an application of the explanatory sequential mixed methods research design in maritime research', *Australian Journal of Maritime & Ocean Affairs*, 17, pp. 1-20.
- Charles, F.M. (2016) 'The Impact of Trade Facilitation on Agricultural Products Standard Compliance in Relation to Cameroon's Export Performance', *J. Food Process Technol*, 7, p. 624.
- Dechezleprêtre, A. and Sato, M. (2017) 'The Impacts of Environmental Regulations on Competitiveness', *Review of Environmental Economics and Policy*, 11, pp. 183–206.
- Djankov, S., Freund, C. and Pham, C. (2010) 'Trading on Time', *Review of Economics and Statistics*, 92(1), pp. 166–173.

- Djimgou Tchakounte, A. and Fiankor, D.-D. D. (2021) 'Trade Costs and Demand-Enhancing Effects of Agrifood Standards: Consequences for Sub-Saharan Africa', *Journal of African Trade*, 8(1), pp. 51-64.
- Dohlman, E. (2003) *Mycotoxin hazards and regulations. International Trade and Food Safety: Economic Theory and Case Studies*. Kent Academic Repository, pp. 97-106.
- English, S. and Hammond, S. (2019) *Cost of compliance 2018*. Thomson Returns, pp. 3–26.
- Ferrantino, M. (2006) *Quantifying the Trade and Economic Effects of Non-Tariff Measures*. USITC Working Paper.
- French, S. (2016) 'The composition of trade flows and the aggregate effects of trade barriers', *Journal of International Economics*, 98, pp. 114-137.
- Galiani, S., Porto, G. and Rossi, M. (2024) *The Consequences of Non-Tariff Trade Barriers: Theory and Evidence from Import Licenses in Argentina*. Inter-American Development Bank Working Paper.
- Garrett, B.L. and Mitchell, G. (2020) 'Testing compliance', *Law & Contemp. Probs.*, 83, p. 47.
- Genzen, J.R. (2019) 'Regulation of laboratory-developed tests: a clinical laboratory perspective', *American Journal of Clinical Pathology*, 152(2), pp. 122-131.
- Ghodsi, M., Gruebler, J., Reiter, O. and Stehrer, R. (2021) *Quality of Goods Imports: Which Role for Non-Tariff Measures?* WIIW Policy Report No. 46.
- Göksu, S. and Arslan, Ö. (2020) 'Quantitative analysis of dynamic risk factors for shipping operations', *Journal of ETA Maritime Science*, 8(2).
- Golafshani, N. (2003) 'Understanding reliability and validity in qualitative research', *The Qualitative Report*, 8(4), pp. 597-607.
- Grainger, A. (2011) 'Trade Facilitation: A Conceptual Review', *Journal of World Trade*, 45(1), pp. 39–62.
- Grainger, A. (2014) *Measuring-up customs: A trade compliance cost perspective*. Research Paper. Nottingham University Business School.

- Gunasekaran, A., Rai, B.K. and Griffin, M. (2011) 'Resilience and competitiveness of small and medium size enterprises: an empirical research', *International Journal of Production Research*, p. 49.
- Haque, M.S., Islam, R., Khan, N.A., and Baikady, R. (2022) Inductive and/or deductive research designs (ed). In *Principles of social research methodology*. Springer Nature Singapore, 99 51-71.
- Haugh, T. (2016) 'The criminalisation of compliance', *Notre Dame L. Rev.*, 92, p. 1215.
- Hauk, W.R. (2012) 'US import and export elasticities: a panel data approach', *Empirical Economics*, 43, pp. 73-96.
- Havenga, J., Simpson, Z. and Goedhals-Gerber, L. (2017) 'International trade logistics costs in South Africa: Informing the port reform agenda', *Research in Transportation Business & Management*, 22, pp. 263-275.
- Hegde, V. (2010, January). *Compliance testing is NOT reliability testing*. In *2010 Proceedings-Annual Reliability and Maintainability Symposium (RAMS)*. IEEE.
- Herbert, N.H. (2011) *Value-added taxation on imported services in South Africa*. Doctoral dissertation. University of Pretoria.
- Hill, C. (2022) *International Business: Competing in the Global Marketplace*. 13th edn. McGraw-Hill.
- Hoekman, B. & Kostecki, M. (2009) *The Political Economy of the World Trading System: The WTO and Beyond*. 3rd edn. Oxford University Press.
- Horner, R. (2021) 'Global value chains, import orientation, and the state: South Africa's pharmaceutical industry', *Journal of International Business Policy*, 5(1), p. 68.
- Imperial, M.T. (2021) Implementation structures: The Use of Top-Down and Bottom-Up Approaches to Policy Implementation. In *Oxford research encyclopaedia of politics*.
- Jackson, J. (2019) *The World Trading System: Law and Policy of International Economic Relations*. MIT Press.
- Jones, E. (2023) 'Digital disruption: artificial intelligence and international trade policy', *Oxford Review of Economic Policy*, 39(1), pp. 70–84.
- Kalaba, M. (2014) *The impact of Non-Tariff Measures on SADC agricultural trade*. Doctoral dissertation. University of Pretoria.

- Kareem, F.O., Martínez-Zarzoso, I. and Brümmer, B. (2023) 'What drives Africa's inability to comply with EU standards? Insights from Africa's institution and trade facilitation measures', *The European Journal of Development Research*, 35(4), pp. 938-973.
- Kasahara, H. and Lapham, B. (2013) 'Productivity and the decision to import and export: Theory and evidence', *Journal of international Economics*, 89(2), pp. 297-316.
- Keyter, A., Banoo, S., Salek, S. and Walker, S. (2018) 'The South African regulatory system: past, present, and future', *Frontiers in Pharmacology*, 9, p. 1407.
- Khan, A.A. (2014) 'Qualitative research: A case for a multi-angle view to enhance validity', *International Journal of Business and Management*, 9(9), p. 29.
- Kisil, V.V., Shulepova, A.G. and Verbytska, V.I. (2023) Problem aspects of accounting of income and expenses of transport and forwarding companies. Kharkiv National Automobile and Highway University, pp. 154–157.
- Koma, S.B. (2010) 'The state of local government in South Africa: Issues, trends and options', *Journal of Public Administration*, 45(si-1), pp. 111-120.
- Kotler, P. and Keller, K.L. (2022) *Marketing Management*. 16th edn. Pearson.
- Kriek, C. (2017) *The scope of liability for product defects under the South African Consumer Protection Act 68 of 2008 and common law - A comparative analysis*. Doctoral dissertation. Stellenbosch University.
- Kundu, S. & Rahman, A. (2025) 'The impact of artificial intelligence on the sustainability of international trade enterprises', *International Review of Economics & Finance*, p, 101.
- Leverty, J.T. and Liu, J. (2019) Does Technology Adoption Save Regulatory Compliance Costs. Social Science Research Network, pp. 4 – 20. Available at SSRN 3517945.
- Li, Y. and Miao, Z. (2018) *Trade costs, import penetration, and markups*. Munich Personal RePEc Archive, pp. 22–36.
- Lin, C.F. (2017) 'Outsource Power, Import Safety? Challenges and Opportunities of the US-China Food Safety Regulatory Cooperation', *Food and Drug Law Journal*, 72(1), pp. 32-52.

Maersk. (2023) *South Africa terminal and service delay*. Available at: <https://www.maersk.com/news/articles/2023/11/02/south-africa-terminal-and-service-delays>. (Accessed: 03 November 2025).

Makhoba, P.S. (2024) *Non-compliant Products in the South African Economy: The Role of the National Regulator for Compulsory Specifications (NRCS)*. Master's thesis. University of the Witwatersrand.

Martincus, C.V., Carballo, J. and Cusolito, A. (2025) 'Trade, productivity, and services input intensity', *Review of World Economics*, 161, pp. 309–337.

Maskus, K.E., Otsuki, T. & Wilson, J.S. (2005) *The cost of compliance with product standards for firms in developing countries: an econometric study*. World Bank Policy Research Working Paper 3590.

Mayer, M.J. and Onyango, D. (2005) *Review of regulation in South Africa*. Human Sciences Research Council.

Meidinger, E. (2009) *Private Import Safety Regulation and Transnational New Governance*. Buffalo Legal Studies Research Paper, p. 13.

Milner, H.V. (2017) The political economy of international trade. In *Global Trade, Abingdon*, (pp. 91-114). Routledge.

Monyela, M.N. and Saba, C.S. (2024) 'Trade openness, economic growth and economic development nexus in South Africa: A pre- and post-BRICS analysis', *Humanities and Social Sciences Communications*, 11, 1108.

Notteboom, T., Pallis, A.A. and Rodrigue, J.P. (2021) 'Transparency in port governance: Setting a research agenda', *Journal of Shipping and Trade*, 6(1), pp. 1–22.

OECD. (2013) *Trade Costs: What Have We Learned?* OECD Trade Policy Paper No. 150.

OECD. (2021) *Trade Facilitation and the Global Economy*. OECD Publishing.

Omer, A., (2022). 'Regulation and control of the importation, exportation, manufacture, advertisement, distribution, sale and the use of medicines, cosmetics, medical devices and chemicals', *American Journal of Drug Delivery*, 7(5).

Ozturk, O. (2024) 'The impact of AI on international trade: opportunities and challenges', *Economies*, 12(11), p. 298.

Passos de Freitas, V. (2014) 'The Role of Regulatory Agencies', *Envtl. Pol'y & L.*, 44, p. 552.

Patterson, M. and Sahd, L.M. (2024) 'Evaluating the understanding and implementation of Non-compliance with Laws and Regulations', *South African Journal of Business Management*, 55(1), p. 4761.

Prasai, K. (2017) 'Regulation of mitochondrial structure and function by protein import: A current review', *Pathophysiology*, 24(3), pp. 107-122.

Quak, E.J. (2019) Increasing the ability to comply with standards or regulations in order to improve trade and investment, The Institute of Development Studies and Partner Organisations. Report. <https://hdl.handle.net/20.500.12413/14553>

Rajamäki, J. and Rusanen, M. (2002) 'The consequence of electrical safety for importers of consumer products', in *Proceedings of the 14th International Conference on Electricity Distribution*. CIRED.

Rosita, N. (2017) 'Analysis of Work Performance and Export Competitiveness in Province of Indonesia', *Sriwijaya International Journal of Dynamic Economics and Business*, pp. 277-296.

Saeed, M., Yousaf, A., Awan, U. and Nadeem, S. (2016) 'Innovation strategies and product innovation performance in manufacturing firms', *South African Journal of Industrial Engineering*, 27(1), pp. 125–136.

Safaeimanesh, S. and Jenkins, G.P. (2021) *Estimation of the potential economic welfare gains to SACU from trade facilitation*. Development Discussion Papers 2021-10, JDI Executive Programs / CRI-WORLD.

Scholvin, S. (2020) 'Articulating the regional economy: Cape Town, Durban and Johannesburg as gateways to Africa', *African Geographical Review*, 39(2), pp. 162-174.

Schwella, E. (2002) Regulation and competition in South Africa, AgEcon research in agricultural & applied economics, pp. 3 – 30.

Sharma, H., Garg, R., Sewani, H. and Kashef, R., (2023). Towards a sustainable and ethical supply chain management: The potential of IoT solutions. *arXiv preprint arXiv:2303.18135*.

- Shepherd, B. (2016) *The Trade Facilitation Agreement: A Review of the Evidence*. UNESCAP Working Paper.
- Soiferman, L.K. (2010) Compare and Contrast Inductive and Deductive Research Approaches. Online Submission, Institute of Education Sciences, pp. 5–20.
- Swann, G.P. (2010) International standards and trade: A review of the empirical literature, *OECD Trade Policy Papers*, 97, pp. 11–34.
- Taylor, C. (2005) 'The evolution of compliance', *Journal of Investment Compliance*, 6(4).
- Tladi, M.J. (2021) *Corporate governance compliance within south African regulatory agencies: Towards an implementation framework*. Doctoral dissertation. North-West University.
- Twum-Darko, M. and Mazibuko, P.N. (2015) Compliance and Enforcement Challenges in the National Building Regulations' Processes of South Africa, Research Gate, pp. 131–135.
- Wagner, J. (2016) 'A survey of empirical studies using transaction level data on exports and imports', *Review of World Economics*, 152(1), pp. 215-225.
- Wang, P. and Mileski, J. (2018) 'Strategic maritime management as a new emerging field in maritime studies', *Maritime Business Review*, 3(3), pp. 290-313.
- Wassie, M.A., Kornher, L. and Zaki, C. (2025) 'Revisiting the impact of trade facilitation measures in Africa: A structural gravity approach', *Journal of International Trade & Economic Development*, 34(7), pp. 1604–1634.
- Wei, L. (2016) 'Strengthening customs cooperation of BRICS countries: improving people-oriented capacity building strategies to achieve mutual recognition of Accredited Operator programs', *World Customs Journal*, 10(1), pp. 115-132.
- Widdowson, D. (2007) 'The changing role of Customs: evolution or revolution?' *World Customs Journal*, 1(1), pp. 31-37.
- Zameer, R., Nasir, K. and Ali, U. (2024) 'Exploring the Import Barriers Confronted by Importers in Pakistan; An Exploratory Sequential Design', *Jinnah Business Review*, 12(2).

Zhang, Z., Huang, M. and Chen, T. (2023) 'Probability and predictors of long-term smoking relapse among Chinese adult smokers: A longitudinal study', *Preventive Medicine Reports*, 36, p. 102.

Appendix A: ETHICAL CLEARANCE LETTER



29 July 2025

Dylan Scott Van Der Schyff (225177181)
School of Acc Economics & Fin
Howard College Campus

Dear DS Van Der Schyff,

Protocol reference number: HSSREC/00009045/2025

Project title: A quantitative study into the continuous financial impact of import regulation adherence

Degree: Masters

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 22 July 2025 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

Incidents of adverse events and serious adverse events (AEs and SAEs) should be reported in writing to HSSREC, the study sponsors, and any regulatory authority (where appropriate), within 7 working days of the occurrence for local sites and 14 days for all other South African sites.

This approval is valid until 29 July 2026.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Yours sincerely,



Doctor Shamila Naidoo (Interim Chair)

/nng

Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/4557/3587 Email: hssrec@ukzn.ac.za Website: <http://research.ukzn.ac.za/Research-Ethics>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville

INSPIRING GREATNESS

Appendix B: ETHICAL CLEARANCE LETTER AMENDMENT APPLICATION



19 March 2026

Dylan Scott Van Der Schyff (225177181)
School of Commerce
Howard College Campus

Dear DS Van Der Schyff,

Protocol reference number: HSSREC/00009045/2025

Project title: A quantitative study into the continuous financial impact of import regulation adherence **Amended**

title: A study into the continuous financial impact of import regulation adherence

Degree: Masters

Approval Notification – Amendment Application

This letter serves to notify you that your application and request for an amendment received on 18 March 2026 has now been approved as follows:

- Change in title

Any alterations to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form; Title of the Project, Location of the Study must be reviewed and approved through an amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

HSSREC is registered with the South African National Health Research Ethics Council (REC-040414-040).

Best wishes for the successful completion of your research protocol.

Yours faithfully

Dr Shamila Naidoo (Interim Chair)

/dd

Humanities & Social Sciences Research Ethics Committee
UKZN Research Ethics Office Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Tel: +27 31 260 8350 / 4557 / 3587

Website: <http://research.ukzn.ac.za/Research-Ethics/>

Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville

INSPIRING GREATNESS

Appendix C: CERTIFICATE OF LANGUAGE EDITING

JENNIFER RENTON

CERTIFICATE OF LANGUAGE EDITING

This is to certify that the manuscript entitled: **“A Study into the Continuous Financial Impact of Import Regulation Adherence”**, authored by **Dylan vd Schyff**, has undergone professional English language editing by a qualified editor, Jennifer Renton.

The editing process included:

- correction of grammar, spelling, and punctuation;
- refinement of sentence structure and clarity;
- consistency in terminology and formatting; and
- enhancement of academic tone and readability.

This certificate confirms that the manuscript’s language quality meets the standards expected for academic and professional publication, provided that all suggested changes have been incorporated by the author.

Signature:

Date:

20 March, 2026

Appendix D: TURNITIN REPORT

Submission date: 21-Jan-2026 10:39PM (UTC+0200)

Submission ID: 2857184590

File name: DYLAN_VD_SCHYFF_225177181_FINAL.docx (393.81K)

Word count: 21264

Character count: 128686

DYLAN VD SCHYFF 225177181 FINAL.docx

ORIGINALITY REPORT

7%

SIMILARITY INDEX

7%

INTERNET SOURCES

1%

PUBLICATIONS

3%

STUDENT PAPERS