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Determinants of Import Revenue: Evidence from Ghana

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Abstract

This paper scrutinizes the determinants of Import Revenue generated in Ghana. An econometric model in Ordinary Least Square is employed on time series data for the period 1997 to 2014. This is aimed at measuring the effect of gross domestic product, effective duty rate, import exemption, import value and relative price on import revenue generated in Ghana. The paper also examines the reforms in import revenue administration, reforms in import revenue generation, effect of automation on import revenue mobilization, the performance of import revenue, sources of import revenue leakages and measures to improve the collection of import revenue. Import revenue is collected by the Customs Division of the Ghana Revenue Authority. The results reveal a strong relationship between GDP, Import Exemption, Import Value and Import Revenue. A moderate relationship exists between Effective Duty Rate and Import Revenue. A negative or weak relationship exists between Relative Price and Import Revenue. Adjusted $R^2 > 0.8$ was obtained and this figure is acceptable for the time series data, coefficients of the independent variables are jointly significant and there is no serial correlation.

Keywords: GDP, Import Revenue Administration and Reform, Tax Evasion, Tax Avoidance, Tax Expenditure, Effective Duty Rate, Leakages in revenue.

1.0 Introduction

Agbeyegbe, Stotsky and WoldeMariam (2006) showed that import duties are still a significant source of revenues in Sub-Saharan African countries, though trade liberalization in the region has led to a reduced reliance on these taxes. Taxes on goods and services are a growing share of revenues, especially with the introduction of VAT in many of the countries in the past few decades, and a reform of excise taxes in many countries as well. Moreover, in countries with relatively well-functioning tax-systems income tax revenues constitute a significant share of revenues.

In Ghana import revenue constitute a significant source of Tax Revenue (average of 36.98% of Tax Revenue for 1997-2014) and stable source of government revenue. The argument in favour of import revenue is their lower administrative cost and thus budgetary pressures dictate the use of import revenue for revenue purposes. For the 1997-2014 period import revenue collection performance have been influenced by expansion in the volume of international trade, exchange rate movements, import exemptions, import concessions, valuation and classification, smuggling and the gross domestic product.

This study will be beneficial to policy makers as it looks at how some macroeconomic variables can influence or impact on Ghana's import revenue and the way forward in maximizing tax revenue for the reduction of government budget deficits. This will go a long way to improve economic development in the country as a whole.

Objectives of the Study

The main objective of this study is to find out the variables that determine import revenue in Ghana. This will help to make it possible to explore the policies that will enhance import revenue maximization in Ghana.

Specific Objectives are as follows:

a. To investigate the effect of gross domestic product on import revenue.
b. To examine the relationship between the effective duty rate and import revenue
c. To investigate the effect of import exemptions on import revenue
d. To find out the impact of import value on import revenue
e. To find out the impact of relative price on import revenue
f. To bring out policy options based on the outcome of the study.

Hypotheses

The study shows the different hypotheses that the study seeks to test:

a. H_0 : There is no relationship between Gross Domestic Product and Import Revenue.
   H_A :There is relationship between Gross Domestic Product and Import Revenue.
b. H_0 : There is no relationship between Effective Duty Rate and Import Revenue.
   H_A :There is relationship between Effective Duty Rate and Import Revenue.
c. H_0 : There is no relationship between Import Exemptions and Import Revenue.
   H_A :There is relationship between Import Exemptions and Import Revenue.

d. H_0 :There is no relationship between Import Value and Import Revenue.
   H_A :There is relationship between Import Value and Import Revenue.
e. H_0 : There is no relationship between Relative Price and Import Revenue.
   H_A : There is a relationship between Relative Price and Import Revenue

The next section looks at administration of import revenue and third section looks at reforms in import revenue generation. Section four shows the effect of automation on import revenue mobilization and five, the performance of import revenue. Section six discusses the sources of import revenue leakage and section seven looks at measures to enhance import revenue mobilization. Section eight defines the dependent and independent variables and section nine presents the methodology and discussion of results. Section ten looks at the conclusion and section eleven acknowledgements.

2.0 Administration of Import Revenue

- Administration of import revenue is the function of the Customs Division of the Ghana Revenue Authority.
- The Gold Coast Blue Book (a dossier of Government activities of the then Gold Coast) of 1839 reveals that a Principal Collector of Customs also acted as the country's treasurer and was stationed at Cape Coast.
- Early administration of import revenue was the responsibility of a Principal Collector of Customs who was assisted by Civil Commandants who acted as Junior Collectors at the sub-ports.
- The Principal Collector of Customs was a member of the First Executive Council of the Gold Coast and was charged to collect the Poll Tax.
- On 12th February, 1853 the Executive Council was reconstituted and the Principal Collector was replaced by the Colonial Secretary.
- On 18th September, 1855 the work of the Principal Collector of Customs which included being the head of Customs and the Treasurer came to an end. The work of the Principal Collector was divided and performed by two officers: The Comptroller of Customs and the Treasurer.
- The department had been known as the Department of Customs until 1947 when the Customs Ordinance No. 40 was enacted and came into effect on 17th March, 1948. The name of the department changed to Customs and Excise Department.
- The name of the Customs and Excise Department changed to Customs Excise and Preventive Service (CEPS) in 1986 when the Provisional National Defence Council (PNDC) Law 144 was enacted. The law empowered the Preventive unit to perform the duties of the erstwhile Border Guards.
- CEPS, the Internal Revenue Service and VAT Service which hitherto had different Boards, came under the Revenue Agencies Governing Board (RAGB) in 2001 by an Act of Parliament in 1998 which became operational in 2001. The RAGB formulated and co-ordinated the activities of the three revenue agencies.
- The CEPS became known as the Customs Division of the Ghana Revenue Authority when Act 791, of December 31, 2009 came into effect.

3.0 Reforms in Import Revenue generation

- On 19th April, 1852 the Poll Tax Law was enacted and every man, woman and child residing in districts under the British protection paid one shilling.
- On 2nd July, 1855 an ordinance for the regulation of certain matters relating to the collection of ad-valorem import duty was introduced and the rate was 3%.
- On 4th April, 1856 the Gold Coast customs Ordinance was passed and James Town (a suburb of Accra) and adjoining Dutch territory had a 2% ad-valorem duty imposed on imported goods. To combat smuggling of imported goods from the Dutch territory to James Town, the law imposed a penalty of £20.00 on any importation without special permit.
- The Poll Tax Law was repealed by Ordinance No. 1 in 1866 after mass condemnation by the people. On 25th November, 1866 an ordinance relating to anchorage and light dues was introduced.
- The Customs Ordinance of 1855 was repealed and replaced in 1876 by the Customs Law, the UK Customs Consolidation Act 1876.
- The Customs Management and Regulation Ordinance No.10 of 1876 was passed on 10th October to regulate the customs trade in the Gold Coast Colony.
- The Purchase Tax Act, 1961 (Act 67) imposed taxes motor vehicles and sixteen other commodities: Motor Vehicles – 5% to 75% ad-valorem according to the prevailing sales price, sixteen other commodities – 5% to 66.67% of the duty-paid value less 5% remission of such tax calculated at import.
- On 21st January, 1965, Act 258 was enacted. This Act saw the application of tax limited to only motor

vehicles and the rates re-fixed between 5% and 100%.

- The Sales Tax Act, 1965 was passed and imposed a tax of 10% on the gross sale prices of all chargeable goods. The Comptroller imposed 11% of the duty-inclusive values of all chargeable goods imported or manufactured. Under the Sales Tax Law, importers, wholesalers, retailers and manufacturers registered and paid a fee of £5 per year. An importer who operated as wholesaler paid £10.
- In 1966 the Sales Tax Rate for sugar, salt, rice, milk and flour was reduced by the National Liberation Council Military government from 11% to 5%.
- In 1973, the Purchase Tax Law was replaced by the Purchase Tax Decree, 1973 (National Redemption Council Decree 149) (NRCD 149) and this was further amended by the Vehicle Purchase Tax (Amendment) Decree, 1977 (Supreme Military Council Decree 113) (SMCD 113).
- The NRCD 149 was repealed with the Vehicle purchase Tax Decree, 1978 (SMCD 184).
- The SMCD 184 was repealed and provisions therein incorporated into the Customs, Excise and Preventive Service (Management) Law, 1993 (PNDC Law 330).
- In 1973, the Sales Tax law was amended by the National Redemption Council Military government and only locally manufactured goods attracted sales tax. However, the law was later re-introduced and both imported and locally manufactured goods were levied.
- L.I. 1315 of 1985 gave legal backing to the introduction of Interest Charge on goods in State Warehouse. This was done because importers were not keen in clearing their goods from the ports because of low port charges.
- In January 1990, the super sales tax on luxury goods, ranging from 50 per cent to 500 percent was introduced.
- In 1991, the super sales tax was reduced to a new range of 10 to 100 per cent.
- On 1st March, 1995 the Value Added Tax was introduced to replace the Sales Tax. The government had to withdraw the VAT that the same year due to opposition.
- In 1995 a Special Tax of 17.5% was imposed on luxury goods which previously were attracting 35% import duty under the sales tax regime. This was withdrawn by government but Commissioner's Order No. 6 of 1996 selected 21 items on which both specific and ad valorem rates were applied and tax collected until 2003.
- In 1998, the VAT was reintroduced to replace the sales tax.
- Special Surcharge on imported goods was introduced in 1969 by National Liberation Council Decree 325 (NLCD 325). The rate was 5% of the CIF value and was charged on all goods imported under the Open General Licence.
- The NLCD 325 was replaced by the Temporary Surcharge on imported goods Act, 1970 (Act 343).
- The Special Development Levy was imposed by Act 345 of 1970 on rice and sugar at one new pesewa per the ***pound*** and cement at 40% ad valorem.
- The Removal Articles (Exemptions) Act, 1972 (Act 377) gave relief to Ghanaians who had stayed outside the country for a period of one year or more and could not return because of the burden of paying duties and taxes on their bona fide personal and household effects. The exemption also covered all vehicles which had been in possession of the passengers and were for the personal use of passengers.
- Act 377 was replaced by Removal Articles (Exemptions) Decree, 1974 (NRCD 280) because of abuse. NRCD revoked parts of Act 377 and granted partial exemption only to vehicles with cubic capacity not exceeding 1700.
- The abuse continued and thus Removal Articles (Exemptions) (Amendment) Decree, 1976 (SMCD 38) was passed to impose duty of 10% on vehicles with cubic capacity not exceeding 1700 and 15% on vehicles exceeding cubic capacity of 1700 but not exceeding cubic capacity of 2000.
- The Import, Export, Decree 1974 (NRCD 260) and The Import and Export Fee Regulation, 1975 (L.I. 1055) imposed Import licence fees at various rates specified in a schedule made up of eight parts, on goods whether imported on Specific Import Licence or Special Un-numbered Licence. The rates for the fees ranged from 5% to 150% and they were paid at the time of entry. (Kofi Danquah, 2012)

4.0 Effect of automation on Import Revenue mobilization

Until 1990, different prescribed forms with different colours and numbers were used in entering goods for both imports and exports. These forms were either completed in blue ink or in indelible pencil or by type-writing. The type of form presented by the trader, suggested his intention. (Kofi Danquah, 2012)

In 1990, a new clearing system known as the Automated System of Customs Data (ASYCUDA) was introduced. The system, which involved the use of automation and codes, though was an improvement on the previous clearance system, lacked several mechanisms of the clearance procedures. (Kofi Danquah, 2012)

In the 1990s, Ghana undertook fundamental trade policy reforms, which was supported by bilateral and multilateral donors. The United States, IMF and the World Bank provided substantial adjustment lending as well as support for the development of private enterprises and exports.

By 1998, Ghana had implemented many policy reforms, but foreign direct investment was still lagging. A number of reviews by the World Bank, the IMF, the Foreign Investment Advisory Service and the Multilateral Investment Guarantee Agency, among others, suggested that policy reforms to have the desired impact on trade, foreign direct investment and growth they had to be complemented by the lifting of a number of structural investment constraints. In particular, the government needed to improve the operational efficiency of frontline agencies at facilitating investment flows. Such frontline agencies included the Customs Division of the Ghana Revenue Authority (GRA), the Ghana Immigration Service, the port authorities and the Ghana Investment Promotion Centre. The government took those suggestions to heart and decided to launch the Ghana Gateway Project, for which it solicited support from the World Bank.

Ghana adopted a customs management system that had been designed for Mauritius and interfaced smoothly with its version of TradeNet. As part of the arrangements, a company was to be created that will be charged with implementing both Ghana's version of TradeNet and the Ghana Customs Management System (GCMS) for the Customs Division of GRA by means of what virtually amounted to a builddown-operate-transfer contract.

With a view to ensuring broad stakeholder commitment to the project, various private and public entities were invited to participate in the equity of the company that would manage TradeNet and help computerize customs operations.

The company, known as the Ghana Community Network (GCNet), was created as a joint venture company with SGS (60 per cent), Customs (20 per cent), the Ghana Shippers Council (10 per cent), GCB (5 per cent) and ECOBANK (5 per cent) as its shareholders.

SGS had operated the Ghana preshipment service until 1988, had knowledge of the country and wanted to expand its portfolio of services to the government. By participating with a majority stake, SGS strove to meet its accountability obligations by having the necessary operational authority.

In November 2000, GCNet was incorporated with equity of US$5.3 million (total investment to date are now estimated at US$7 million). Customs contribution consisted of in-kind equity (namely, computer equipment that it had procured with World Bank funding under the Gateway Project. The other equity partners contributed cash.

At Kotoka International Airport, revenues for July to September 2003 were nearly 40 per cent higher than during the same period in 2002. Five percentage points of this was due to the depreciation of the cedi against the U.S. dollar during that period. The increase does not appear to have been caused by an increase in the volume of imports, because estimates indicate that import volumes have stagnated year to year. With no real change in the activities of the Destination Inspection Companies during this period, GCNet operations are conservatively estimated to have added 30 per cent to the customs revenues from airport traffic. (Luc De Wulf 2004).

Table 1
ANALYSIS OF IMPORT REVENUE COLLECTION FOR THE PERIOD 1997-2014 GH¢million/%

YEAR	GDP	TAX REVENUE	IMPORT REVENUE	IMPORT REVENUE TO TAX REVENUE	% GROWTH IN IMPORT REVENUE	IMPORT REVENUE TO GDP
1997	1,417.00	212.87	54.92	25.80	10.80	3.88
1998	1,921.00	262.64	74.59	28.40	38.20	3.88
1999	2,428.00	281.36	110.43	39.25	48.05	4.55
2000	2,715.30	410.56	169.54	41.29	53.53	6.24
2001	3,807.10	561.62	244.01	43.45	43.92	6.41
2002	4,886.24	812.63	328.8	40.46	34.75	6.73
2003	6,615.80	1,320.36	493.15	37.35	49.98	7.45
2004	7,998.00	1,727.94	633.73	36.68	28.51	7.92
2005	9,726.06	2,093.20	755.5	36.09	19.21	7.77
2006	18,705.10	2,370.82	866.74	36.56	14.72	4.63
2007	23,154.40	3,043.29	1,196.74	39.32	38.07	5.17
2008	30,178.60	3,750.90	1,533.49	40.88	28.14	5.08
2009	36,867.40	4,635.51	1,799.35	38.82	17.34	4.88
2010	46,232.00	5,950.61	2,167.78	36.43	20.48	4.69
2011	56,828.00	8,718.53	3,177.61	36.45	46.58	5.59
2012	69,771.85	11,743.19	4,157.27	35.40	30.83	5.96
2013	93,415.90	13,161.19	4,788.53	36.38	15.18	5.13
2014	112,610.60	17,124.89	6,265.04	36.58	30.83	5.56
Average				36.98		5.64

Source: Ghana Revenue Authority and Computations by Author

For the years 2002-2003 in the table 1, above, import revenue increased by 49.98%. This supports the assertion by Luc De Wulf.

5.0 Performance of Import Revenue

- In 1997, the negative deviation recorded was attributed to the non achievement of the import value target.
- In 1998, even though the target was not achieved due to the non attainment of import value target, import revenue performance was boosted by a rationalization of the tariff regime and the reintroduction of the value added tax.
- In 1999, performance was attributed to the rigorous enforcement of existing regulations.
- In 2000, the good performance was attributed to the achievement of the import volume target.
- In 2001 revenue performance was boosted by a marginal increase in the import value.
- In 2002, revenue performance was due to improvement in efficiency of collection, the warehousing regime saw better controls and there was improved post clearance verification.
- In 2003, imports entered and cleared for home consumption were assessed at GH¢2,665 million and the impact of exchange rate movement on the cedi value of imports for revenue purposes was contractionary. An explanation for the high import base could therefore be found in better valuation and classification of goods.
- Comparing the tax bases of GH¢3,347 million in 2004 against GH¢2,665 million in 2003 a growth of 25.59% was recorded. Revenue accruing from this volume of imports in 2004 therefore ought to have been higher all things being equal than was collected. The distribution of import value by tariff showed that 38% of imports in 2004 were admitted either at zero tax rate or exempted from customs duties and levies while just about 30% suffered the same fate in 2003. Further to this 46.29% of imports were admitted at higher tariff rates of 10% and 20% in 2003 as against 40.53% in 2004.
- In 2005 the non revenue bearing category of the tariff distribution was 39.62% of total imports for the year and this contributed to the shortfall in import revenue performance.
- In 2006, the non revenue bearing category of the tariff distribution amounted to 37.5% of total imports for the year and this contributed to the shortfall in import revenue performance.
- In 2007 the total volume of imports admitted was GH¢6,296.30 million compared to

GH¢4,842.77 million admitted in 2006 showing an improvement of 30.01%. The distribution of imports by tariff during the year tended to favour revenue collection in 2007 than in 2006. In 2007, 36.08% of imports were admitted without the payment of import duties compared to 37.51%.

- In 2008, improved revenue collection from the import sector was due to both increases in the tax base as well as the distribution of imports by tariff.
- The low performance in 2009 was due to the non-restoration of food tariffs on rice, yellow maize, wheat, crude vegetable oil and the rise in the volume of non-revenue yielding imports. Revenue of GH¢116.59 million was lost that year. Despite this growth in the value of imports the proportion of non revenue bearing imports increased from 40.44% in 2009 to 43.55% in 2010.
- The value of imports for the year 2010 totaled GH¢15,381.89 million, a 31.20% growth over GH¢11,723.67 million for the year 2009. Despite this growth in the value of imports the proportion of non revenue bearing imports increased from 40.44% in 2009 to 43.55% in 2010. Further to that the proportion of imports admitted at the 5% and 10% tax rates have declined.
- In 2011 period there was an increase in the volume of imports due to investments in the economy. The value of imports totaled GH¢20,531.00 million, a 33.48% growth over GH¢15,381.89 million for the corresponding period in 2010. There was improvement in valuation especially on commodities on the Valuation Assurance Module, reduction in suppression of Final Classification and Valuation Reports (FCVRs), decline in the use of permits, improved perfection of permits and reduction of leakages at bonded warehouses.
- The total value of imports admitted for home consumption for the year 2012 was GH¢25,041.41 million representing an increment of GH¢4,510.41 million or 21.97% over GH¢20,531 million imports admitted at the end of year 2011. There was improvement in valuation due to the commodities on the Valuation Assurance Module. There was improvement in classification of imported commodities and the cedi depreciated during the period.
- The value of imports admitted for home consumption for the year 2013 totaled GH¢24,647.66 million representing a decline of 1.57% or GH¢393.75 million below GH¢25,041.41 million imports admitted in the year 2012.

  A comparison of import value for the years 2011, 2012 and 2013 indicates that the CIF value for goods admitted for home consumption increased from US$13,353.35 million in 2011 to US$13,644.02 million in 2012 and declined to US$12,435.08 million in 2013, a decline of US$1,208.94 million or 8.86%. Projected import value for 2013 totaled GH¢30,956.32 million. Actual import value for the year 2013 amounted to GH¢24,647.66 million resulting in a negative deviation of GH¢6,308.66 million or 20.38%. Even though the efficiency of collection for the year 2013 amounting to 7.32% was above projected 6.81% for the year, the import value target was not met.
- The volume of goods needed to generate 2014 target was not achieved. Actual CIF of goods admitted for home consumption amounting to GH¢28,059.41 million fell short of target CIF of GH¢31,126.63 million by GH¢ 3,067.22 million or 9.85%. Secondly, the total value of imports admitted for home consumption during the year 2014 totaled US$9,685.34 million indicating a decline of GH¢2,749.74 million or 22.11% when compared to US$12,435.08 million imports admitted in the corresponding period in 2013. The cedi depreciated by 33.92% between December 2013 and December 2014.
- Import revenue as a percentage of non-oil GDP increased from 3.88% in 1997 to 5.64% in 2014.

Table 2
IMPORT REVENUE PERFORMANCE 1997-2014 GH¢million

YEAR	ACTUAL	TARGET	DEVIATION	% DEVIATION
1997	54.92	55.00	(0.08)	(0.15)
1998	74.59	80.90	(6.31)	(7.80)
1999	110.43	57.80	52.63	91.06
2000	169.54	72.00	97.54	135.47
2001	244.01	233.52	10.49	4.49
2002	328.80	280.50	48.30	17.22
2003	493.15	491.50	1.65	0.34
2004	633.73	596.03	37.70	6.33
2005	755.50	895.70	(140.20)	(15.65)
2006	866.74	1,000.55	(133.81)	(13.37)
2007	1,196.74	1,239.15	(42.41)	(3.42)
2008	1,533.49	1,426.31	107.18	7.51
2009	1,799.35	1,859.16	(59.81)	(3.22)
2010	2,167.78	2,372.27	(204.49)	(8.62)
2011	3,177.61	2,738.49	439.12	16.04
2012	4,157.27	4,055.73	101.54	2.50
2013	4,788.53	5,335.58	(547.05)	(10.25)
2014	6,265.04	6,374.20	(109.16)	(1.71)

Source: Ghana Revenue Authority and Computations by Author

6.0 Sources of Import Revenue Leakage

The mobilization of import revenue is an important policy objective and as documented by Nashashibi and Bazzoni (1994), the wide divergences between the effective and statutory tax rates in many countries in the region indicate that there is scope for raising revenue without increasing tax rates by reinforcing tax and customs administrations, reducing tax exemptions, and fighting fraud and corruption. Nevertheless, Heller (1997, p. 41) cautions that “one must be realistic in terms of improvement in revenue ratios that can be reasonably expected to be achieved in many African countries, given the low level of development and the heavily agricultural and informal character of their economies.” In addition, Tanzi (1998) cautions that the fight against corruption takes time, needs to be undertaken on several fronts, and can be costly.Furthermore, tax mobilization and reform can be achieved only when there is strong political will and leadership to adopt the necessary measures (Hamada, 1994) In Ghana leakages in import revenue occur through Tax Evasion, Tax Avoidance and Tax Expenditure.

Tax Evasion

Tax evasion often entails taxpayers deliberately misrepresenting the true state of their affairs to tax authorities to reduce their tax liability

Tax evasion occurs in the form of smuggling cigarettes, textiles and rice. Smuggling of cigarettes has been on the ascendancy irrespective of measures introduced by Customs.

Cigarettes have attracted the highest indirect taxes, this has been one of the reasons for smuggling of cigarettes into Ghana. A study undertaken by British American Tobacco Limited estimated revenue lost to the country every year to be US$3.5 million.

Another area is the smuggling of textiles into the country which is having adverse effect on the textile industry locally and government revenue.

The government has since November 1, 2013, restricted the importation of rice into Ghana through Kotoka International Airport, Tema and Takoradi. Despite the ban on overland importation of rice, importers still use unapproved routes because it cost less to do that.

Tax Avoidance

Tax avoidance is the legal usage of the tax regime to one’s own advantage to reduce the amount of tax that is payable by means that are within the law. Some Free Zone companies are exploiting the Free Zone Act to reduce legitimate tax to government.

Tax Expenditure

Tax Expenditure is referred to as revenue the government forgoes through the provisions of laws that allow for deductions, concessions, exclusions, reliefs or exemptions from taxpayers’ tax expenditure, income or investment; deferral of tax liabilities, or preferential tax rates

Tax expenditures constitute government spending outside the budget allocations and tend to reduce Tax Revenue. In Ghana Tax Expenditures for the period 2008-2013 amounted to GH¢12,179.49 million.

7.0 Measures to enhance Import Revenue Mobilization

- To check smuggling, the government has passed a law (Excise Tax Stamp Act 2013, Act 873) and an Executive Instrument came into force on 9th December, 2014. This Executive Instrument 146 empowers the Minister of Finance to affix Excise Tax Stamps on certain class of goods. The Minister of Finance may also from time to time prescribe that goods be added or goods be delisted from the class of goods which are subject to the application of E.I. 146. The E.I. 146 will allow Excise Tax Stamps to be fixed to goods imported into the country. Goods with stamps are those on which duties have been paid.
  The class of goods subject to Excise Tax Stamp are: Cigarettes and other tobacco products, alcoholic beverages whether bottled, canned, contained in kegs for sale or packaged in any other form, non-alcoholic carbonated beverages whether bottled, canned or packaged in any form, bottled water and any other excisable product prescribed by the Minister.
- The practice of clearance under permit awaiting parliamentary approval should be well structured and Ministry of Finance should ensure its approval.
- To renegotiate the several tax exemptions of the Mining Companies
- To request NGOs and all Charitable Organizations to re-apply for tax exempt status on yearly basis with their audited financial statement and a certified record and their action plan by the appropriate sector Ministry.
- Commodity valuation will be improved
- There will be improvement in the quality of examination by Customs Officers
- Premises examination of goods will be controlled.
- Strengthening of Post Clearance Audit through improved and effective risk management.
- Streamlining the commodity scan process.
- Improvement in Bonded Warehouse control.
- Improved enforcement of compliance through intelligence.
- Enhancement of the compliance seat at the Port.
- Enforcement of debt collection.

8.0 Definition of the Dependent and Independent Variables

(a) Import Revenue

In Ghana Import Revenue is made of Import Duty and levies, Import Value Added Tax (Import VAT) and Import National Health Insurance Levy (Import NHIL). Import Duty and Levies is made up of 78 duties, fees, levies and penalties as listed in Table 3 below:

Table 3

GCMS CODE	*REVENUE HEAD*	GCMS CODE	*REVENUE HEAD*
01'	*Import Duty*	27	*Official Publication*
03'	*Import Special Tax*	28	*Certification Fee*
04'	*Import Excise Duty*	29	*Warehouse Rent*
05'	*Processing Fee*	30	*Interest Charges*
06'	*ECOWAS Levy*	31	*Vehicle Examination*
07'	*Edaif*	44	*Customs Inspection Fee*
09'	*Mining Levy*	49	*Vehicle Overaged Penalty*
11	*Rent Charges*	50	*Bonded Warehouse Licencing*
12	*Customs Penalty*	51	*Transit Admin Fee*
13	*Overtime Charges*	60	*Transit Infrastructure Fee*
14	*Fines*	65	*TVI (C59) Fee*
15	*Manifest Amendment*	66	*Road Fund*
16	*Vehicle Certification*	67	*Mini Bus Road Fund*
17	*Auction Sales*	68	*Non Articulated Trucks Road Fund*
18	*Seized & Forfeited Sales*	69	*Articulated Trucks Road Fund*
20	*Penalty Miscellaneous*	70	*TVI Extend Overstay Penalty*
21	*Bonded Warehouse Renewal Licence*	71	*TVI Close Overstay Penalty*
22	*Forfeited Money*	73	*Import Levy*
23	*Temporary Importation Fee*	76	*Environmental Excise Tax*
24	*Registration Fee*	77	*Special Import Levy 1%*
25	*Manufacturer Licence*	78	*Special Import Levy 2%*
26	*Manufacturer Renewal Licence*		

Source: Ghana Revenue Authority

In Ghana, collection of import revenue could be traced to 1839 when an Act was passed on the 10th December, 1839 by the Governor for the Gold Coast. This Act authorized the levy of:

- A duty of half per centum ad valorem on all goods and merchandise imported into the colony;
- A duty of 12/6 sterling payable once in six months by merchant vessels anchoring the roads of Cape Coast Castle; and
- A duty of 1/- sterling on permits and passports which together with fines and summonses were derived by authority of the Colonial Governor. (Kofi Danquah, 2012)

Imported goods are either cleared for home consumption, or entered and cleared for warehousing or entered and cleared for transit/transshipment etc. Import revenue is derived when duties are paid on goods for direct home consumption. When goods are sent to warehouses, payment of duty on them are deferred but revenue is realized later on when such goods are removed from those warehouses.

Transit is a system by which goods are manifested for importation at an approved port in a country for removal by road, inland waterways or rail to an exit point in that country for exportation to their final destination in another country. For instance goods imported through Ghana to Mali or Niger or Cote D' Ivoire. Transit goods do not attract duty except when entered for home consumption in Ghana with the approval of the Commissioner-General of the Ghana Revenue authority, or when chargeable deficiencies are discovered at import and export.

Transshipment means the Customs procedure under which goods are transferred under Customs control from the importing means of transport to the exporting means of transport within the area of one Customs office which is the office of both importation and exportation. (Revised Kyoto Convention definition).

There are two types of transshipment: Direct and Ordinary. In Direct Transshipment, the goods are not landed; instead they are transferred direct from the importing vessel to the exporting vessel.

In Ordinary Transshipment, the goods are landed and are subsequently removed into another ship or aircraft for exportation. Goods in Transshipment do not attract duties and taxes except where they are entered for home consumption.

WCO definition of "Free Zone" means a part of the territory of Contracting Party where goods introduced are generally regarded insofar as import duties and taxes are concerned, as being outside the Customs territory.

In Ghana Free Zones are either Industrial or Commercial in nature. Industrial free zones import raw materials for the manufacture of products for re-exportation. Commercial free zones bring into the country foreign goods at duty-free rates, stored, sorted, re-labeled, repacked, re-bagged, and mixed into finished products.

According to the Free Zones Act 504 of 1995 and the Free Zones Regulation (L.I. 1618) 1996 Free Zone companies must export at least 70% of their annual production, service or activity; that is only 30% of the annual production of goods and services shall be allowed for sale on the local market. Import revenue is derived from goods and services sold on the local market.

"Temporary Admission" means the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved totally or partially from payment of import duties and taxes; such goods must be imported for specific purpose and must be intended for re-exportation within a specified period and without having undergone any change except normal depreciation due to the use of them. (Revised Kyoto Convention definition). In Ghana there have been several instances where goods were brought into the country for Trade Fair but sold and import revenue derived from them.

(b) Gross Domestic Product

Gross Domestic Product (GDP) is the monetary value of all finished goods and services produced within a country's borders in a specific time period, though GDP is usually calculated on an annual basis. It includes all of private and public consumption, government outlays, investments and exports less imports that occur within a defined territory.

$$GDP = C + G + I + NX$$

Where

C is equal to all private consumption, or consumer spending, in a nation's economy

G is equal to government spending

I is the sum of all the country's businesses spending on capital

NX is the nation's net exports, calculated as total exports minus total imports (NX=Exports-Imports)

GDP is Ghana's official measure of economic growth. There are three different approaches that can be taken to calculate GDP; the expenditure approach, the production approach and the income approach. Ghana uses the production approach to calculate GDP on quarterly basis.

(c) Effective Duty Rate

Effective Duty Rate is the ratio of the total tax to the total import value (C.I.F). It is also measured by the summation of total tax collected across all imported goods to the total value measured in c.i.f. prices, including tariff exempt and zero rated goods. That is

$$EDR = \sum(M*Y)/(\sum M)$$

Where M stands for amount of imported good and Y stands for the tariff rate of the imported good

- Imports are admitted at zero, exempt, 5%, 10% and 20% categories
- Zero rated and exempt categories are non revenue bearing
- While the 5%, 10% and 20% represent the revenue bearing category
- For the January to December 2012 period in the Table 4 below the proportion of non revenue bearing imports was equal to (4,502.47+4,637.80)/25,041.41*100 or 36.5% and revenue bearing was equal to (6,883.54+4,800.56+4,217.04)/25,041.41*100 or 66.5%
- For the January to December 2012 in the Table 4 below

EDR= (0%*17.98)+(0%*18.52)+(5%*27.49)+(10%*19.17)+(20%*16.84)=6.6595%

- The Import VAT for January to December 2012 was GH¢1,807.36million. The

EDR= GH¢1,807.36million/GH¢25,041.41million*100=7.217485%

The EDR measures the efficiency of import revenue collection and it is based on firming up of integrity issues, capacity building especially with respect to the various customs procedures.

Table 4

Comparison of import values January – December 2011 & 2012

	2012		2011	
	GH¢MILL.	% Cont.	GH¢MILL.	% Cont.
0%	4,502.47	17.98	4,309.99	23.04
Exempt	4,637.80	18.52	3,573.64	17.41
5%	6,883.54	27.49	5,225.07	25.45
10%	4,800.56	19.17	3,703.79	18.04
20%	4,217.04	16.84	3,297.51	16.06
Total	25,041.41		20,531.00	
EDR		6.66%		6.29%

Source: Ghana Revenue Authority and Computations by Author

(d) Import Value or Cost, Insurance Freight (C.I.F)

Import Value is the declared value of imported goods, including the cost of purchase and associated insurance and shipping charges from the point of export to the point of import. In Table 4 above, the import value for 2012 amounted to GH¢25,041.41 million, GH¢4,510.41million or 21.97% more than import value for the corresponding period of 2011.

(e) Relative Price

Relative Price = Nominal Exchange Rate/GDP Deflator*100 or Relative Price = Import Price Index/GDP Deflator.

A relative price is the price of a commodity such as a good or service in terms of another i.e. the ratio of two prices.

It may be expressed in terms of a ratio between any two prices or the ratio between the price of one particular good and a weighted average of all other goods in the market. In the econometric model relative price is the ratio of the nominal exchange rate of the dollar to the Ghana Cedi to the GDP Deflator expressed in percentage terms.

(f) Import Exemption

In Ghana, the exemption beneficiaries fall under the following categories: Ghana National Petroleum Corporation (GNPC), Government, Privileged Persons and Organizations, Ghana Investment Promotion Centre (GIPC), General Exemption, ECOWAS Exemption, Parliamentary Exemption and Special Permit. Table 5 shows a comparison of exemption beneficiaries for January-December 2012 and 2011.

- GNPC exemptions are mainly exemptions enjoyed on inputs imported into the country by GNPC and the oil companies.
- Government, Privileged Persons and Organizations are the Head of State, Diplomatic Missions, Technical Assistant Schemes, British Council, The Blind, Persons with disability as in Disability Act, 2006 (Act 715), Churches and Religious Bodies, Trade Fairs and Exhibitions, Volta Aluminium Company Limited, Volta River Authority, Electricity Company of Ghana, Ghana Water Company, Foreign currency for banks licensed by Bank of Ghana, Exemption on Cassette levy, Ghana Civil Aviation Authority (Act 678) and Miscellaneous Exemptions.
- GIPC exemptions are General Exemptions under Ghana Investment Promotion, Restaurants – items as contained in chapter 98.08 of the Tariff, Local film production, Hotels – items as contained in chapter 98.07 of the Tariff and Deferred liabilities on tourism infrastructure.
- General Exemptions are granted on aircraft, accessories and parts (including knocked down aircraft for assembly), baggage and effects, educational, cultural or scientific materials, foodstuffs (raw foodstuffs from West Africa), fishing, floats and other finishing gear admitted as such by the Commissioner, foodstuffs (especially prepared for infants), machinery, plants,

apparatus, spare parts for agricultural purposes, agro-chemicals, veterinary drugs and feed ingredients, jute bags, gifts, packing materials and live animals originating in West Africa.

- ECOWAS Exemptions are ECOWAS preferential rates for approved companies, special ECOWAS exemption – VAT only.
- Parliamentary Exemptions are granted to Ministries, Departments and Agencies after parliamentary approval.
- Special Permits are granted to importers clearing perishable goods and vaccines. Declarations are subsequently perfected in the GCMS.

Table 5

Comparison of Exemption by beneficiary for January-December 2012/2011

REGIME/CPC	2012		2011	
	CIF VALUE (GH¢MILL.)	REVENUE EXEMPT	CIF VALUE (GH¢MILL.)	REVENUE EXEMPT
GNPC (OIL IMPORTS)	95.24	20.02	195.44	46.10
GOVERNMENT, PRIVILEGED PERSONS & ORGANIZATIONS	1,686.63	258.14	1,761.05	171.36
GIPC	141.20	29.00	178.57	41.47
GENERAL EXEMPTION	795.76	118.16	685.10	75.96
ECOWAS EXEMPTION	333.01	68.86	235.69	49.58
PARLIAMENTARY EXEMPTION	887.81	160.89	364.41	77.39
SPECIAL PERMIT	698.16	123.88	153.33	29.18
TOTAL	4,637.81	778.95	3,573.59	491.03

Source: Ghana Revenue Authority and Computations by Author

Apart from the variables in the econometric model, valuation and classification, smuggling and import concessions impact on import revenue.

(g) Valuation and Classification

(Walsh, 2003) defines Customs Valuation as an integral part of trade facilitation together with issues related to charges levied on imports, quota, licensing arrangement and the application of preference systems. (Rege, 2002), after presenting historical background of customs valuation issue, accounts the resentment of developing countries for application of transaction values as it would supposedly decrease the customs revenue due to undervaluation.

Tax is evaded through misclassification and undervaluation of imports in Ghana. (King, 2003) indicated common under invoicing and lack of effective valuation process in developing countries. He highlighted the importance of capacity building for implementation of any customs valuation system. On the other hand, (Filmer 2003) presents the concerns of importers as there exist some threat of assuming higher value as well as delaying clearance in customs so as to direct importers for illegal settlements. In the same fashion, (Ghimire, 2005) identified discretionary power of customs authorities as a major issue with customs valuation.

Import revenue is lost to government when there is misdescription and wrong classification of goods, undervaluation of goods and under-declaration of quantity of goods.

In Ghana valuation and classification are handled by Destination Inspection Companies (DICs). There are five DICs: BIVAC International, Gateway Services Limited, Ghana Link Network Services, Webb Fontane Ghana Limited and Inspection Control Service.

The concept of destination inspection was introduced by the government in 2000 to replace the pre-shipment inspection system which involved the inspection of imports before shipment from the country of supply.

The DICs have invested heavily infrastructure and capacity building to ensure that Customs Division takeover of the scheme will be smooth, have provided compliant tools e.g. Transaction Price Databases to facilitate management and audit of import transactions by the Customs Division. They have provided direct and indirect employment to hundreds of Ghanaians.

The Customs Division of the Ghana Revenue Authority is to fully take over the operations of the DICs by September 1, 2015. The new system would adopt a collaborative approach, where customs, freight forwarders, brokers and other stakeholders, work together to provide services to the Ghana's Trading Community, supported by service providers such as GCNet, West Blue Consulting and Scanning companies. This arrangement is to create a synergy that utilizes the core competencies of each of the stakeholders to implement a seamless, efficient and user-friendly e-clearance regime in a National Single Window environment.

In the 2013 Budget Statement, Ministry of Finance directed the Customs Division of the GRA to take over destination inspection duties. This follows the government's communication to the World Customs Organisation (WCO) on its decision to scrap the operations of DICs, in line with plans to enhance the coordination of border management arrangements with other government agencies. Secondly, DICs had not been intended to be a permanent measure due to the obvious defects associated with the scheme. One of the defects was the frustration of trade facilitation efforts by the government as a result of the non-uniformity in the cargo clearance procedure and inefficiency. The destination inspection system showed the absence of a harmonized risk management system among the various service providers and was more costly to operate than in-house operations. Since 2013, the operations of DICs have come under criticism for their arbitrary charges at the ports and work process which importers claim cause congestion at the ports. Some importers have claimed that the many interventions by the DICs, such as evaluation, reclassification and scanning discrepancies are frustrating.

(h) **Smuggling**

Smuggling may be defined as the illegal importation or exportation of goods into or out of a country.
Smuggling weakens the economy due to loss in revenue and is influenced by the following factors:

- Desire for abnormal profit
- Price differentials for same commodity in adjacent country. Smuggling of cheap petroleum products from Ghana to Burkina Faso.
- Duty differentials for same commodity in nearby country. For instance the level of duty imposed on rice imported through Cote D'Ivoire to Ghana and that imported direct to Ghana.
- To obtain higher market prices for primary products. For instance smuggling of cocoa from Ghana to Cote D'Ivoire for a higher price for it
- Government monopoly: for instance avoid selling diamond to a monopolist
- Prohibitions and restrictions
- Cumbersome customs procedures

(i) **Import Concession**

Import Concessions are either General or Mining in nature. General Concessions are granted on unmanufactured tobacco, materials of base metal for the manufacture of agricultural implements, raw materials for the manufacture of machetes and fishing nets, steel wire for hexagonal netting, all raw materials including packaging materials for pharmaceutical production, raw materials for the manufacture of pharmaceutical containers and pipes and tubes of plastic, plastic granules imported by Cocoa Board, materials of heading 38.11, polyethyelene materials for the manufacture of mosquito nets, materials for disinfectants, fungicides, weed killers, rats poisons etc.,

They are also granted on materials for processing of, or prospecting for timber and other natural products, materials, including tin plates for the manufacture of evaporated milk and corrugated building, billet, waste and scraps of iron, wire of iron or steel, not plated or coated, asbestos, other materials for the manufacture of building materials and packaging materials approved by the Commissioner, materials for the manufacture or assembly of bicycles, crude palm oil for the manufacture of soaps and food, lint cotton and other inputs for textiles production and plastic packaging material exempted from environmental excise tax.

Mining Concessions are granted on items on the mining list, dutiable materials and spare parts, new plant, machinery, equipment and zero rated materials and exceptional items for which Commissioner's approval is required.

9.0 Methodology and discussion of results

Import Revenue, the dependent variable or regressand is a function of Gross Domestic Product, Effective Duty Rate, Import Exemption, Import Value and Relative Price the independent variables or regressors.
The Ordinary Least Square was used to explore the relationship between Import Revenue and the Independent Variables. The GDP deflator was used to get variables in real form and logarithms were applied to obtain equations in linear form.
In the form of an equation
IREV = f (GDP, EDR, IEXEM, IVALUE, RP)
In the linear form the above equation coverts to
Log IREV= $\beta_0 + \beta_1$ Log GDP+ + β_2Log EDR + β_3Log IEXEM +

β_4Log IVALUE + β_5Log RP + ξ
Where
IREV = Import Revenue
GDP = Gross Domestic Product
EDR = Effective Duty Rate
IEXEM = Import Exemption
IVALUE = Import Value
RP = Relative Price
β_0 = Intercept
β_1 , β_2, β_3, β_4, β_5 = Coefficients
ξ = Stochastic disturbance (error) term
Human behaviour is being modeled and thus it is important to add an error term because of:

- Measurement of errors
- Omitted variables in specification
- Theoretical equation has a non-linear functional form
- Random shocks that may alter behaviour

An EViews 7 Statistical software was used in the computation of all the variables in Table 6.

Table 6: Results of Multiple Regression

OBS	IREV	NGDP	NEXRATE	EDR	IEXEM	IVALUE	GDPD
1997	54.92	1,417.00	0.30040			271.62	291.52
1998	74.59	1,921.00	0.35450			393.23	364.40
1999	110.43	2,428.00	0.42540			485.17	415.20
2000	169.54	2,715.30	0.53170			986.41	528.05
2001	244.01	3,807.10	0.72500			1,461.67	710.65
2002	328.80	4,886.24	0.81755	6.79		1,719.30	872.42
2003	493.15	6,615.80	0.87317	8.63		2,227.12	1,122.32
2004	633.73	7,998.00	0.90614	9.00		2,892.06	1,283.64
2005	755.50	9,726.06	0.91216	8.10		4,236.59	1,476.17
2006	866.74	18,705.10	0.92028	8.16		4,832.30	1,664.48
2007	1,196.74	23,154.40	0.93847	7.59	279.60	7,188.48	1,894.98
2008	1,533.49	30,178.60	1.06553	7.40	289.39	9,421.05	2,215.68
2009	1,799.35	36,867.40	1.41586	6.96	190.52	11,723.67	2,437.25
2010	2,167.78	46,232.00	1.43969	6.43	271.03	15,381.89	2,669.28
2011	3,177.61	56,828.00	1.53651	7.06	491.03	20,531.00	2,901.51
2012	4,157.27	69,771.85	1.83656	7.58	778.95	25,041.41	3,153.94
2013	4,788.53	93,415.90	1.98325	8.90	842.00	24,647.66	3,447.26
2014	6,265.04	112,610.60	2.906255	10.32	1,216.01	28,059.39	4,033.29

Source: Ghana Revenue Authority and Computations by Author

NOTE:
IREV= Import Revenue
NGDP= Nominal Gross Domestic Product
NEXRATE= Nominal Exchange Rate ($=GH¢)
EDR = Effective Duty Rate
IEXEM=Import Exemption
IVALUE = Import Value (CIF)
GDPD = GDP Deflator
RP = Relative Price, Relative Price = Nominal Exchange Rate / GDP Deflator*100
LRIREV = Log(Real Import Revenue)
LRGDP = Log(Real GDP)
LREDR = Log(Real Effective Duty Rate)
LRIEXEM = Log(Real Import Exemption)
LRIVALUE = Log(Real Import Value)
LRP = Log(Relative Price)

VARIABLE	CORRELATION COEFFICIENT
IMPORT REVENUE	1
NOMINAL GDP	0.995125898
EFFECTIVE DUTY RATE	0.62405782
IMPORT EXEMPTION	0.97769925
IMPORT VALUE	0.92596032
RELATIVE PRICE	-0.517487573

Correlation Coefficient measures the degree of association between the dependent and the independent variables. It ranges in value from +1, representing perfect positive correlation, to -1, representing perfect negative correlation. Positive correlation means that as the independent variable increases or decreases so does the dependent variable. Negative correlation means that as the independent variable increases, the dependent variable decreases.

Import Revenue and Import Revenue = 1

- Nominal GDP and Import Revenue = 0.995125898 (0.004874102 away from +1)
- Effective Duty Rate and Import Revenue = 0.62405782 (0.37594218 away from +1)
- Import Exemption and Import Revenue = 0.97769925 (0.02230075 away from +1)
- Import Value and Import Revenue = 0.92596032 (0.07403968 away from +1)
- Relative Price and Import Revenue = -0.517487573 (-0.482512427 away from -1)

The results reveal a strong relationship between GDP, Import Exemption, Import Value and Import Revenue. A moderate relationship between Effective Duty Rate and Import Revenue. A negative or weak relationship between Relative Price and Import Revenue.

Log IREV= $\beta_0 + \beta_1$ Log GDP + β_2Log EDR + β_3Log IEXEM +
β_4Log IVALUE + β_5Log RP + ξ

Dependent Variable: LRIREV
Method: Least Squares
Date: 06/13/15 Time: 15:48
Sample (adjusted): 2007 2014
Included observations: 8 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LREDR	0.046736	0.465423	0.100416	0.9292
LRGDP	0.470386	0.235648	1.99614	0.184
LRIEXEM	0.194773	0.081575	2.387648	0.1396
LRIVALUE	0.423908	0.250829	1.690032	0.2331
LRP	0.339544	0.247754	1.370486	0.3041
C	-0.743381	1.00617	-0.738823	0.537
R-squared	0.996124	Mean dependent var		-0.025377
Adjusted R-squared	0.986433	S.D. dependent var		0.351206
S.E. of regression	0.040907	Akaike info criterion		-3.441308
Sum squared resid	0.003347	Schwarz criterion		-3.381727
Log likelihood	19.76523	Hannan-Quinn criter.		-3.843159
F-statistic	102.7928	Durbin-Watson stat		3.015711
Prob(F-statistic)	0.009662			

Source: Author's Computations

R^2 measures the overall fit of the regression line, in the sense of measuring how close the points are to the estimated regression line in a scatter plot. $R^2 = 1$ means the regression fit the data perfectly and $R^2 = 0$ means the regression is no better than guessing the sample mean.

"Adjusted R squared" makes an adjustment to R^2 to take account of right hand side variables in the regression. When you add another right hand variable to a regression R^2 always rises. The adjusted R^2 subtracts a small penalty for each additional variable added.

$R^2 = 0.996124$ means our regression accounts for 99.61% of the variance in Import Revenue and the estimated standard deviation of the error term (S.E. of regression) is 0.040907. A strong relationship exists between the Independent Variables and Import Revenue simply because for a time series data Adjusted $R^2 = 0.986433$ which greater than 0.8 is acceptable or Adjusted $R^2 > 0.8$ is acceptable.

"*F*-statistic" and "Prob(F-statistic)" come as a pair and are used to test the hypothesis that none of the explanatory variables actually explain anything. If $F > 4$: coefficients are jointly significant. The result above shows that F-statistic equals 102.7928, therefore the coefficients are jointly significant.

Put more formally, the "*F*-statistic" computes the standard *F*-test of the joint hypothesis that all the coefficients, except the intercept, equal zero.

The t-statistic and the F-statistic test exactly the same hypothesis. F is exactly the square of the t.
t-statistic*s* and *p*-values are different ways of looking at the same issue. A *t*-statistic
of 2 corresponds (approximately) to a *p*-value of 0.05.

"Durbin-Watson," the classic test statistic for serial correlation.
A Durbin-Watson close to 2.0 is consistent with no serial correlation, while a number
closer to 0 means there probably is serial correlation. The "DW," as the statistic is known,
of 3.015711 in the equation is a very strong indicator of no serial correlation.

Five other elements, "Sum squared residuals," "Log likelihood," "Akaike info criterion," "Schwarz criterion," and "Hannan-Quinn criter." are used for making statistical comparisons between two different regressions. This means that they don't really help us learn anything about the regression we're working on; rather, these statistics are useful for deciding if one model is better than another. For the record, the sum of squared residuals is used in computing *F*-test*s*, the log likelihood is used for computing likelihood ratio tests and the Akaike and Schwarz criteria are used in Bayesian model comparison.

The next two numbers, "Mean dependent var" and "S.D. dependent var," report the sample
mean and standard deviation of the left hand side variable.

10.0 Conclusion

The main objective of this study is to find out the variables that determine import revenue in Ghana. This will help to make it possible to explore the policies that will enhance import revenue maximization in Ghana.

Specific Objectives are as follows:

To investigate the effect of gross domestic product on import revenue. To examine the relationship between the Effective Duty Rate and import revenue. To investigate the effect of import exemptions on import revenue. To find out the impact of relative price on import revenue. To find out the impact of import value on import revenue. To bring out policy options based on the outcome of the study.

The results reveal a strong relationship between GDP, Import Exemption, Import Value and Import Revenue. A moderate relationship between Effective Duty Rate and Import Revenue. A negative or weak relationship between Relative Price and Import Revenue. Adjusted $R^2 > 0.8$ is acceptable for the time series data, coefficients of the independent variables are jointly significant and there is no serial correlation.

Our results suggest several policy recommendations. The practice of clearance under permit awaiting parliamentary approval should be well structured and Ministry of Finance should ensure its approval. The GRA should renegotiate the several tax exemptions of the Mining Companies. In addition to the above, upfront exemptions should be replaced by a Tax Credit System for entities benefiting from exemptions. Under the Tax Credit System, exempted entities will pay all import duties and taxes in full and apply for a Tax Credit Note which will be used to offset future tax liabilities. NGOs and all Charitable Organizations should be requested to re-apply for tax exempt status on yearly basis with their audited financial statement and a certified record and their action plan by the appropriate sector Ministry.

All efforts such as importers having access to foreign exchange to bring in goods should be encouraged. All the benefits in the Economic Partnership Agreement (EPA) should be explored to boost our imports and exports. Foreign Direct Investments should be encouraged and our brothers and sisters outside should be encouraged to increase their remittances since it is one source of improving the volume of imports. With Customs taking over the work of the DICs, the frustration of trade facilitation efforts, the non existence of a harmonized risk management system among various service providers, arbitrary charges and many interventions by the DICs such as evaluation, reclassification and scanning discrepancies should be things of the past. The capacity of staff should be improved through training both local and abroad for the task ahead. Practical means to improve information sharing between Ghana and our neighbouring countries should be encouraged.

To check smuggling, the government has passed a law (Excise Tax Stamp Act 2013, Act 873) and an Executive Instrument came into force on 9th December, 2014. This Executive Instrument 146 empowers the Minister of Finance to affix Excise Tax Stamps on certain class of goods. The Minister of Finance may also from time to time prescribe that goods be added or goods are delisted from the class of goods which are subject to the application of E.I. 146. The E.I. 146 will allow Excise Tax Stamps to be fixed to goods imported into the country. Goods with stamps are those on which duties have been paid.

The effective duty rate which measures the efficiency of collection should be improved further through improvement in commodity valuation and classification, improvement in quality of examination by our officers, control of goods examined at premises, strengthening of post clearance audit through improved and effective risk management. Furthermore, the commodity scan process should be streamlined; there should be improvement in bonded warehouse control and improvement in enforcement of compliance through intelligence.

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