

**MODELLING THE CONTRIBUTION OF HIGH RISK IMPORTS TO NATIONAL
REVENUE – A CASE STUDY OF THE TEMA HARBOUR**

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DECLARATION

I, hereby declare that this submission is my own work towards the award of MSc and that, to the best of my knowledge, it contains no materials previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

To Christ my strength and source of wisdom, knowledge and power do I dedicate this work.

I also dedicate this research work to my lovely family (the Sowah's family) for being very supportive and for spurring me on to achieve this great feat.

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ABSTRACT

Effective Revenue Mobilization has been the bedrock of many countries including Ghana and over the years the importations of High Risk Goods have featured prominently in the revenue mobilization process. Recently, there have been indications by Governments past and present to place a ban on the importation of the High Risk Goods. This research was aimed at assessing the contribution of the High Risk Goods to National Revenue and their effect on Revenue Mobilization if a ban is placed on their importation into the country. For the sake of this research work, secondary data was obtained from the Policy Department of the Customs Division of the Ghana Revenue Authority (GRA) on the High Risk Goods which include Used Clothing, Used Fridges, Used Microwaves and Used Auto parts. The others are Rice Products and Used Computers and Accessories. Regression Analysis, Time Series and ANOVA were used to analyse the data and to formulate a model for forecasting the National Revenue for the next ten (10) years. The results showed that the High Risk Goods contributes significantly to National Revenue and a ban on them will affect National Revenue Mobilization. The proposed model for forecasting the National Revenue is
$$\text{Total Duty} = 327624.460 - 0.278 \cdot \text{TNW} + 0.342 \cdot \text{TPkg} + 0.943 \cdot \text{CIF} + \text{error}$$
 where Total Duty is synonymous with National Revenue for the sake of this research work. It is highly recommended that an extensive assessment should be conducted on the intangible gains that will be made in terms of health and environmental safety if the ban is placed on the said products.

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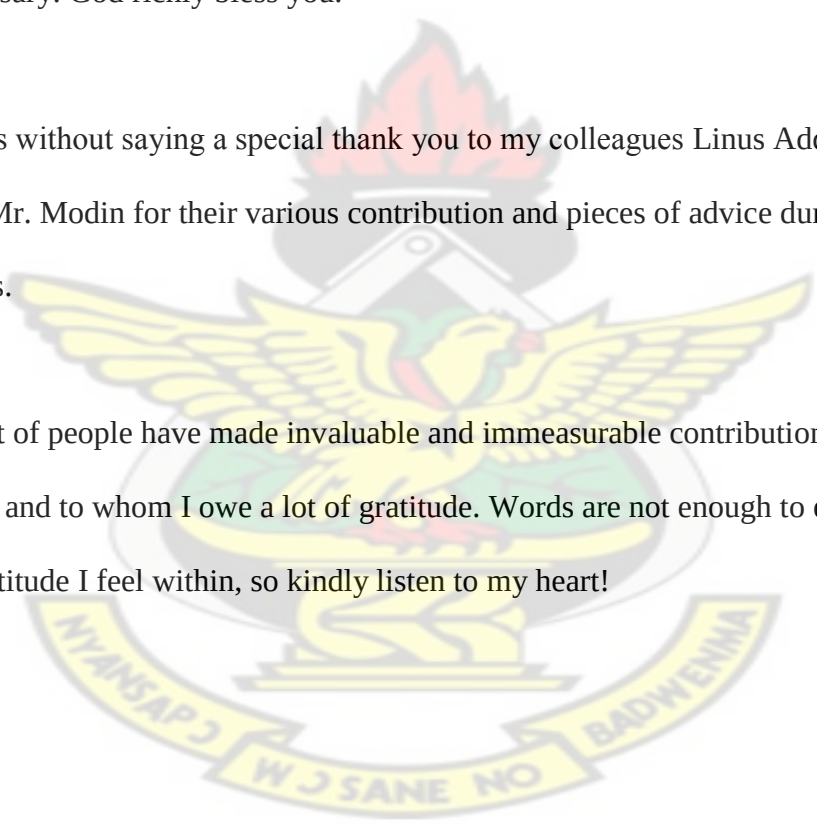


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LIST OF ACRONYMS/ABBREVIATIONS



CIF.....	Cost Insurance and Freight
CRMS.....	Customs Risk Management System
DICs	Destination Inspection Companies
DIS.....	Destination Inspection Scheme
FCVR.....	Final Classification and Valuation Report
FOB.....	Freight on Board
GRA.....	Ghana Revenue Authority
HRGs.....	High Risk Goods
MFEP.....	Ministry of Finance and Economic Planning
MOTI.....	Ministry of Trade and Industry
NHIL.....	National Health Insurance Levy
NHIS.....	National Health Insurance Scheme
NoY.....	Number of Years
PSI.....	Presidential Special Initiative
TD.....	Total Duty
TPkg.....	Total Number of Packages
TNW.....	Total Net Weight
TR.....	Total Revenue
VO.....	Verification Order
WCO.....	World Customs Organization
WTO.....	World Trade Organization

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The growing needs and demands of actors in an economy has made countries dependent on each other to satisfy these demands. Ghana is not new to this story and her dependence on foreign countries to supply the needs of her economy can be traced back to the pre-colonial era where the indigenes could trade by barter to provide very basic necessities to the modern society where economies of scale and comparative advantage drives production, importation and exportation of goods.

Over the decades, international trade has seen considerable growth globally and this high rate of interdependence can be attributed to the differing abilities of countries' to produce certain goods. It has been established that, these varying abilities are in turn related to underlying aspects of production such as technologies, factor endowments, competitive conditions, government taxes and subsidies, and returns of scale. This is the more reason why Ghana exports Cocoa and Gold and imports clothing. (Markusen et al, 1995).

To facilitate trade between Ghana and foreign countries as well as maintain fairness and equity, the Pre-shipment inspection system was adopted in the mid-1970s. It is a system where a consignment is inspected and certified at the point of exportation. This system ensures that the price charged by an exporter truly reflects the value of the goods being sold while preventing goods of sub standards from entering the country of importation. Further,

it foils the attempts of miscreants to avoid the payment of custom duties.

With Trade Facilitation being seen as a core tool in making Ghana the gateway to Africa and opening up the country to the rest of the sub region, the Government of Ghana in 1997 embarked on the Trade and Investment Gateway Programme with support funding from the World Bank. Thus, an inter sectorial Gateway Oversight Committee was formed with membership from the Ministry of Finance, Ministry of Trade and Industry, Ministry of Works and Housing and the Ministry of Interior. Others are the Ministry of Roads and Transport, the Ministry of Communication and the Bank of Ghana with the rest being the Ghana Civil Aviation, the Ghana Immigration Service and Customs.

Through the recommendation of the Committee, the Government of Ghana implemented the Gateway Project in the year 2000. Under this project, the Government of Ghana adopted the WTO Valuation simultaneously with the Destination Inspection Scheme (DIS) with Customs becoming ISO9000 compliant. This therefore meant an end to the over twenty – eight (28) years of operating the Pre-shipment Inspection Scheme (PSI).

In this vein, two companies namely; the Gateway Services Limited and GSBV limited were contracted by the Government of Ghana through the Trade and Industry Ministry to perform destination inspection of imported goods or cargo at the sea ports and the land frontiers/ airport respectively. Currently, there are five (5) Destination Inspection Companies (DICs) in total with Inspection and Control Services Limited (ICS), Ghana Link Network and Webb Fontaine (GH) Limited completing the list. Their mandate was

fashioned in line with the objectives of the Destination Inspection Scheme which includes

- Facilitation of trade
- Improvement of the collection of Government revenue through effective assessment of dutiable values and tariff classification
- Protection of Ghanaian consumers from illegal importation of prohibited or inferior/shoddy goods
- Ensuring a focused approach to examination of goods by limiting physical examination to only high-risk consignments and random inspection by CUSTOMS of other goods.

It is worth mentioning that there are three (3) main components under the Destination Inspection Scheme (DIS) and they are

- Computerized Risk Management System (CRMS)
- Transaction Price Database
- Container X-ray Scanning System.

All these components aim at minimizing the time it takes to clear goods at the ports and decongesting the port while clamping in on high risk goods and protecting the health of Ghanaians by preventing the importation of substandard goods unto the Ghanaian markets for local consumption.

To ensure faster inspection and clearance of goods or cargo at the ports, all the countries of the world have been shared among these five Destination Inspection Companies (DICs) and all that is required of an importer is to provide trade documents to the company under

whose purview the Country of Importation falls. The main documents to be submitted include the Bill of Lading, Invoice and Import Declaration Form as well as the Packing List and other supplementary documents. These documents provide among others, an exhibit of the purchase of the goods, the time of purchase and the exact description of the goods. It also gives evidence of the price and the terms at which the consignment was purchased as well as the identity of the buyer.

Ideally, twenty-one (21) days prior to the arrival of the goods, importers/agents must initiate a Verification Order (VO) by submitting to the appropriate Destination Inspection Companies, copies of the following documents:

- Import Declaration Form
- Pro-forma invoice
- Supplementary Information Document

Furthermore, ten (10) days before the goods arrive in Ghana be it by sea, land or air, the final invoice, the packing list and the shipping documents are presented to the DIC to finalize the registration process.

It is worth mentioning that all imported goods do not attract the same rates of duties, as such, before duties can be applied to the imported goods, the officer will have to know the type of goods imported so as to successfully classify and value the consignment.

To ensure fairness and uniformity in the classification of traded goods among countries, the Harmonized System Code was established by the Brussels Declaration. This Harmonized

System Code which is also known as the Harmonized Commodity Description and Coding Systems or more generally as the “HS” is a multipurpose international product nomenclature developed by the World Customs Organization (WCO). It consists of about 5,000 commodity groups; each identified by a six digit code, arranged in a legal and logical structure and is supported by well-defined rules to achieve uniform classification. The system is used by more than 200 countries and economies as a basis for their Customs tariffs and for the collection of international trade statistics. More than 98% of the merchandise in international trade is classified in terms of the HS (Danquah, 2007).

To swing back to the issue of assigning duties and values to imported consignments, valuation is the next step after the classification of the consignment has been done successfully. The Valuation process consists of six (6) methods which are based on the World Trade Organization’s (WTO) agreement in Brussels. After assigning the value, the DICs will then produce a Final Classification and Valuation Report (FCVR) which is based on the classification and price verification of the consignment. The report outlines the duty obligations of the importer. This obligation comprises Import Duty, Import Value Added Tax (VAT) and National Health Insurance Levy (NHIL).

Due to the modernization of revenue collection in Ghana, the GRA Act, 2009 (ACT 791) was passed in December 2009 which placed all the revenue collecting agencies (CEPS, VAT and IRS) under one umbrella body; the Ghana Revenue Authority (GRA). The main duty of the GRA is to focus on functional revenue administration. It has a Commissioner – General as the head with three Divisions namely; the Domestic Tax Revenue Division, the

Customs Division and the Support Services Division. Each of these divisions has a Commissioner who oversees their operations. The Import Duty was collected by the then Customs Excise and Preventive Service (CEPS) which is now Customs while the VAT Service collects import VAT and the National Health Insurance Levy (NHIL) on behalf of the government (GRA News, Volume 001).

Customs is a key actor in revenue mobilization in Ghana and accounts for over 70% of internally generated revenue. Their operations can be traced back to the year 1839 when it was known as the Department of Customs. It however saw a facelift in September 1986 when it was made an autonomous organization through the enactment of the CEPS Law, 1986 (PNDCL 144). Customs currently operate under the CEPS Management Law, 1993 (PNDCL 330).

The total duty an importer pays before clearing his/her consignment from the port is a sum total of the Import duty, the Value Added Tax (VAT) and the National Health Insurance Levy (NHIL) which is calculated on the Cost, Insurance and Freight (CIF) value of the imported commodity. Depending on the type of product being imported, the Import duty is either administered at a tax rate of 5%, 10% or 20%.

In the same vein, the Value Added Tax (VAT) was introduced into the country and became operational on 1st March 1995. It however did not stand the test of time as it was withdrawn after barely three months of its introduction. Its withdrawal was necessitated by the steep increases in the prices of goods and services which further incited civil and

industrial strikes across the country. The government finally cringed under the pressure from the disgruntled Ghanaians and withdrew the tax in June 1995.

Still looking for ways to generate more revenue from taxation, the Value Added Tax was reintroduced in March 1998, but finally took effect on 30th December 1998. The Value Added Tax (VAT) is defined by the Ghana Revenue Authority as a tax applied on the value added to goods and services at each stage in the production and distribution chain. It forms part of the final price the consumer pays for goods or services. In some countries it is called 'Goods and Services Tax' or GST. The rate was initially 10% which was later increased to 12.5% by an act of parliament in the year 2000 (www.gra.gov.gh).

Another aspect of the total Import Duty is the National Health Insurance Levy (NHIL) which is a levy on goods and services supplied in or imported into Ghana. All goods and services are subject to the levy unless they are exempt. The NHIL is charged at a rate of two and a half percent (2½%) on the VAT-exclusive selling price of the goods supplied or services rendered. The levy was promulgated by an act of parliament (Act 650), and introduced on 1st August, 2004. Its main purpose is to partly finance the National Health Insurance Scheme (NHIS) since the erstwhile “Cash and Carry System” of healthcare financing presented a daunting hurdle to the access of healthcare which majority of Ghanaians mostly the poor, marginalized and venerable fail to scale over.

The Ghana Revenue Authority has reiterated on its website (www.gra.gov.gh) that if the health of the population is to be secured, then there was an urgent need to replace it with a

system that will promote and improve access to health facilities. Healthcare insurance is further seen by the government as a risk pooling arrangement by which the cost of healthcare to any single individual in the society, whether rich or poor, becomes the collective responsibility of all the people in the society. In positive anticipation, more than 60% of the resources of the Fund are expected to be obtained from the National Health Insurance Levy (NHIL).

1.2 STATEMENT OF THE PROBLEM

From the time Ghana opened her doors to international trade till date, High Risk Goods have featured prominently in the generation of revenue for the nation and have also been a major actor on the Ghanaian markets and in various homes.

However, there has been growing concerns on the health risk these high risk goods pose to the people of Ghana, the environment as well as the economy. It is an undeniable fact that high risk goods such as used fridges, used clothes and used auto parts to mention a few pose health risks to the people of Ghana due to the emission of certain radiations when they are nearing their expiration period.

In a bid to obviate this concerns and risks, past governments have threatened time without number to put a ban on the importation of these high risk goods. It is against this backdrop that this study is being conducted to see the total effect the imposition of a ban on High Risk Goods will have on the economy of Ghana in terms of revenue mobilization.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General Objective

To measure the contribution of certain High Risk Goods to total revenue and ascertain how a ban on their importation will affect revenue mobilization and thus, at least in the short term, the total well-being of the people of Ghana and the performance of the economy as a whole.

1.3.2 Specific objectives

- i. To determine using a regression model how certain High Risk Imports could affect revenue mobilization.
- ii. To determine patterns followed by the revenue mobilized from the High Risk Goods.
- iii. To forecast total revenue for the next ten years

1.4 METHODOLOGY

The project makes use of secondary data which is obtained from the Policy Department of the Customs Division of the Ghana Revenue Authority. The data spans a five year period from 2008 to 2012 and contains information on the Total Duty realized from the Total Cost, Insurance and Freight (CIF) as well as the total number of packages and weights of products imported over the period under review.

In establishing the contribution of the High Risk Goods (HRGs) to Total Revenue, Total Duty (TD) which is used as a measure of Total Revenue (TR) will be expressed as a

function of the total number of packages, the total net weight and the total CIF in the regression model.

Also, the Analysis of Variance (ANOVA) will be employed to determine the variations in the contribution of the various categories of products to the Total Revenue. To forecast the Total Revenue for the next ten years, Trend projection analysis and the Time series analysis will be employed.

1.5 JUSTIFICATION OF THE RESEARCH

A lot of concerns have been raised on the negative impact of High Risk Goods (mainly used products) on the Ghanaian markets, health of the people and the Ghanaian economy as a whole. This has forced past Governments during budget statements to hint that a ban will be placed on the importation of these goods.

Although the negative effects of these goods are undeniable, this research seeks to look at the financial contributions of these HRGs to National Revenue and the financial implications of a ban on the importation of these used products.

1.6 LIMITATION

Obtaining data from the Ghana Revenue Authority and the Ministry of Trade was very difficult as the authorities were of the view that the information was confidential despite the ample evidence that it was only for academic work.

The data was finally obtained from the Customs Division of the Ghana Revenue Authority (GRA). The data obtained was the sum of the Total Duty, Total CIF, Total Packages and Net Weights for the various years under review and this limits the scope of our analysis as we could not establish the variation and trends for the various line items imported over the period under consideration.

1.7 ORGANIZATION OF THE THESIS

Chapter 1 is the introduction which comprises the background to the problem, statement of the problem and the objectives of the study. It also captures the research questions, justification of the research, methodology and the limitations of the study.

Chapter 2 basically deals with the review of literature. Literature on pre – shipment inspection in Ghana, importation and other people’s views on the importation of High Risk Goods are reviewed.

Chapter 3 focuses on the methods used in the analysis. It comprises of the introduction, the description of basic statistics, method and formula used in the analysis which includes regression analysis, analysis of variance (ANOVA), concept of time series and trend analysis.

Chapter 4 is devoted to data analysis and results. It comprises the introduction, descriptive statistics of the data, data preparation, model selection, parameter estimation, and

forecasting.

The final chapter of the dissertation summarizes all the major findings and discusses them in accordance with the objectives of the study. Conclusions are then derived and recommendations made.

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CHAPTER 2

LITERATUREREVIEW

2.1 INTRODUCTION

As indicated earlier in the “Organization of Thesis” section of chapter one, this chapter

focuses on the innumerable knowledge and school of thoughts posited and produced by individuals, groups and authorities related to the subject under study.

This literature review will discuss some ideas culled from books, journals and websites that shed some light on the topic under review. An attempt will also be made to carefully examine the conditions under which revenue may be effectively generated internally and efficiently used to implement developmental goals.

2.2 GOVERNMENT REVENUE REFORMS

It is no news that in most economies, government budget is financed mainly by government revenue and in our part of the world, the story is no different. Most developing economies depend largely on internally generated revenue (mostly through tax) and external donor support to meet developmental goals and to finance government social spending. Thus low levels of realized government revenues have an adverse effect on the country's ability to effectively finance its set developmental agenda and improve on social amenities and other social services which will eventually raise the living standards of Ghanaians.

Since government revenue is mostly generated through tax regimes, many African countries in their quest to meet their expenditure demands, undertook radical tax reforms of which Ghana is no exception. In Ghana, the reforms were geared towards granting the revenue collecting institutions operational autonomy by detaching them from the civil service and improving their efficiency through enhanced work and employment conditions. Tekper (1995) observes that two practical steps were taken in 1985 which were the

establishment of the National Revenue Secretariat(NRS) and the formation of the two major revenue organizations, the Customs Excise and Preventive Service (CEPS) now the Customs Division of the Ghana Revenue Authority and the Internal Revenue Service(IRS). These were made autonomous institutions outside the civil service.

However, it was noticed that the quintessence of these reforms focused on tax structure rather than generating more revenue from the existing tax sources (Osoro, 1991). According to the International Monetary Fund (IMF), taxation is a defining feature of state power, making its improvement a key aspect of state-building. As such, this consideration, which underscores the view of tax reform as an investment central to wider institutional development, has been prominent in recent policy initiatives (IMF, Revenue Mobilization in Developing Countries, 2011).

Witt and Lautenbacher (2003) couldn't agree more by stating that effective revenue collection is a core element for any strategy aimed at improving economic governance. Thus, increasing revenue collection will reduce the dependence of a state on foreign transfers and donor support. Furthermore, such an economy is able to provide and finance public goods independent of the conditionality of external donors.

In March 8, 2011, the Fiscal Affairs Department of the IMF in a write – up on “Revenue Mobilization in Developing Countries” identified some common tax challenges facing developing countries which include but not limited to the under listed;

Dealing with sectors that are ‘hard-to-tax’ everywhere (small businesses, including small

farmers, professionals, and in some cases, state-owned enterprises), but especially where administrative capacity and compliance habits are weak. ‘Informality’ is extensive in developing countries, perhaps 40% of GDP on average, up to 60% in many. But this is arguably not in itself the problem; micro traders may be ‘informal’ for instance, but are also likely to have income and sales well below any reasonable tax threshold; and much of the most egregious evasion is by qualified professionals. The issue is best framed as one of non-compliance.

- Weak revenue administrations, low tax payer morale, and poor governance which though closely linked but not unique to lower - income countries, are especially entrenched there. Corruption indicators are strongly associated with low revenue and corruption can be thought of as functioning like a tax itself - and likely a particularly regressive one - as are other governance indicators (weak rule of law, political instability). Causation can run both ways, and governance problems are not unique to revenue administrations and nor can they be fully addressed in isolation from, for example, judicial reform. Nevertheless, the centrality of tax collection as an exercise of state power gives governance issues in tax collection a particular importance (Attil et al., 2008).
- Heavy reliance on receipts from multinational enterprises, whose adroitness in tax planning poses increasing challenges, and, in many cases, difficulties in dealing with state-owned enterprises that have been known to abuse or simply ignore the tax system;
- Shallow use of financial institutions, a valuable source of tax-relevant information;
- Dealing with international services, increasingly important but - since they cannot

be intercepted at the border - hard to tax, especially where administrations fail to progress beyond heavy reliance on physical controls.

As if to copy a leaf from Witt and Lautenbacher (2003), the government of Ghana in December 2009 modernized revenue collection in the country. The GRA Act, 2009 (ACT 791) was passed which placed all the revenue collecting agencies (CEPS, VAT and IRS) under one umbrella body; the Ghana Revenue Authority (GRA). The main duty of the GRA is to focus on functional revenue administration. It has a Commissioner – General as the head with three Divisions namely; the Domestic Tax Revenue Division, the Customs Division and the Support Services Division. Each of these divisions has a Commissioner who oversees their operations. The Import Duty was collected by the then Customs Excise and Preventive Service (CEPS) which is now Customs while the VAT Service collects import VAT and the National Health Insurance Levy (NHIL) on behalf of the government (GRA News, Vol 001).

Still looking for ways to generate more revenue from taxation, the Value Added Tax was reintroduced in March 1998, but finally took effect on 30th December 1998. The Value Added Tax (VAT) is defined by the Ghana Revenue Authority as a tax applied on the value added to goods and services at each stage in the production and distribution chain. It forms part of the final price the consumer pays for goods or services. In some countries it is called 'Goods and Services Tax' or GST. The rate was initially 10% which was later increased to 12.5% by an act of parliament in the year 2000 (www.gra.gov.gh).

To generate more revenue and achieve a country's revenue target, there is the need for a reliable revenue forecast which will form the basis for the budgetary process. In setting revenue targets, the government of Ghana operates through the Ghana Revenue Authority (GRA), and the Ministry of Finance and Economic Planning (MFEP). The revenue target for the ensuing year is set in the fourth quarter of the preceding year.

The GRA makes proposals to the MFEP on targets for the following year based on past trends, revenue collections up to the end of the third quarter and the prevailing general economic conditions. In reply, the MFEP puts up a counter proposal using variables and indicators which it might not disclose to the GRA at that time. For the most favourable and plausible target to be established, the GRA and the Ministry of Finance and Economic Planning (MFEP) hold series of negotiations.

As may be the case, the GRA and the revenue collecting agencies under its purview mostly meet the target and sometimes surpass the revenue targets resulting in celebrations but an article written by Armah (2003) seeks to nudge them out of the celebration mood by asking pertinent questions bordering on whether the revenue targets reflects the nations macro-economic framework. He furthered prodded holes in the revenue setting mechanism fingering out the forecasting mechanism to be poor. To proffer a solution, there will be the need for a perfect mix of judgmental forecasting technique as well as scientific forecasting procedures in our forecasting approach.

CHAPTER 3

METHODOLOGY

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3.1 INTRODUCTION

This chapter focuses on the detailed description of how the study will be conducted. This will be done to allow for any replication of the study in the future by serving as a guideline. It will describe the purpose of the research, research approach and strategy, analysis technique, ethical considerations and limitations of the study.

3.2 DESCRIBING BASIC STATISTICS OF IMPORTED HIGH RISK GOODS FROM 2008 TO 2012

The aim of the study is to determine the impact or contribution of the Importation of High Risk Goods to the national revenue using figures from Tema Harbour. The researcher wanted to ascertain how a ban on the importation of High Risk Goods (HRG) will affect revenue mobilization and thus the total wellbeing of the people of Ghana and ultimately, the performance of the economy.

The data used in this analysis spans a five year period from 2008 to 2012, this is termed the Number of Years (NoY) and contains information on the Total Duty (TD) realized from the Total Cost, Insurance and Freight (CIF) as well as the Total Number of Packages (TPkg)

and the Total Number of Weights (TNW) of products imported over the period under review.

In establishing the contribution of the High Risk Goods (HRGs) to Total Revenue, Total Duty (TD) which is used as a measure of Total Revenue (TR) was expressed as a function of the total number of packages (TPkg), the total net weight (TNW) and the total CIF in the regression model of the study period (NoY).

3.3 THE CONCEPT OF REGRESSION ANALYSIS

Regression analysis is a statistical tool for investigating the relationships between variables. This usually involves seeking to ascertain the causal effect of one variable upon another – in this case, the effect of the importation of High Risk Goods, measured by independent variables such as TPkg, NoY, TNW, and CIF as defined above, upon the dependent variable (Total Revenue).

There are different types of regression analysis. These include simple linear regression, multiple linear regression, logistic regression etc. This thesis specifically makes use of multiple linear regressions.

To achieve this, data on the underlying variables of interest are sorted and the regression estimates are used to assess the “statistical significance” of the estimated relationships that is the degree of confidence that the true relationship is close to the estimated relationship.

3.3.1 MULTIPLE LINEAR REGRESSION MODEL

Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Every value of the independent variable x is associated with a value of the dependent variable y . The population regression line for k explanatory variables $x_1, x_2, \dots, x_k$ is defined to be $\mu_y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$. This line describes how the mean response μ_y changes with the explanatory variables. The observed values for y vary about their means μ_y and are assumed to have the same standard deviation δ . The fitted values $b_0, b_1, b_2, \dots, b_k$ estimate the parameters $\beta_0, \beta_1, \dots, \beta_k$ of the population regression line.

Since the observed values for y vary about their means μ_y , the multiple regression model includes a term for this variation. In words, the model is expressed as $\text{DATA} = \text{FIT} + \text{RESIDUAL}$, where the "FIT" term represents the expression $\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$. The "RESIDUAL" term represents the deviations of the observed values y from their means μ_y , which are normally distributed with mean 0 and variance δ . The notation for the model residual term is ϵ .

Therefore, the model for the multiple linear regressions is $Y_t = \beta_0 + \beta_1 x_{t1} + \beta_2 x_{t2} + \dots + \beta_k x_{tk}$, where $t = 1, 2, \dots, n$

In the least-squares model, the best-fitting line for the observed data is calculated by minimizing the sum of the squares of the vertical deviations from each data point to the line (if a point lies on the fitted line exactly, then its vertical deviation is 0). Because the deviations are first squared, then summed, there are no cancellations between positive and negative values.

In mathematical terms, the least-squares estimates $b_0, b_1, b_2, \dots, b_k$ are usually computed by statistical software. The values fit by the equation $b_0, b_{t1}, b_{t2} \dots b_{tk}$ are denoted by $\hat{Y}_t$ and the residuals $e_t = Y_t - \hat{Y}_t$ (the difference between the observed and fitted values). The sum of the residuals is equal to zero.

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3.3.2 CORRELATION

In statistics, dependence refers to statistical relationships between two random variables or a set of data, correlation therefore refers to any of the broad class of statistical relationships involving dependence. Correlation is a statistical technique used to measure the strength or degree of relationship existing between two variables. When only two variables are involved, we speak of simple correlation. The researcher therefore employed correlations in this study to examine the impact of each of the independent variables on each other as well as on the dependent variable.

There are several types of correlation coefficients. These are Pearson Product Moment Correlation Coefficient, Rank Correlation Coefficient and Kendall Correlation Coefficient. Pearson Product Moment Correlation Coefficient denoted by 'r' would be used. The 'r' is computed as

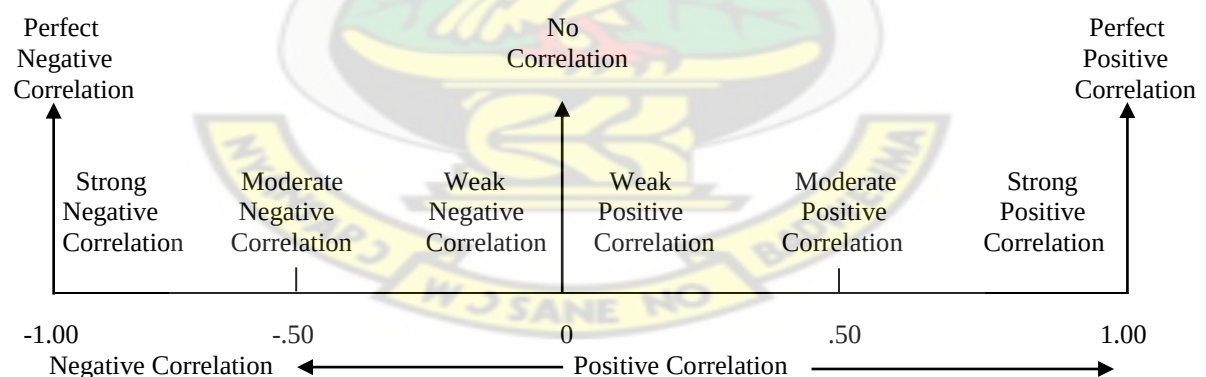
$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{[n\sum X^2 - (\sum X)^2][n\sum Y^2 - (\sum Y)^2]}}$$

, where 'n' is the number of data pairs.

The 'r' assumes any value on the scale from -1 to 1 inclusive. If $r = \pm 1$, there is a perfect relationship between the two variables and if $r = 0$, there is absolutely no relationship between the two variables.

Supposing there is a strong positive linear relationship between the variables, the value of r will be close to +1. On the other hand, if there is a strong negative linear relationship between the variables, the value of r will be close to -1. In the case where there is no linear relationship between the variables or only a weak relationship exists between the variables, the value of r will be close to 0.

The following drawing summarizes the strength and direction of the coefficient of correlation.



By this technique we will be able to establish the relationship existing between the two variables mentioned earlier.

3.3.3 ANALYSIS OF VARIANCE (ANOVA)

ANOVA is defined as a technique whereby the total variation present in a data set can be partitioned into several components. Associated with each of these components is a specified source of variation so that in the analysis it would be possible to ascertain the magnitude of the contribution of each of the sources of the total variation. In its simplest form, Analysis of Variance (ANOVA) provides a statistical test to determine whether or not significant differences exists in the means of several groups (teams), and therefore generalizes t-test to more than two groups.

Basically, there are two types of ANOVA models; one-way ANOVA and two-way ANOVA. The analysis of variance procedures are developed under certain assumptions namely; normality, independence and constant variance (homoscedasticity) assumptions.

3.3.4 ONE-WAY ANALYSIS OF VARIANCE

One-way ANOVA examines equality of population means for a quantitative out-come and a single categorical explanatory variable with any number of levels. The quantitative outcome with a categorical explanatory variable for this thesis is TD with levels TPkg, NoY, TNW, and CIF. This statistical tool is adopted to determine the overall model fit for this thesis.

The model for one-way ANOVA is $Y_{ij} = \mu + y_i + \varepsilon_{ij}$ for $i = 1, 2, \dots, t$ and $j = 1, 2, \dots, n_i$

where,

Y_{ij} = the observed values

μ = overall grand mean

y_i = effect of population i

ε_{ij} = error terms assumed to be Independent and Identically Distributed, $N(0, \delta^2)$.

In one-way Analysis of Variance, the total sum of squares can be partitioned into two separate sources of variability; one due to variability among treatments (between samples) and the other due to random fluctuations (within samples).

The notation needed for one-way ANOVA include;

y_{ij} = the j th sample observation taken from population i .

n_i = the number of sample observations taken from population i .

n_T = the total sample size; $n_T = \sum n_i$

$\bar{y}_i$ = the average of the n_i sample observations taken from population i ; $\bar{y}_i = \sum y_{ij} / n_i$

$\bar{y}_{..}$ = the average of all sample observations; $\bar{y}_{..} = \sum_i \sum_j y_{ij} / n_T$. In mathematical terms, the total sum of squares can be partitioned into;

$$\text{Sum of Square Total (SST)} = \sum_{i,j} (y_{ij} - \bar{y}_{..})^2$$

$$\text{Within sample Sum of Square (SSW)} = \sum_{i,j} (y_{ij} - \bar{y}_i)^2$$

$$\text{Between-sample Sum of Square (SSB)} = \sum_i n_i (\bar{y}_i - \bar{y}_{..})^2$$

Thus $\text{SST} = \text{SSW} + \text{SSB}$.

The results of the one-way ANOVA can be summarized in an ANOVA table as shown below

Source of variation	Degrees of freedom (df)	Sum of Squares (SS)	Mean Sum of Squares (MS)	F-ratio
Between Sample	$t - 1$	SSB	$MS_B = \frac{SSB}{t - 1}$	$\frac{MS_B}{MS_W}$

Within Sample	$n_T - t$	SSW	$MS_W = \frac{SSW}{n_T - t}$	
Total	$n_T - 1$	TSS		

3.3.5 COEFFICIENT OF VARIATION

In the concept of probability theory and statistics, the coefficient of variation (CV) is a normalize measure of dispersion of a probability distribution. It is used in this case to determine the overall percent of variation that could be explained by the model.

3.3.6 DATA SET

The data used in the study was acquired from the Policy Department of the Customs Division (Tema Harbour) of the Ghana Revenue Authority. The financial figures list the most recent years for the regression analysis. The data extracted for the analysis covered a period of five years starting from 2008 to 2012. The reasons for this restriction was to enable the research team have available and accurate data for their investigation.

3.3.7 RESEARCH TOOL

The Secondary data obtained will be coded before the data entry, quality control checks will be performed to assess the completeness and consistency of the figures recorded and computed. The objectives of the study will be emphasized by finding trends and

relationships that side line or contradict the set objectives. Quantitative analysis will be used in evaluating the data of the selected sample as against the set objectives. This analysis will be made possible by the use of a Statistical Package for Social Science (SPSS 16) software. The use of SPSS provides an opportunity for a qualitative analysis of the Secondary data in other to investigating the set objectives.

3.3.8 STATISTICAL ANALYSIS

The sample figures were arranged in the right format and exported into SPSS (Statistical Package for Social Science) and the regression analysis was run. The regression was used to test the significant effect of the independent variables. The SPSS was used for its availability, ease of use, simplicity and ability to generate the needed statistics for addressing the set objectives.

3.3.9 MODEL SPECIFICATIONS

The following regression model was therefore formulated based on the data sampled

$$TD = \beta_0 + \beta_1 (TPkg) + \beta_2 (NoY) + \beta_3 (TNW) + \beta_4 (CIF) + \varepsilon$$

Where,

β_0 : the intercept of the equation

β_i 's: Coefficient of the i variables or regression parameters

ε : The error term.

TPkg: Total number of packages

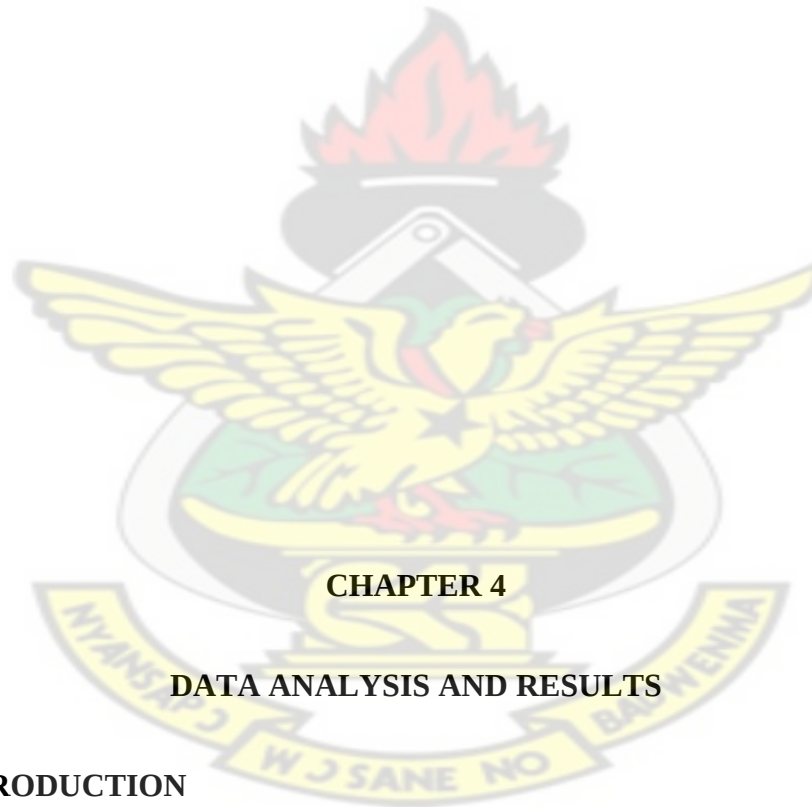
TNW: Total net Weight

CIF: Total CIF

TD: Total Duty

3.4 ETHICS AND CONFIDENTIALITY

To comply with research ethics, data was sourced from credible and approved department where the heard of department had a brief introduction of the purpose and objectives of the study and assured the confidentiality in the use of the data. Also, those involved in providing the needed data were not required to provide names or any kind of identity.



CHAPTER 4

DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

This chapter deals with the analysis of the data and display of results of the test and the results of the modelling process.

4.2 REGRESSION MODELLING

In order to address the objectives of the study, which are to measure the contribution of

High Risk Good (HRG) to Total Revenue (TR), examine the pattern of revenue mobilized from HRG, as well as forecast Total Revenue (TR) for the next 10 years, we employ the use of a regression model and trend projections of the sampled data.

A linear regression model estimates the coefficients of a linear equation, involving one or more independent variable(s); In this case, we can assume that, (Total No. of Pkg, Total Net Weight, Total Cif and the number of year Years) as our best predict variables for the value of a dependent variable (Total Duty).

The model is used to identify which indicators have a strong influence in predicting total revenue over a given period and fit a model for predicting future total revenues, given the predictor indicators. In this case, Total Duty (TD) is used as a measure of the total revenue and act as the dependent variable in the regression model, while the key predictive indicators of the total revenue are Total number of Packages (TPkg), Total Net Weight (TNW), Number of Years (NoY) and Cost, Insurance and Freight (CIF).

4.2.1 FITTING THE LINEAR REGRESSION MODEL

The linear regression model assumes that there is a linear or straight line relationship between the dependent variable and each predictor. The relationship is described in the following proposed formula:

$$TD = \beta_0 + \beta_1 (TPkg) + \beta_2 (NoY) + \beta_3 (TNW) + \beta_4 (CIF) + \varepsilon$$

Where the β_i 's are regression parameters and ε is the error factor.

The first step in using the regression model is to determine whether the dependent variable

(total revenue) can be predicted by the independent variable(s) (Total net Weight of the High Risk Goods). We can achieve this by examining a scatter plot of Total Duty and Total net Weight to determine whether a linear model is reasonable for these variables.

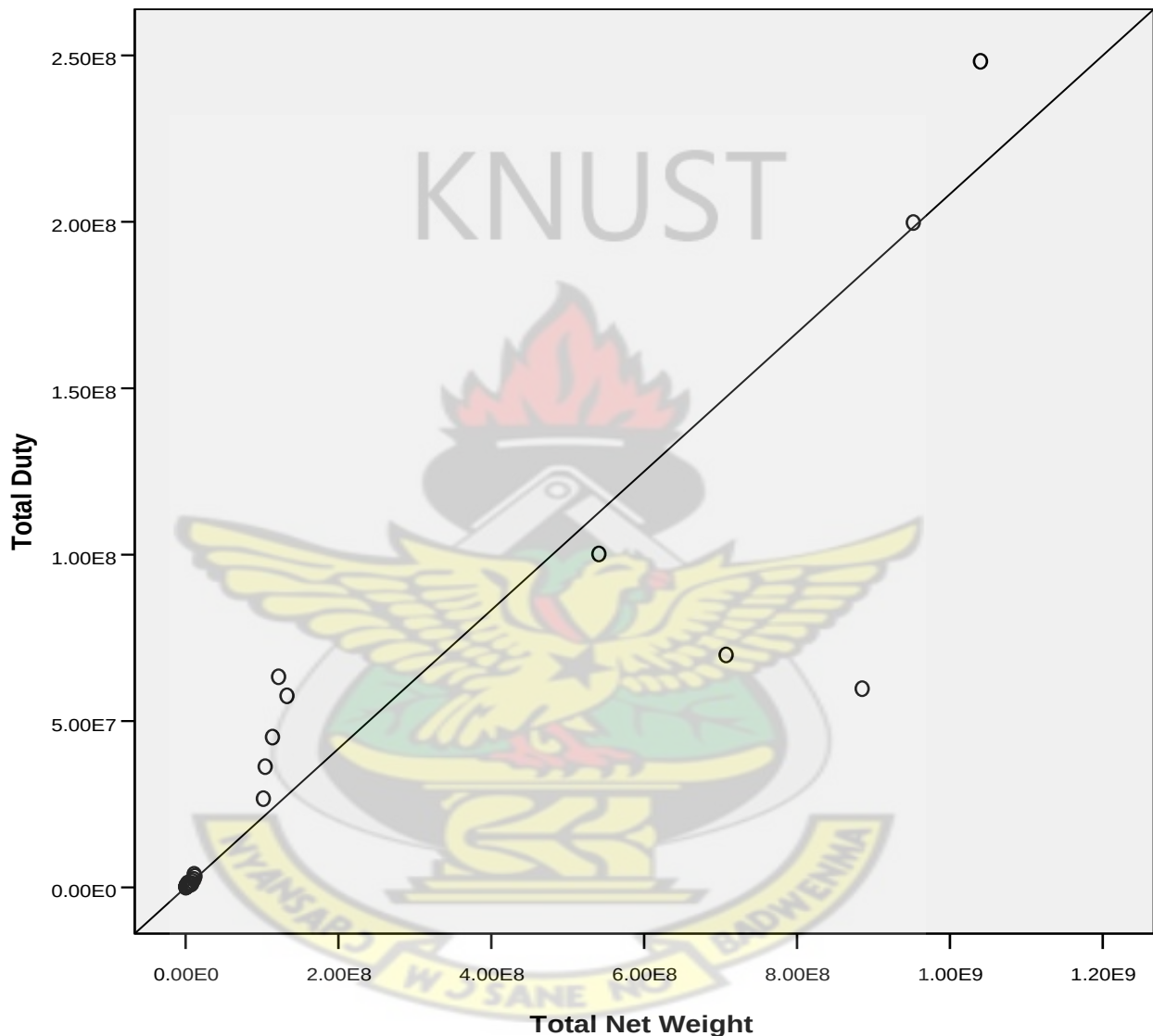


Figure 4.1: Graph of the Scatter plot of Total Duty against Total Net Weight.

The scatter plot appears to be suitable for linear regression as the variability of total duty appears to increase with increasing total net weight. Meaning that, the total duty tends to

follow a certain pattern depending on the total net weight. This addresses the second objective of the study which seeks to determine if revenue mobilization of HRG follows a certain pattern given the study period.

4.2.2 TESTS FOR ASSUMPTION OF LINEARITY AND MULTICOLLINEARITY

Linear regression model is based on the assumption that, there is linear relationship between the dependent variable and the independent variable(s). Thus, the existence of significant regression model is largely based on the existence of linear relationship between the dependent variable and each of the independent variable.

Another condition that can be problematic is multicollinearity, which can lead to misleading and inaccurate results. Multicollinearity or collinearity occurs when there are high intercorrelations among some set of the predictor or independent variables.

The existence of collinearity means that, two or more predictors contain much of the same information. In assessing the linearity and the collinearity of the data, a correlation matrix on all the variables is computed and the results are as summarized in table below.

Table 4.1: Correlations of data

		Total Duty	Total Net Weight	Total no of Pkg	Total Cif	YEAR
Pearson Correlation	Total Duty (TD)	1.000	.891	.934	.969	.246
	Total Net Weight (TNW)	.891	1.000	.777	.959	.048
	Total no of Pkg (TPkg)	.934	.777	1.000	.855	.272
	Total Cif (CIF)	.969	.959	.855	1.000	.170
	YEAR	.246	.048	.272	.170	1.000
Sig. (1-tailed)	Total Duty	.	.000	.000	.000	.095
	Total Net Weight	.000	.	.000	.000	.401
	Total no of Pkg	.000	.000	.	.000	.073
	Total Cif	.000	.000	.000	.	.184
	YEAR	.095	.401	.073	.184	.
N	Total Duty	30	30	30	30	30
	Total Net Weight	30	30	30	30	30
	Total no of Pkg	30	30	30	30	30
	Total Cif	30	30	30	30	30
	YEAR	30	30	30	30	30

It can be observed from the correlation matrix that, TNW, TPkg, and CIF each tends to have strong linear relationship with TD, as indicated by their high Pearson Correlation Coefficient and low p-value (less than 0.05). Whiles the YEAR shows a higher p-value (0.095) and small Pearson Correlation (0.246). This means that, TNG, TPkg and CIF tend to have higher predictive influence on TD.

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4.2.3 TEST FOR THE ASSUMPTION OF NORMALITY

Assumption: The residual or the error term is normally distributed.

A histogram or P-P plot of the residual, which is the difference between the observed and model predicted values of the dependent variable helps in checking the assumption of normality of the error term.

In testing the above assumption the histogram and the probability plots (p-p) are generated. The shape of the histogram should approximately follow the shape of the normal curve. This histogram is acceptably close to the normal curve as shown below.

The Probability plots are used to determine whether the distribution of a variable matches a given distribution. If the selected variable matches the test distribution, the points cluster around a straight line. The generated graphs are shown below.

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Histogram

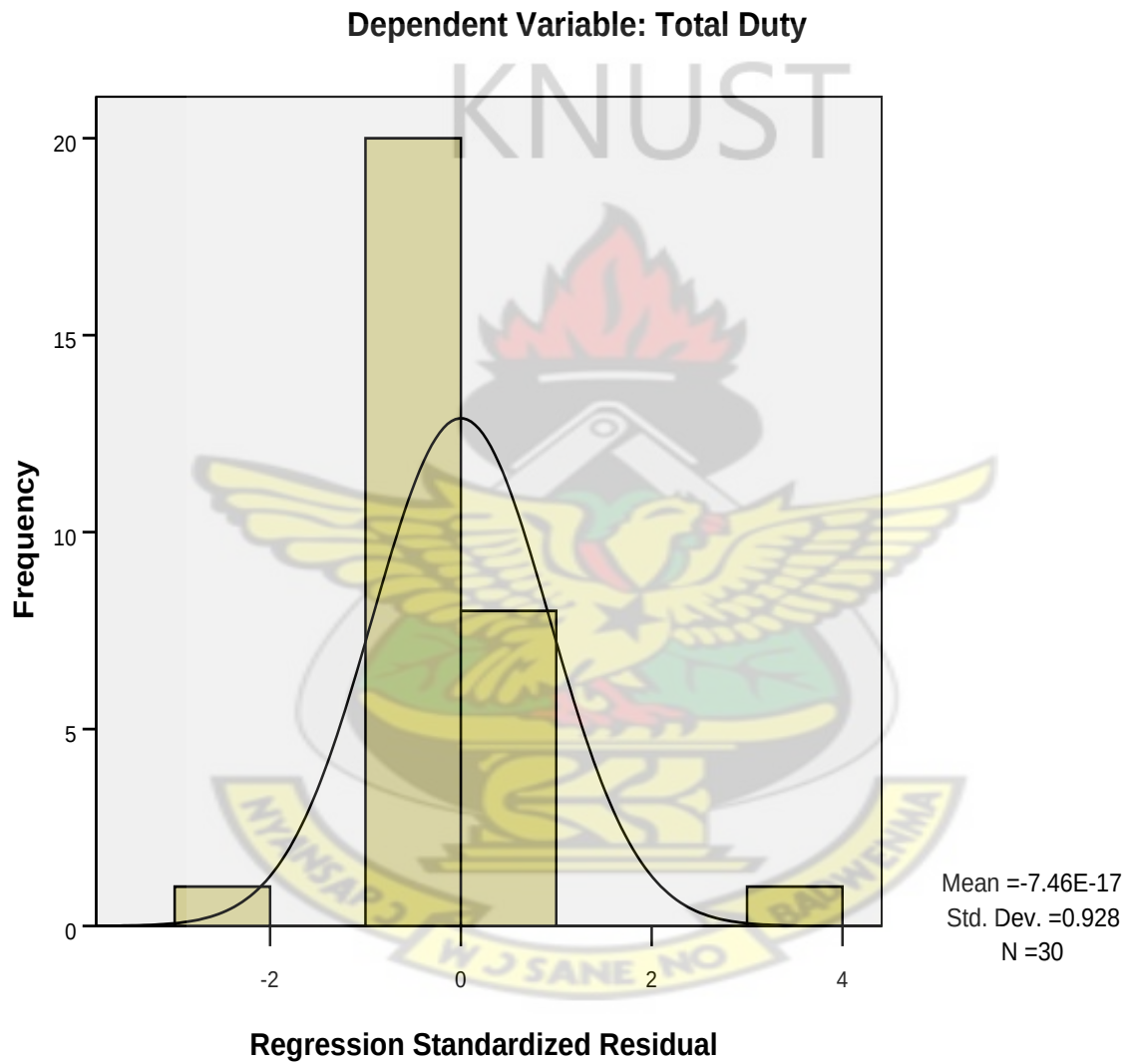


Fig. 4.2: Histogram

Normal P-P Plot of Regression Standardized Residual

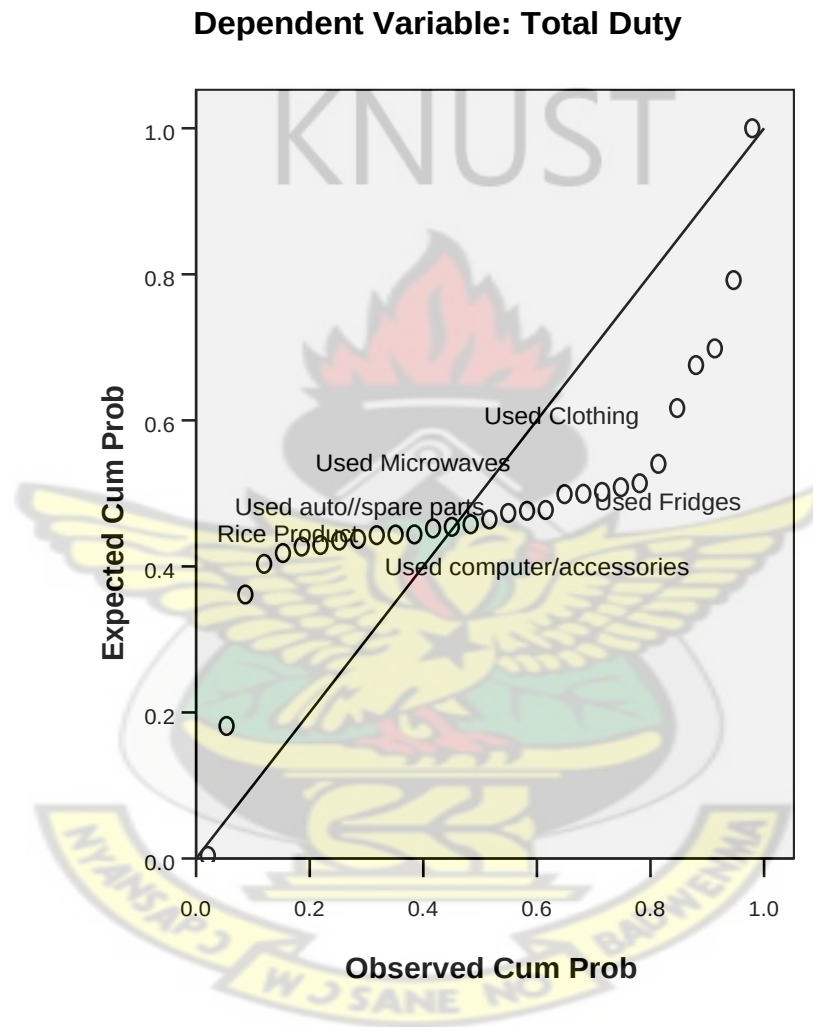


Fig. 4.3: Normal P-P Plot of Regression Standardized Residual

The P-P plotted residuals should follow the 45-degree line. It can be observed that, all the points are clustered around the straight line, which indicates that, the variables are normally distributed. This observation indicates that, the data satisfies the assumptions for the

application of a regression analysis.

Table 4.2: ANOVA table for Linear Trend

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	101371767123 296100.000	4	253429417808240 40.000	459.33 6	.000(a)
	Residual	137932547545 1879.000	25	55173019018075. 100		
	Total	102751092598 748000.000	29			

a Predictors: (Constant), YEAR, Total Net Weight, Total no of Pkg, Total Cif

b Dependent Variable: Total Duty

This ANOVA table illustrates two sources of variation; regression and residual. The regression sources of variation is the portion of the variation in the dependent variables (TD) that is explained by the underlying regression model while the residual variation is what the model could not explain. A model which is reliable will have a higher regression sum of squares than the residual sum of squares. The mean square of each sources of variation is obtained by dividing their respective sum of squares by their degree of freedom.

The F-value is obtained by dividing the regression mean square by the residual mean square. Hence, a large F-value indicates that the model account is reliable. Whenever the p-value is less than the selected 5% (0.05), it implies that, the F-value is large and vice versa. The analysis resulted in an F-value of 459.336 with a corresponding p-value of 0.000. This confirms that, the model is significantly reliable. That, is one can rely on the model to predict TD with high accuracy.

Having established that the model is appropriate and reliable, the next step is to estimate the

regression coefficients as indicated in the model on table 4 which summarizes the coefficients of the independent variables being used.

Table 4.3: Coefficients of Variation.

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	327624.460	3529471.659		.093	.927
	Total Net Weight (TNW)	-.053	.017	-.278	-3.040	.005
	Total no of Pkg (TPkg)	.881	.122	.342	7.244	.000
	Total Cif (CIF)	.180	.021	.943	8.742	.000
	YEAR	246638.619	1079710.134	.006	.228	.821

a Dependent Variable: Total Duty

This table shows the coefficients of the regression line. From the table, B or the beta constitutes the regression coefficients with their corresponding independent variables. The unstandardized coefficients are the coefficients of the estimated regression model when the independent variables are measured in the same unit. Where the units of measurement are different the beta or the standardized coefficients are used.

Since the independent variables are assumed to be of different measurement units, the analysis relied on the standardized coefficient. The t-values and their corresponding p-values test the significant of each of the estimated regression coefficients. A significant coefficient means that the attached independent variable largely contributes to the significance of the overall regression model in explaining the variations in the dependent variable.

From the table, the coefficient of the variables 'Total Net Weight', 'Total No. of Pkg' and

‘Total Cif’ have large absolute t-values of -3,040, 7.244 and 8.742. The respective p-value (0.005, 0.000 and 0.000) are all less than 5% (0.05). These results therefore indicate that, all these variables have a significant predictive ability to influence the total revenue. On the other hand, the number of Years indicates a high significant value (0.821) and a low t – value of 0.228 indicating that, its impact can be ignored.

Therefore, the multiple linear regressions as proposed are reduced to the form as below:

$$\text{Total Duty} = 327624.460 - 0.278 \cdot \text{TNW} + 0.342 \cdot \text{TPkg} + 0.943 \cdot \text{CIF} + \text{error}.$$

This therefore becomes the proposed model for estimating total revenue given the independent variables over a given a period. But to what extent can this model be used to explain the variation of the yearly total duty? That leads to the model summary below.

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.993(a)	.987	.984	7427854.26742

a Predictors: (Constant), YEAR, Total Net Weight, Total no of Pkg, Total Cif

b Dependent Variable: Total Duty

The R, is termed as multiple correlation coefficients and measures the relationship between the observed and predicted values of the dependent variable. Larger values of R indicate stronger relationships and vice versa. The model produced an R figure of 0.993, indicating that, the regression model between the dependent variable and the set of independent variables is appropriate. The R Square figure of 0.987 indicates that, reliance on this model

will account for 98.7% of the variations in the dependent variables (TD).

Since the reliance on the model account for a high variation in total duty, we therefore conclude that, the independent factors which includes Total number of Packages (TPkg), Total Net Weight (TNW), and Cost, Insurance and Freight (CIF) greatly impacts on the dependent variable (Total Duty). We can therefore conclude in addressing the first objective that, a ban on the importation of rice, auto parts and household electrical could affect revenue mobilization based on the prevailing statistics.

From formulating and examining the regression model, the following conclusion could be drawn based on the sampled data:

- Revenue mobilization which is represented in the model as the dependent variable follow a pattern that increases as the total net weight of the imported goods increases.
- It can also be concluded that, based on the significant impact of the independent variables on the dependent variable (total duty), a ban on importation of High Risk Goods will have an impact on future revenue mobilization.

In order to examine the variations between the various categories of items imported from 2008 to 2012, as well as to estimate the total revenue mobilized for the next ten years, we employed forecast analysis which involves trend projection using the time series data available for the study period.

The series exhibits an upward trend in the total revenue over the given period with no hint

of seasonal variations. From this observation, we can conclude that, revenue mobilized from the High Risk Goods follow the same pattern over the study period.

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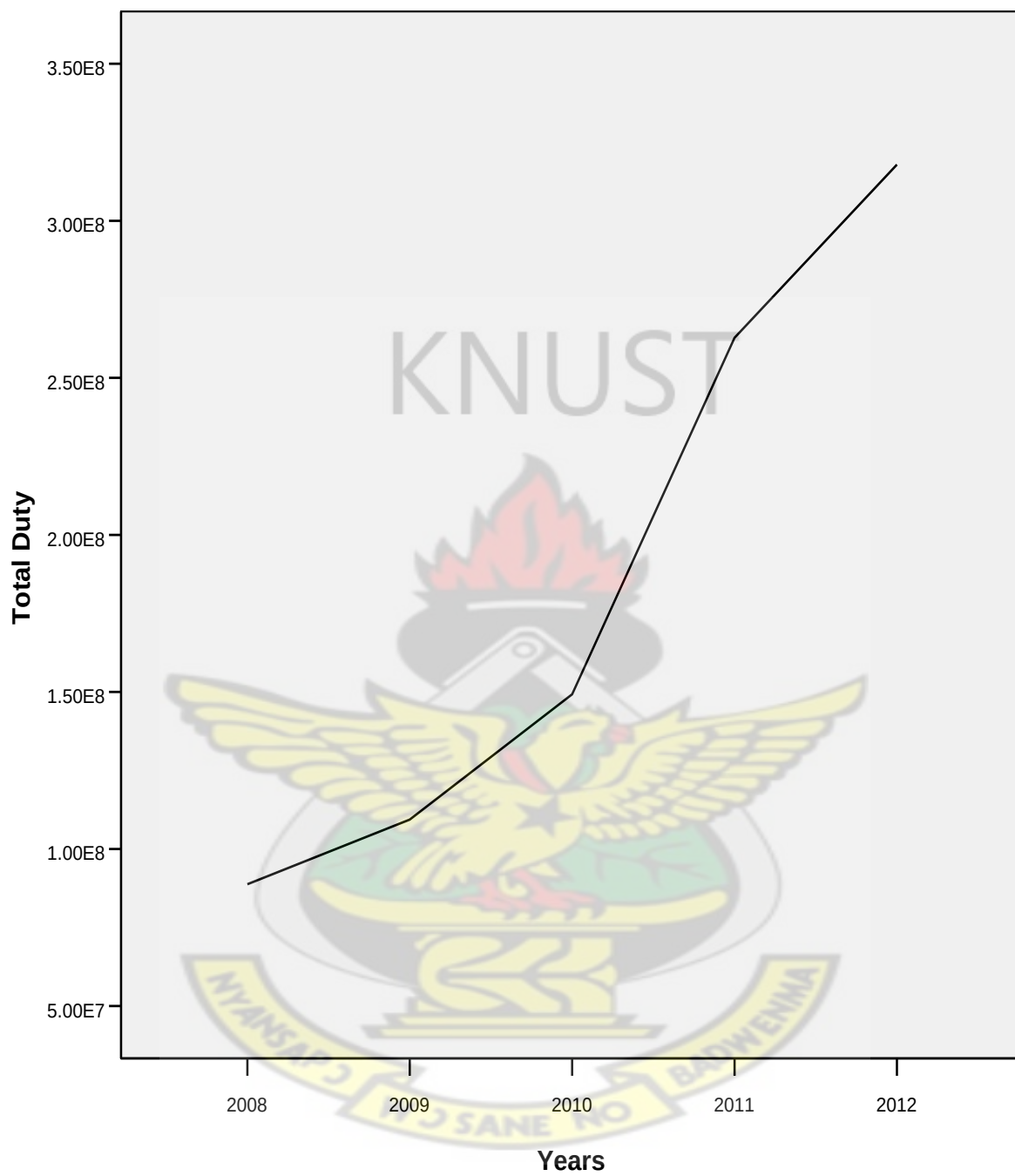


Fig. 4.4: Line graph of the total duty over the study period

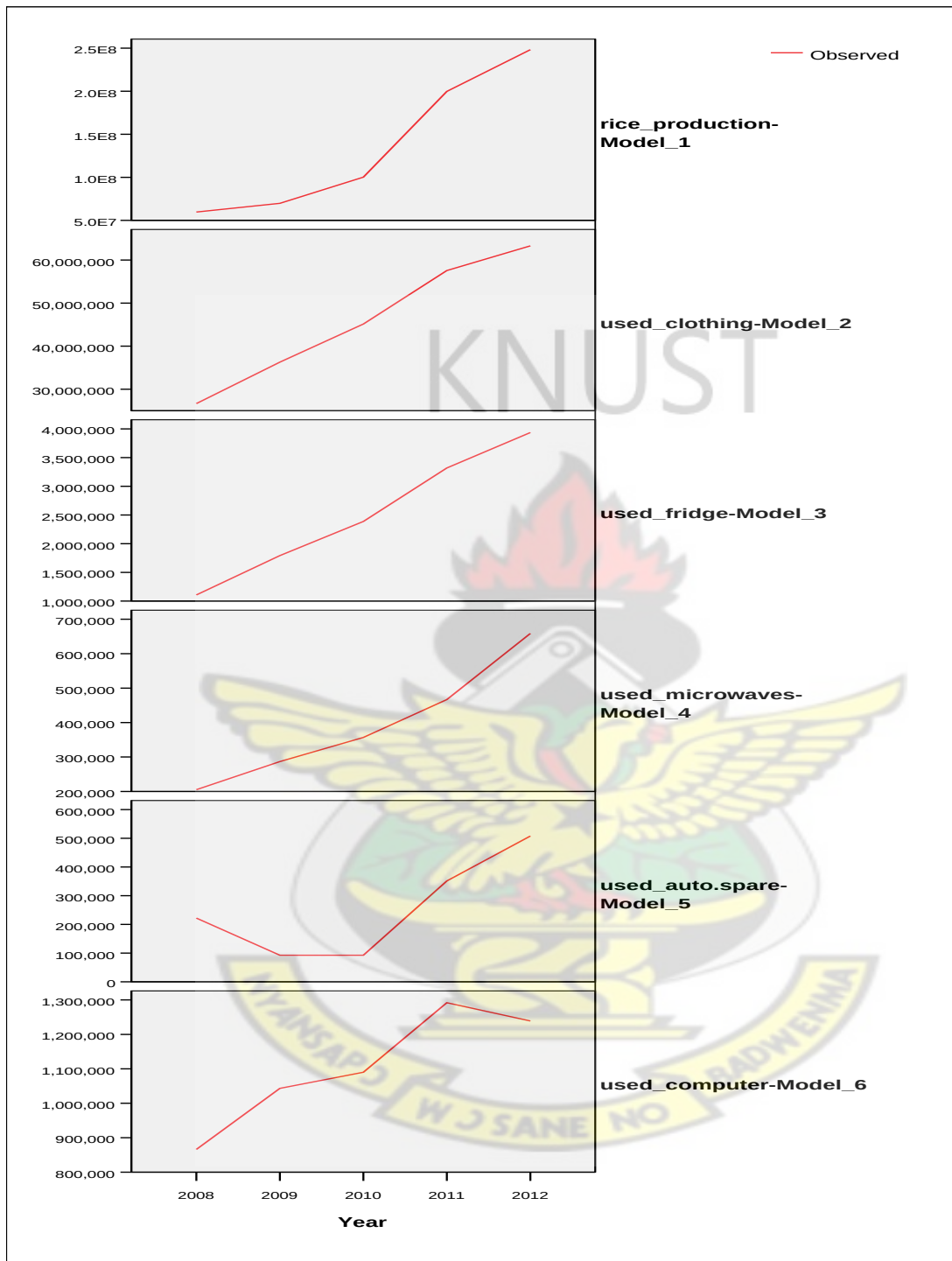


Fig. 4.5: Line graph of High Risk Goods

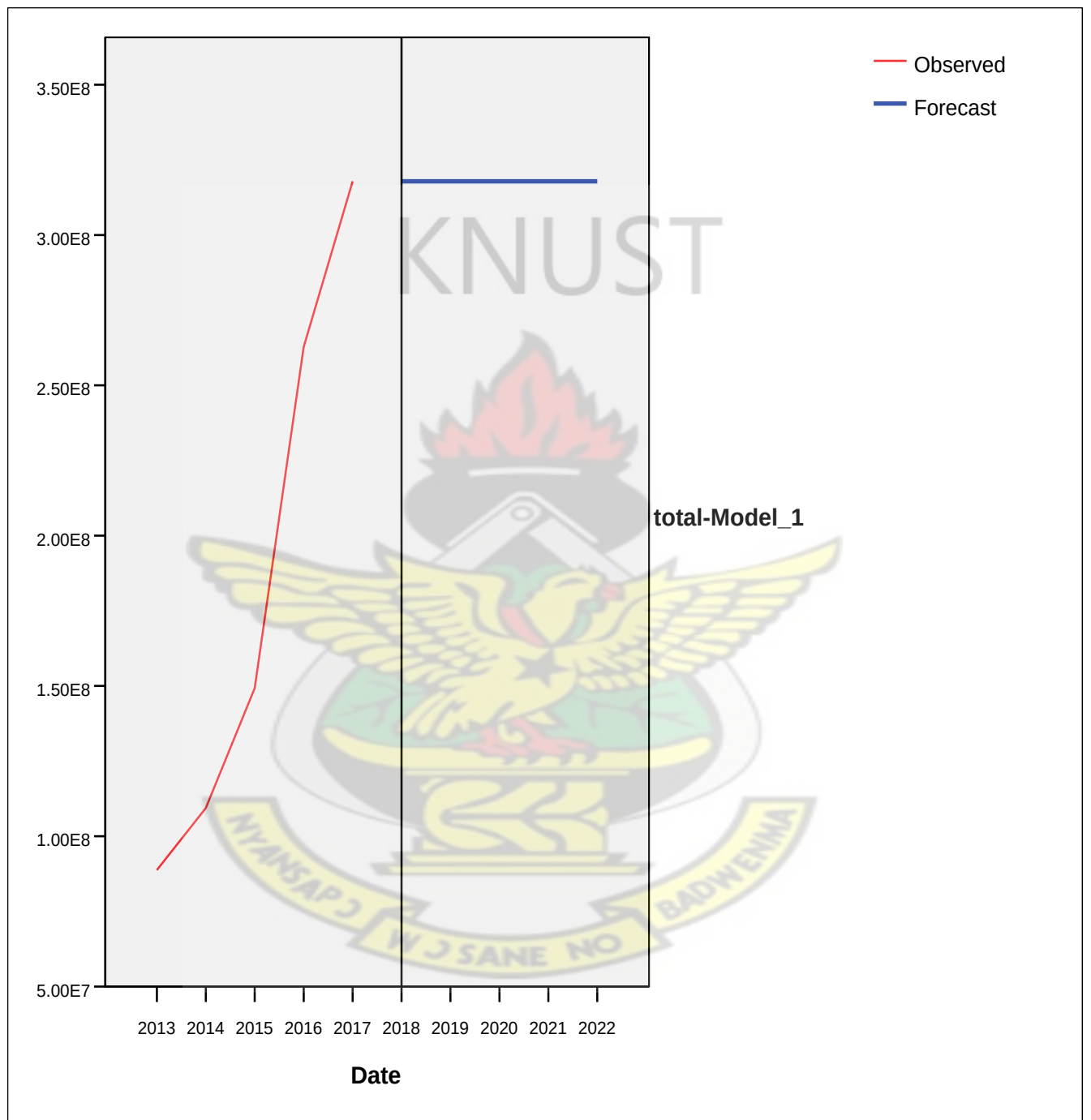
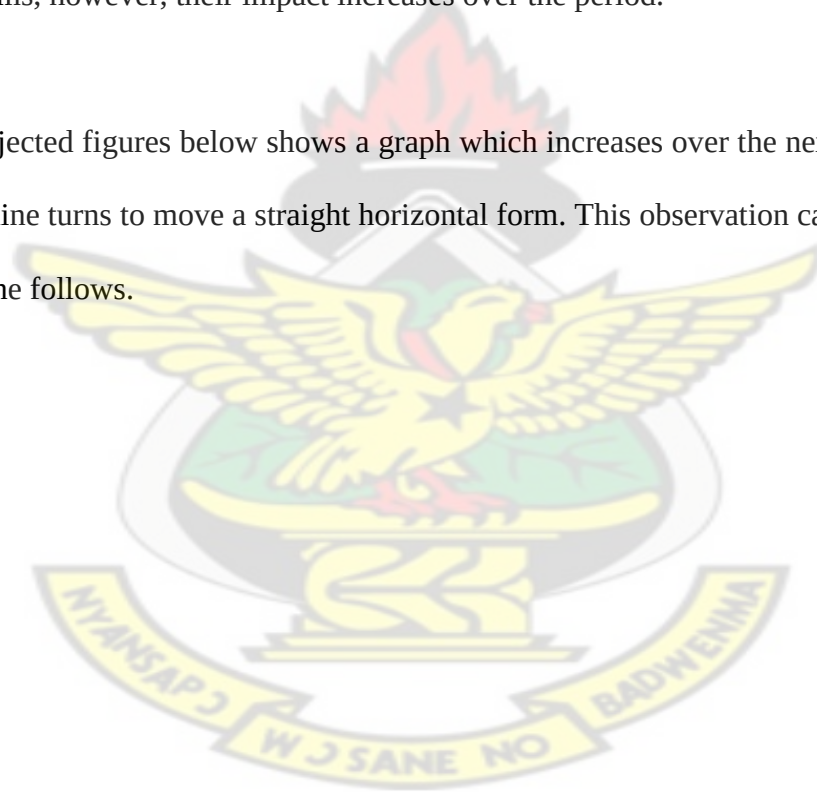


Fig. 4.6: Estimated model of the forecast data

From the line graph above, it can be seen that, the variations in total duty between the various category of items imported from 2008 – 2012 increased over the years for used clothing, used fridges, used microwaves and used auto parts. However, that of used computers seems to reduce from 2011 to 2012. It can therefore be established that, variations existed between the various categories of items, however, their impact increases over the period.

The 10 year projected figures below shows a graph which increases over the next five (5) years, after which the line turns to move a straight horizontal form. This observation can be depicted in the three chart the follows.



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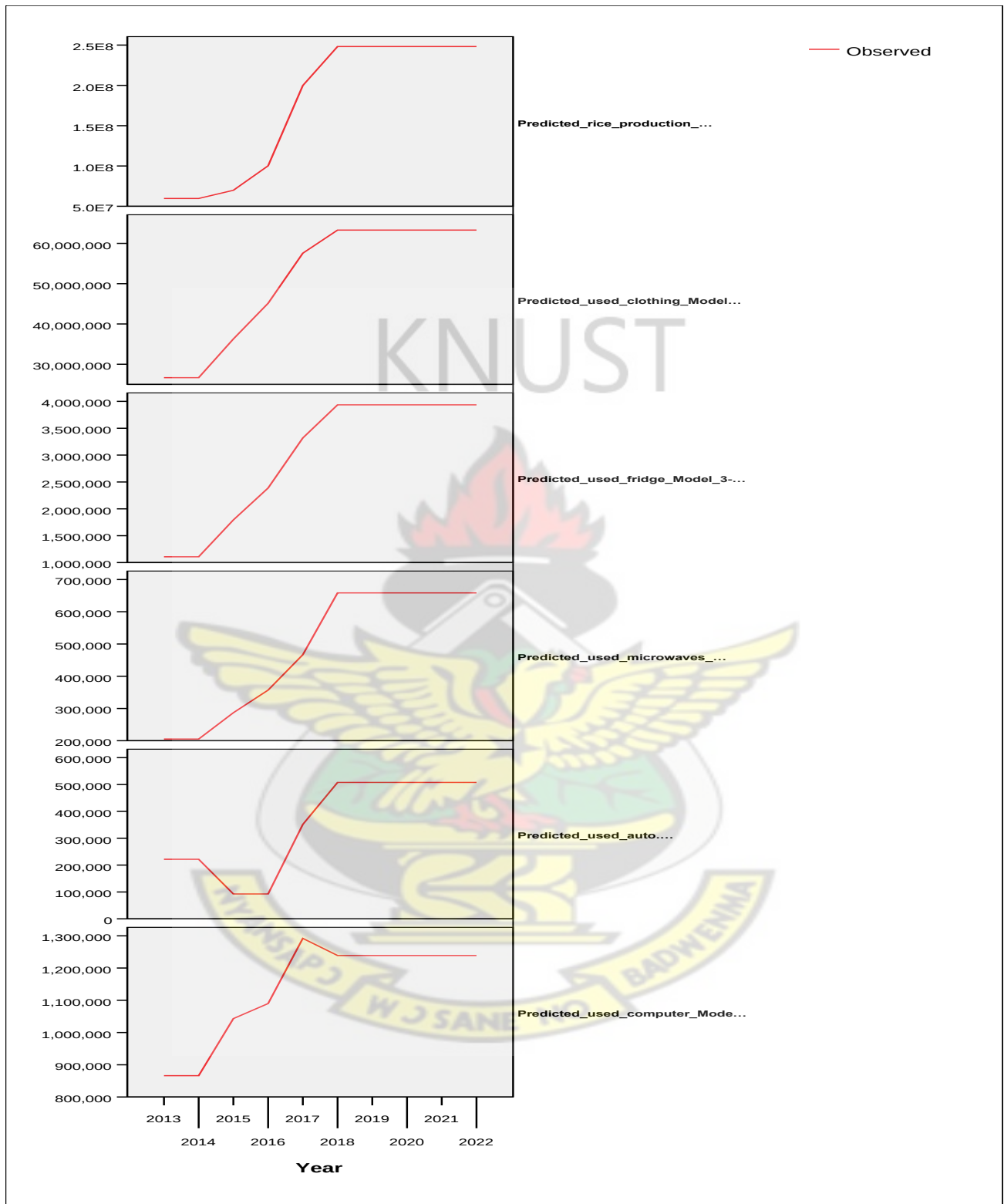


Fig. 4.7: Projected Duty for each category of High Risk Goods

The final objective which aims to establish if total revenue mobilized within the next ten years follow the same trend was achieved by examining the graphs and figures generated using a 10 year forecasted data. This data was generated using SPSS which enables a time series data to be computed based on a given sampled data.

From the line graph above, it can be seen that, the variations in total duty between the various category of items imported from 2008 – 2012 increased over the years for used clothing, used fridges, used microwaves and used auto parts. However, that of used computers seems to reduce from 2011 to 2012. It can therefore be established that, variations existed between the various categories of items, however, their impact increases over the period.

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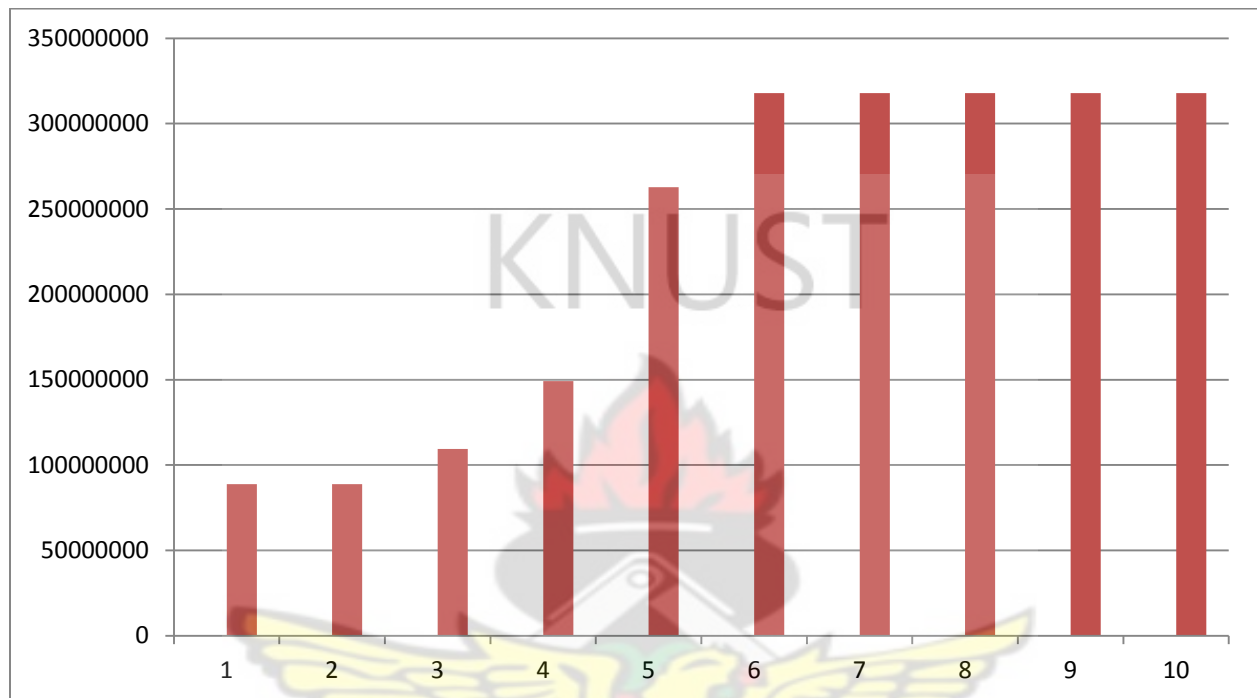


Fig. 4.8: Projected Total Duty for the Next Ten Years

From observing the projected figures and the graphs above, the following conclusions could be drawn.

- Total revenue mobilized from the High Risk Goods for the next ten years will follow the same trend, while the variations in the contribution for each of the items will impact on total duty and hence the national revenue mobilized.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter deals with summary of results, discussion, findings, conclusion and recommendations.

5.2 SUMMARY OF RESULTS

As stated earlier, revenue mobilization over the years has been - and still is - one of the key sources of government revenue. The Customs Division of the Ghana Revenue Authority (GRA) is the Agency authorised by law to collect revenue on behalf of the Government. As has been established by this Research work, the Total Revenue mobilized in a period is contingent on the categories of goods imported as well as the status of the goods (that is whether used or new).

Also, this research attempted to address issues such as the contribution of High Risk Goods to revenue, the pattern of revenue mobilization from 2008 to 2012 by these High Risk Goods and project the potential revenue that will be lost in the next ten years if a ban is placed on these High Risk Goods.

From the analysis, it was established that all the High Risk Goods have a positive influence on the Total Duty and as such the Total Revenue mobilized for a given period. Therefore a

ban on any of them will affect total revenue negatively.

Besides the above, variations were found to exist in the contributions of the various category of items imported from 2008 – 2012 to total revenue. Over the five (5) years period the variations increased for used clothing, used fridges, used microwaves and used auto parts while that of used computers seem to reduce from 2011 to 2012.

Finally, the multiple linear regression model proposed to forecast and predict Total Revenue for the next ten (10) years is $\text{Total Duty} = 327624.460 - 0.278 \cdot \text{TNW} + 0.342 \cdot \text{TPkg} + 0.943 \cdot \text{CIF} + \text{error}$.

DISCUSSION OF RESULTS

The study shows that there is a steady increase in revenue mobilization for the five (5) year period under review (that is from 2008 to 2012). There was a steady and gradual increase in the revenue mobilized from the year 2008 to 2010. Beyond 2010, there was a steep increase in the total duty realized from about GH¢150 million to about GH¢260 million in 2011 while 2012 recorded the highest revenue mobilized for the study period.

Although the multiple correlation coefficient (R) indicates a strong relationship between the Total number of packages (TPkg), the Total Net Weight (TNW) and the Total CIF (Cif), it was observed from the research that from the year 2008 through to 2010, the TPkg and the TNW were decreasing causing Total Duty (which for the sake of this study is synonymous

to Total Revenue)to increase at a decreasing rate. Conversely, the trend changed from 2011 to 2012 when there was a sharp increase in the TPkg, and the TNW and the Cif resulting in a steep rise in the total duty realized to an all-time high in 2012 for the period under study.

Considering the trend analysis on the variations in the contribution of the various categories of goods imported to Total Revenue, it was established that the line graph of Used Clothing, Used Fridge, Used Microwave and Rice kept rising indicating a positive contribution to national revenue. A ban on these products will affect national revenue mobilization greatly.

Comparatively, the line graphs of the contribution of Used Auto parts and Used Computer and accessories to national revenue had some interesting variations. In the case of used auto parts, the graph shows a fall in its contribution from 2008 to 2009, the contribution was the same for 2010. However, there was a sharp increase in 2011 through to 2012. Also, the contribution of used computers and accessories increased steeply from 2008 to 2009, it then increased at a decreasing rate in 2010. It increased sharply again in 2011and finally decreased in 2012.

A look at the projected contribution of the categories of goods under study to total revenue for the next ten (10) years indicates that the contribution of Rice, used clothing, used fridges and used microwave oven is expected to increase over the years in the first six years and the trend is expected to be horizontal for the remaining four years of our projection.

Furthermore, the forecasted contribution of used auto parts is expected to increase in 2013, fall gradually through 2014 to 2015. The figure is expected to remain the same until 2017 when there a steep increase in expected until 2018. Beyond 2018, just like the other categories of imports, the contribution is expected to take a horizontal trend.

5.3 FINDINGS

The study reveals that Ghana has done a lot in overhauling the structures and systems of revenue mobilization over the years from the Pre-shipment era in the mid – 1970s to date where there is a centralized governing body (the Ghana Revenue Authority) which oversees all activities of revenue mobilization.

Although the transition and some of the policies haven't meet the projected expectation as already captured in the literature review section of this study, one can confidently say that Ghana has made giant strides in revenue mobilization.

It wouldn't however pass without saying that compliance by Importers and Agents has been a bane on the efforts of the government to generate enough revenue from international trade to support government budget.

A look at the punitive measures in the Customs law leaves much to be desired as they do not carry enough weight which will act as a deterrent to importers or agents who fail to comply with set procedures and standards. Truth being told, most of the financial figures that comes as fines to the defaulters are in the old currency and when these are applied will

definitely be peanuts to these importers or agents.

Although the list may not be exhaustive, I finally gathered that when the accounts of importers or agents who default in terms of compliance are blocked, most of them do not serve the full term of the punishment as the sight of a large consignment of goods from the said importer is enough to have his/her account reinstated in the name of not losing government revenue. This I suppose is a weakness in the punitive measures of the Customs Division of the Ghana Revenue Authority.

5.4 CONCLUSION

Based on the findings, the following conclusions were made:

- i. The categories of goods imported are good predictors of revenue. It was established that in general, a ban on the High Risk Goods will have an adverse effect on revenue mobilization.
- ii. A ban on Rice, used clothing, used fridges and used microwave oven will have greater effect on Total revenue than a ban on used auto parts and used computer accessories.
- iii. There is variation in the contribution to revenue by the various categories of goods imported over the 5-year period of the study.
- iv. Generally, revenue mobilization for the study period varies from year to year but exhibits a linear trend. It was projected that from 2013- 2017, total revenue will increase from about GH¢90 million to about GH¢260 million. However, beyond 2017, the revenue mobilized is expected to be in excess of GH¢350 million and the trend is expected to be the same.

5.5 RECOMMENDATION

Although this study shows that the High Risk Goods contribute a lot to national revenue and a ban on them will have adverse effect on the economy in the short term, it is highly suggested that an extensive assessment should be conducted on the intangible gains that will be made in terms of health and environmental safety if the ban is placed on the said products.

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APPENDICES

APPENDIX

Table A.1 Secondary Data on the Category of Imported Products and their Revenue Contribution.

RICE PRODUCT					
YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	24 801 720	885 253 699.00	476,334,131,.95	59 702322.03	55 325 445.72
2009	19 842 739	707 268 806.47	605 055 702.12	69 857824.01	35 900 215.14
2010	16 319 205	540 674 200.82	468 408 405.90	100183093.27	79 541 442.12
2011	74 882 062	952 087 571.29	1 002 923 019.15	199 791 607.83	184 203766.65
2012	86 755 515	1 040 059 534.25	1 265 480 257.22	248 261 345.72	234 709477.96
Grand Total	222 601 241	4 125 343 811.83	3 341 867 384.39	677 796 192.86	589680347.59
USED CLOTHING					
YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	20 775 449	101 747 911.00	68 886 855.33	26 665 128.22	732 325.87

2009	22 743 543	104 116 854.58	97 412 331.97	36 284 214.45	2 756 314.20
2010	25 927 258	113 632 459.31	117 703 897.36	45 143 005.99	7 488 702.65
2011	39 232 284	132 687 069.28	137 871 437.84	57 559 824.62	4 513 267.56
2012	54 189 993	121 614 344.11	150 956 392.74	63 297 826.47	4 720 998.65
Grand Total	162 868 527	573 798 638.28	572 830 915.24	228 949 999.75	20 211 608.93

USED FRIDGES

YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	269 628	7 914 013.00	4 016 291.56	1 107 653.68	1 821.52
2009	337 538	8 827 426.21	6 445 881.58	1 792 946.68	12 985.36
2010	354 092	10 869 583.37	8 567 659.36	2 387 784.74	16 383.07
2011	324 271	12 316 136.36	11 731 776.37	3 319 445.72	12 687.04
2012	354 336	11 176 498.35	13 859 419.70	3 935 723.36	16 389.46
Grand Total	1 639 865	51 103 657.29	44 621 028.57	12 543 554.18	60 266.45

USED MICROWAVES

YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	28 184	871 019.00	544 680.60	205 121.17	7 569.61
2009	32 122	839 528.55	831 190.37	286 769.44	36 716.24
2010	54 126	1 006 236.76	1 052 138.28	356 857.58	52 387.98
2011	43 505	1 051 516.79	1 322 919.30	466 799.59	49 532.65
2012	45 173	1 063 610.92	1 796 619.06	658 619.08	44 866.57
Grand Total	203 110	4 831 912.02	5 547 547.61	1 974 166.86	191 073.05

USED AUTO/SPARE PARTS

YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	38 700	521 965.00	794 583.11	221 821.30	1 320.00
2009	22 309	353 333.51	694 755.56	92 644.30	1 072.44
2010	31 902	231 224.25	328 952.48	92 644.30	1 072.44
2011	22 308	710 345.13	1 237 382.30	351 488.02	0.00
2012	29 912	941 328.81	1 852 839.48	507 814.37	122.09
Grand Total	145 131	2 758 196.70	4 908 512.93	1 266 412.29	3 586.97

USED COMPUTERS AND ACCESSORIES					
YEAR	Total No. Of Pkg	Total Net Weight	Total Cif	Total Duty	Total Exempt
2008	125 321	6 060 232.00	5 140 016.58	866 104.05	48 455.12
2009	131 222	3 702 690.90	6 072 355.34	1 043 202.03	80 999.52
2010	140 547	3 585 567.08	6 337 658.00	1 089 944.54	80 611.02
2011	144 687	3 500 591.10	7 539 720.05	1 291 948.51	104 045.80
2012	120 477	2 608 918.88	6 911 755.29	1 238 878.79	46 934.46
Grand Total	662 254	19 457 999.96	32 001 505.26	5 530 077.92	361 045.92

