GHANA EXPORT-IMPORT BANK WORKING PAPER

GEXIM

2022 SERIES 1

CONTENTS

WHAT WE STAND FOR

VISION

"To be become a strong financial institution that will be key engine in the development of Ghana's export trade, facilitate cross border trade and make Ghana a pillar in regional and continental trade".

MISSION

"To facilitate the transformation of Ghana's economy into an export one by supporting and developing trade between Ghana and other countries, overseas investments by Ghanaian companies and eliminate critical market failures in the Ghanaian economy thereby making Ghana competitive in the global marketplace".

Lawrence Agyinsam
Chief Executive, Ghana Export-Import Bank

Rosemary Beryl Archer
Deputy Chief Executive Officer, Banking

Nana Akyaa Obeng-Adiyiah
Deputy Chief Executive Officer, Finance and Admin.

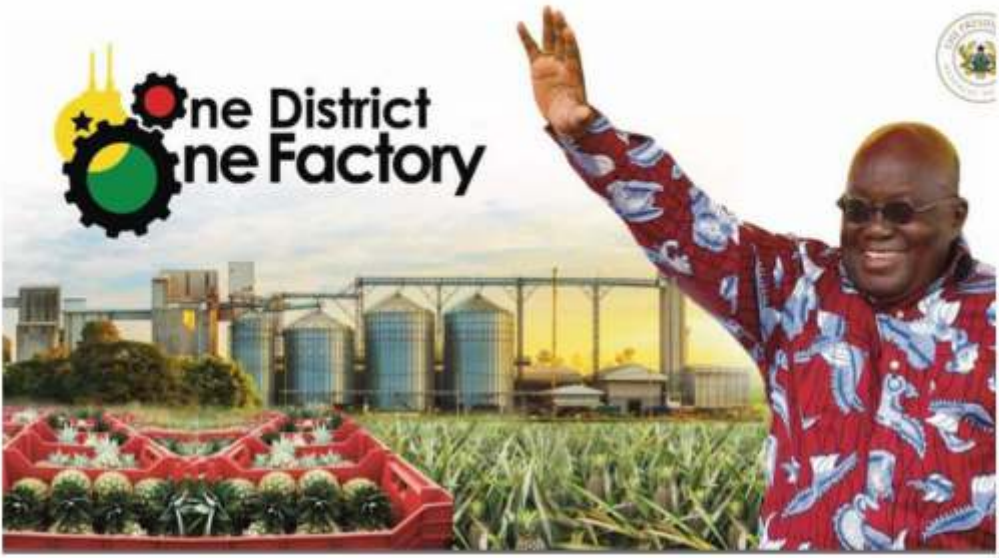
IMPORT DEMAND IN GHANA: DOES MANUFACTURING SECTOR DEVELOPMENT MATTER?

ABSTRACT

This paper examines the effect of manufacturing sector development on import demand in Ghana using annual time series data from 1980 to 2020. Using the Autoregressive Distributed Lag (ARDL) approach, this study found that the manufacturing sub-sector has a positive relationship with import demand in the long run. This implies that an increase in the manufacturing sector contribution to GDP will increase import of goods and services in Ghana.

Based on the finding, this study recommends that the government of Ghana should collaborate with the management of Ghana Export-Import bank and other financial institutions to increase credit to farmers and companies that produce raw materials to feed manufacturing companies. This study also recommends that the government of Ghana should intensify its One District One Factory (1D1F) policy and establish manufacturing companies that will manufacture essential equipment that may reduce the importation of equipment in the long run.

KEYWORDS: Manufacturing sector, Ghana, Import, ARDL model



INTRODUCTION

The manufacturing sector is perceived to be not just the main engine on which the fortunes of developed economies are pivoted but it is also viewed as the cardinal point on which less developed countries must revolve in their quest to develop because the sector has undoubtedly become the catalyst for the development of every nation. In Ghana, the manufacturing sector contributes significantly to GDP, revenue generation and also creates employment especially for the youth. Considering its importance to the economy, it is envisaged that in an event that the manufacturing sector performs poorly in the country, it will negatively affect the growth of output and consequently balloon the high rate of youth unemployment which can also lead to an upsurge crime rate. Also, poor performance of the manufacturing sector in a country can cause an increase in demand for imported goods, thereby, making the domestic economy highly susceptible to foreign price changes and in the long run, this situation could have a concomitant effect on the economy as more cedis would have to be converted to dollars to import foreign goods into the country. Meanwhile, if the sector grounded on a very firm foundation and support, it would be to sufficiently produce a lot of what we may need locally, drastically reduce the high rate of importation of goods and reduce the pressure on the local currency.

With this said, it is also worthy to note that certain factors could hinder the ability of the sector to be able to perform at its full capacity and efficiently,

Notable among the factors could be the inability of the financial sector to adequately support the manufacturing sector (Levine, 1997; Hassan et al., 2011). The manufacturing sectors in developing countries of which Ghana is no exception, contribute little to the economy in terms of output and employment (Shahbaz, 2009).

In Ghana, the manufacturing sector contribution to GDP growth has been fluctuating over the years. The manufacturing sector's share of GDP increased from 10% in 1960 to 14% in 1970 because the government of Ghana, after independence in 1957, launched an industrialisation drive (Addo, 2017). The purpose of the extensive industrialisation programme, which emphasized on import substitution, was to reduce the Ghanaian economy's dependence on goods from colonial powers and other foreign economies. In other words, Ghana's government embarked on industrialisation to reduce the import of goods and services. The manufacturing sector's contribution to GDP declined to negative (-2.6) in 2014, started increasing in 2015 (3.7) to 9.5 in 2017 and declined again to 1.4 in 2020 which could be attributed to the adverse effect of covid-19 pandemic.

To revive the manufacturing sector, the government of Ghana has embarked on an industrialisation policy called the One District, One Factory programme. This programme is a private sector-led initiative aimed at establishing at least one medium scale to large scale factory in all the 254 districts in Ghana. One of the reasons for this programme is to reduce the volume of imports through import substitution. Ghana Export-Import Bank which has created a niche for itself as the principal financing institution for the One-District-One Factory programme, has approved an amount of GH¢2.03 billion for about 142 projects. According to the 2022 budget statement of Ghana, out of the 278 1D1F projects that are at various stages of implementation, 106 factories are operational, 148 are under construction while 24 projects are being prepared. Most of the companies are import substituted companies aimed at reducing the importation of goods and services.

Successive governments, since independence, have embarked on reducing importation of goods by pursuing industrialization agenda. The question that needs to be answered is: would an improved manufacturing sector contributes significantly to GDP and reduce imports in Ghana?

This paper examines the effects of the manufacturing sector's contribution to GDP on import demand in Ghana.

Although some researchers [Addo, 2017; Enu & Ahavi, 2014; Ackah, Adjasi &Turkson, 2016] have conducted studies on manufacturing, to the best of our knowledge, no study has been done in Ghana that focused on the effect of the manufacturing sector development on import demand in Ghana. This paper has been divided into sections. The first part focuses on theoretical and empirical literature review, the second part focuses on the method employed for the study and the last part focuses on the results and recommendations.

LITERATURE REVIEW

Conceptual Clarification

The term "imports" refers to the acquisition of goods and services from other countries. It is defined as goods and services purchased by citizens but given by non-citizens (Luttermann, Kotzab, & Halaszovich, 2020). Imports can be physical items (machinery and equipment) or intangible (services) interactions between a country and the rest of the world. Imports are justified in international trade due to the disparities in human and natural resources between states and as a result, it is understandable that a country will be able to easily produce what other countries can only produce at an excessively high cost. According to Oluleye and Koginam (2019), countries import products and services for the following reasons:

- It does not exist in the importing country
- It does not exist at the required level of quality in the importing country
- It is a specific product variety that cannot be exactly replicated in the importing country.
- Given the economics of scale, it is cost-effective to purchase abroad than produce domestically; and
- There is insufficient domestic supply at the current market price.

Imports continue to be a vital avenue in international trade interactions. Imports, it is noted, broaden the range of items available to domestic consumers and boost domestic demand. Additionally, in emerging countries, capital goods imports increase manufacturing capacities and aid in industrialisation. However, unchecked importation of commodities into the country can hinder the growth of baby industries or displace native industries, contributing to the economy's unemployment difficulties. Additionally, it may affect the balance of its foreign reserves, as imports are made in foreign currencies.

Economic growth is the expansion of an economy's productive capability while International trade facilitates economic growth whereas imports are critical because the import of capital goods is particularly essential in developing nations as it directly affects investment, which is the engine of economic growth. Additionally, service imports promote technology diffusion and economic

progress. However, artificial trade barriers imposed by national governments lower real GDP, equating to a loss of wellbeing. In Ghana, import demand is dominated by secondary products such as machinery and transport, manufactured goods, chemicals, and primary consumer goods. As a result, most of Ghana's goods and services are imported from China, the United Kingdom, the United States of America, South Africa, and India (UN, 2020).

Theoretical Literature

The analysis is premised on the traditional import demand theory and the imperfect substitution model. The conventional theory of import demand extends the standard microeconomic premise of demand, which emphasises the utility of economic agents in their pursuit of products. However, the imperfect substitution model's central premise is that neither imports nor exports are perfect substitutes for the country's native goods (Goldstein & Khan, 1985). Given that total imports of goods and services into Ghana account for a relatively modest part of global import demand, it may be reasonable to assume that the global supply of imports to Ghana is completely elastic. This premise appears to be reasonable for Ghana, given the country's very minor contribution to global trade volume. As a result, even without a rise in prices, the rest of the world economy may be able to boost its export supply to Ghana. As a result, the import demand function might be reduced to a single equation (Ogbonna, 2016).

Empirical Literature

Studies such as Majeed and Sadaf (2019), Vacu and Odhiambo (2019) and Oluyemi and Essi (2017) focused on determinants of import demand. Vacu and Odhiambo (2019) evaluated the factors of aggregate and disaggregated import demand for Ghana from 1985 to 2015. The study employed autoregressive distributed lag bounds testing. Their study found that in the long-run, aggregate import demand (AIMD) is positively correlated with exports of goods and services and consumer spending but negatively correlated with foreign exchange reserves. It is discovered that the import demand of intermediate items is positively impacted by consumer spending, government expenditure and investment spending. The long-run data confirms that relative import prices have a detrimental effect on capital goods import demand. In the short run, the findings indicate that exports of goods and services, investment spending, and consumer spending all benefit AIMD.

Similarly, Majeed and Sadaf (2019) used the Autoregressive Distributed Lag (ARDL) technique to calculate the import demand's long-run elasticities in Pakistan. They found that Pakistan's imports from China and macroeconomic expenditure components such as personal consumption, investment,

export, government, and relative pricing are co-integrated in the long run. Additionally, import demand is more sensitive to changes in consumer spending. Pakistan's imports from China are determined to be negatively impacted by investment spending. Additionally, exports and government spending have a considerable positive effect on import demand, whereas the relative price has a small but favourable effect.

Oluyemi and Essi (2017) used monthly data from 1996 to 2015 to investigate the effect of currency rates on imports in Nigeria. The Variable Vector Autoregression (VAR) model is used to analyse the effect of currency rates on imports and exports in Nigeria. The VAR result indicates that exchange rates have a positive but insignificant effect on imports, a negative but insignificant effect on exports at lag 1, and a positive but insignificant effect on imports at lag 2. The preceding conclusion consequently reveals that the activities of imports do not change the exchange rate in Nigeria. Similarly, the currency rate has little effect on the number of imports in Nigeria. Contrary to economic theory, imports have increased in Nigeria regardless of exchange rates. The impulse response function indicates that exchange rates increased in reaction to imports. Also, Ahad (2018) analysed the impact of financial development on import demand in Bangladesh from 1986: Q1 to 2014: Q4. Combinatorial co-integration is used to study the long-run relationship between financial development, import demand, and economic growth. The findings indicate that financial development and economic expansion both have a favourable and significant effect on import demand throughout the long and short term.

Methodology

This subsection focuses on the source of data, the model specification, measurement of the variables and the ARDL Co-integration Approach.

Source of Data

Secondary data was used for this study. Annual time-series data from 1980 to 2020 were obtained from the World Development Index (WDI) database and International Monetary Fund (IMF) database in 2022.

Specification of the Model

The traditional import demand function was employed for this study. This function is based on the imperfect substitution theory. Following Hor, Keo and Suttiprapa (2017) and Abbott and Seddighi (1996), import demand is a function of domestic income, which is expected to have a positive effect on import, price of import which is expected to have a negative effect on import and price of domestic goods and services which is expected to have a positive effect on import demand. The function can be expressed mathematically as:

$$MD_t = F(Y_t, P_t^d P_t^m)$$

Where Md_t is import demand, Y_t is domestic income, P_t^d refers to domestic goods and services price or cross prices, and P_t^m is prices of imports or own prices.

There are three (3) main determinants that according to Abbott and Seddighi (1996), define the demand for imports of a country. These determinants are the relative price of imports, level of final expenditure, and capacity to produce and supply a country's goods. Abbott and Seddighi (1996) expressed their import demand function as follows:

$$IMPD_t = f[FCE, INVT, EXP\left(\frac{PM}{PD}\right)]$$

Where IMPD refers to the volume of imports, FCE is final consumption expenditure, INVT represents investment expenditure of goods, EXP represents expenditure on exports, and PM/PD refers to the relative price of imports.
Following Hor, Keo and Suttiprapa (2017) and Abbott and Seddighi (1996), we construct Ghana's import demand function by adding some major variables to the variables used by Hor, Keo and Suttiprapa (2017). The new variables introduced were financial development, manufacturing sector development, service sector development, agricultural sector development and central bank policy rate, which was a proxy for interest rate. The import demand function for Ghana can be expressed in the logarithm form as follow:

$$IMPD_t = f(MAN_t, REED_t, CBPR_t, DCPS_t, GEX_t, HCE_t, INF_t, EXPO_t)$$

Or the linear regression form of the long-run aggregate import demand function of Ghana can be written as follows

$$IMPGS_t = \alpha_0 + \beta_1 MAN_t + \beta_2 REER_t + \beta_3 CBPR_t + \beta_4 DCPS_t + \beta_5 EXPO_t + \beta_6 GEX_t + \beta_7 HCE_t + \beta_8 INF_t + \varepsilon_t$$

Where, $IMPGS_t$ = logarithm of import during time t, where time is period 1980 to 2020; MAN_t = manufacturing sector contribution as a percentage of GDP during time t; $REER_t$ = real effective exchange rate during time t; $CBPR_t$ = central bank policy rate during time t; which represent interest rate; $DCPS_t$ = domestic credit to private sector durin time t; $EXPO_t$ = level of export of goods and services during time t; GEX_t = government expenditure during time t; HCE_t = household consumption expenditure during time t; INF_t = inflation during time t, which represents price levels of goods and services; α_0 = the intercept, $\beta_1 \ldots \beta_8$ =the parameter of variables, ε_t the error term.

Measurement of Variables

Table 1 shows how the dependent (IMPGS) and independent variables (MAN, REER, CBPR, DCPS, EXPO, GEX, HCE, INF) were measured.

Table 1: Variable description, measurement and Source

Variable	Description	Measurement	Source
IMPGS	Imports of Goods and Services	Annual percentage of GDP	WDI
MAN	Manufacturing sector contribution	As a percentage of GDP	WDI
REER	Real effective exchange rate	Annual percentage	IMF
CBPR	Interest rate	Proxied as Central bank policy rate	IMF
DCPS	Domestic credit to private sector	Annual percentage of GDP	WDI
GEX	Government Expenditure	Annual percentage of GDP	WDI
HCE	Household Consumption Expenditure	Annual percentage of GDP	WDI
INF	Inflation	annual inflation rate	IMF
EXPO	Export	Annual percentage of GDP	WDI

Source: Author's construct, 2022

THE ARDL CO-INTEGRATION APPROACH

The purpose of this paper is to observe the long run and short-run effects of manufacturing sector development on Ghana's imports along with other determinants of import as controls. The ARDL bounds testing approach to co-integration proposed by Pesaran, Shin and Smith (2001) was employed to examine the effect of manufacturing sector development on Ghana's imports. This method was chosen because it produces effective results regardless of whether all variables are stationary at level I(0), I(1), or mixed integration (Pesaran et al., 2001).

Before employing the ARDL bounds testing approach to examine long-run relationships between dependent and independent variables, the Augmented Dickey-Fuller test and the Philip-Peron test must be conducted to ensure that none of the variables are integrated order at I(2) level. If there is no evidence of the existence of unit root for all variables at level I(2), then the equation of the ARDL model can be specified as follow:

$$\Delta IMPGS_{t,i} = \delta_0 + \sum_{i=1}^{k} \gamma_1 \Delta IMPD_{t-1} + \sum_{i=1}^{k} \gamma_2 \Delta MAN_{t-1} + \sum_{i=1}^{k} \gamma_3 \Delta REER_{t-1} + \sum_{i=1}^{k} \gamma_4 \Delta CBPR_{t-1} + \sum_{i=1}^{k} \gamma_5 \Delta DCPS_{t-1} + \sum_{i=1}^{k} \gamma_6 \Delta GEX_{t-1} + \sum_{i=1}^{k} \gamma_7 \Delta HCE_{t-1} + \sum_{i=1}^{k} \gamma_8 \Delta INF_{t-1} + \sum_{i=1}^{k} \gamma_9 \Delta EXPO_{t-1} + \theta_1 IMPD_{t-1} + \theta_2 MAN_{t-1} + \theta_3 REER_{t-1} + \theta_4 CBPR_{t-1} + \theta_5 DCPS_{t-1} + \theta_6 GEX_{t-1} + \theta_7 HCE_{t-1} + \theta_8 INF_{t-1} + \theta_9 EXPO_{t-1} + \mu_t$$

Where Δ is the different operator; δ_0 refers to the intercept; k denotes the maximum lag length; i is the number of lags; γ_i (i = 1,..., 9) denotes the short-run coefficient of the variables; θ_i (i, k = 1, ...,9) denotes the long-run coefficient of the variables; and μ_t is the disturbance error term. The hypothesis for testing long-run relationship exists among the variables are:

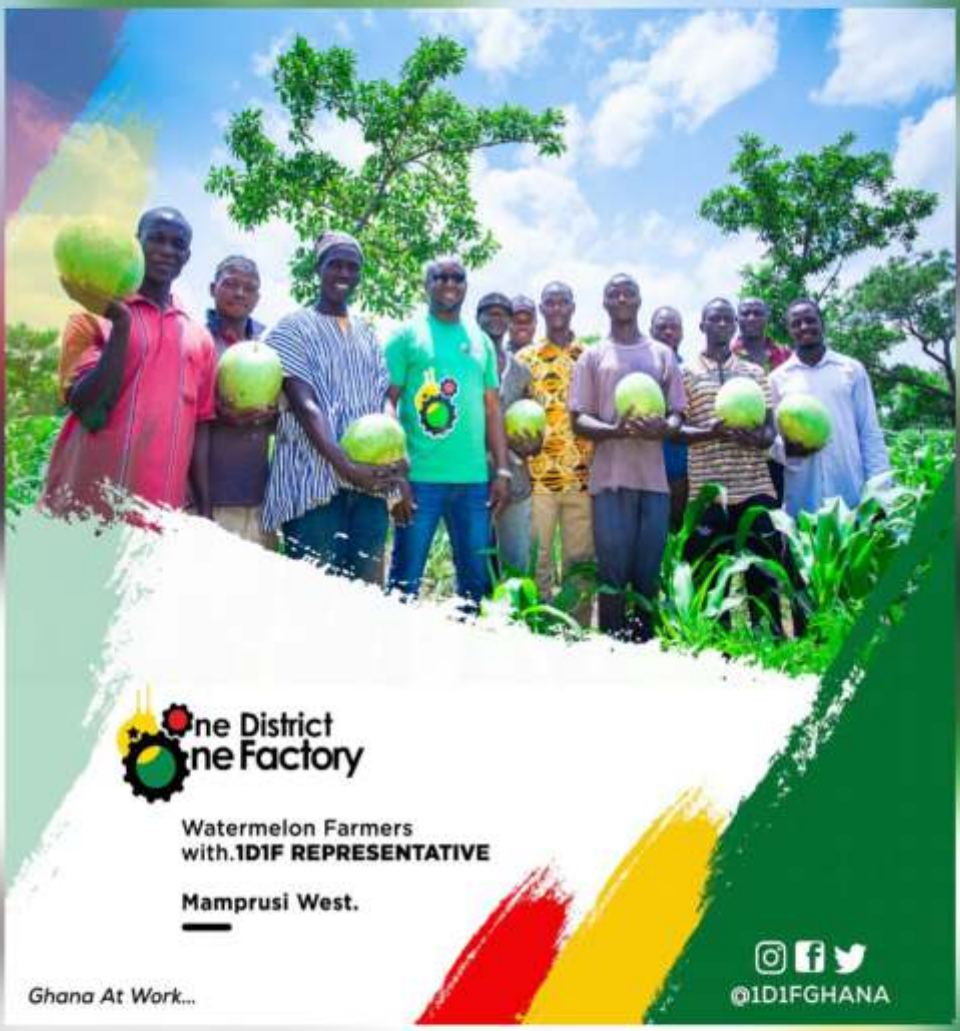
H_0: $\theta_i = 0$, *No long-run relationship*
H_1: $\theta_i \neq 0$, *Long-run relationship*

Whether the null hypotheses of no long-run relationship among the variables will be rejected or failed to be rejected, depends on the computed value of F statistics, which is compared to the value of the critical bound to conclude. Three possible conclusions can be drawn. Firstly, if the F-statistic value is higher than the upper-bound critical value, the null hypothesis of no long-run relationship existence would be rejected. This means the variables have a long-run relationship among others. Secondly, if the F-statistics value is less than the lower-bound critical value, the variables do not have a long-run relationship existence. Finally, if the F-statistic value falls between the lower- and upper-bound critical values, the decision is inconclusive.

The Error Correction Model (ECM) for the short-run relationship can be written as follow:

$$\Delta IMPGS_{t,i} = \delta_0 + \sum_{i=1}^{n} \varphi_{1i} \Delta MAN_{t-i} + \sum_{i=1}^{n} \varphi_{2i} \Delta REER_{t-i} + \sum_{i=1}^{n} \varphi_{3i} \Delta CBPR_{t-i} + \sum_{i=1}^{n} \varphi_{4i} \Delta DCPS_{t-i} + \sum_{i=1}^{n} \varphi_{5i} \Delta GEX_{t-i} + \sum_{i=1}^{n} \varphi_{6i} \Delta HCE_{t-i} + \sum_{i=1}^{n} \varphi_{7i} \Delta INF_{t-i} + \sum_{i=1}^{n} \varphi_{8i} \Delta EXPO_{t-i} + \lambda ECM_{t-1}$$

Where, δ_0 φ_{ji} (j, i = 1, ... ,8) denotes the short-run coefficients; λ presents the coefficient of the lagged error correction term (ECMt−1). The coefficient of ECM_t-1 shows the adjustment speed from the short-run towards the long-run equilibrium among the variables (Pesaran et al., 2001). The coefficient of ECM_t-1 must be statistically significant, and the sign must be negative (Pesaran et al., 2001).


ne District
ne Factory
Watermelon Farmers
with.1D1F REPRESENTATIVE
Mamprusi West.
Ghana At Work...
@1D1FGHANA

RESULTS AND DISCUSSIONS

THIS SUBSECTION FOCUSES ON DESCRIPTIVE STATISTICS, LONG-RUN AND SHORT-RUN ANALYSES AND THE RESULTS OF THE DIAGNOSTIC TESTS.

Descriptive Statistics

Table 2 shows the descriptive statistics of the variables used for the study. The mean values of the variables (IMPGS, MAN, REER, CBPR, DCPS, EXO1, GEX, HCE and INF) were 36.51, 8.82, 283.47, 22.74, 9.30, 26.41, 9.84, 82.37, and 29.28, respectively. The descriptive statistics revealed that the variables were all asymmetrical and the total observation used was forty-one (41). However, IMPGS, MAN,DCPS, EXP01 and HCE were negatively skewed, meaning their left tails are longer than their right ones. REER, INF, GEX and CBPR were positively skewed. Kurtosis is a statistical measure to ascertain the extent to which the data was peaked or flat in relation to the normality of the distribution. A normal distribution has a value of 3. A kurtosis >3 indicates a sharp peak with heavy tails closer to the mean (leptokurtic). A kurtosis < 3 indicates the opposite of a flat top (platykurtic). Regarding the results shown in Table 2, the distributions of variables (REER, CBPR, MAN and INF) were leptokurtic, whiles the others were platykurtic. The p-values of the Jarque-Bera test statistic for more than half of the variables used for the study were greater than the 0.05 critical values. The statistical implication of the Jarque Bera test statistic is that the null hypothesis was rejected, and the alternative hypothesis was accepted since the residuals were normally distributed.

Table 2: Descriptive Statistics

	IMPGS	MAN	REER	CBPR	DCPS	EXP01	GEX	HCE	INF
Mean	36.51063	8.820598	283.4750	22.74390	9.309677	26.41761	9.847764	82.37174	29.28623
Median	36.68376	9.051681	104.3461	20.00000	11.39663	28.23190	9.707990	83.41940	22.81858
Maximum	67.24617	11.58855	3054.033	45.00000	15.88200	48.80226	15.30817	94.23171	123.0612
Minimum	2.982036	3.605511	67.09712	10.50000	1.542268	3.338307	5.861290	71.29461	7.112454
Std. Dev.	16.51341	1.891370	567.7042	9.134496	5.109546	11.58976	2.300235	6.077617	22.28026
Skewness	-0.261086	-1.015854	3.693558	1.027445	-0.194557	-0.276201	0.425399	-0.104814	2.334343
Kurtosis	2.508452	3.736298	16.55286	3.373148	1.422470	2.312974	2.506429	2.307591	9.452352
Jarque-Bera	0.878567	7.977875	407.0096	7.451424	4.510019	1.327636	1.652758	0.894097	108.3587
Probability	0.644498	0.018519	0.000000	0.024096	0.104873	0.514882	0.437631	0.639513	0.000000
Sum	1496.936	361.6445	11622.47	932.5000	381.6968	1083.122	403.7583	3377.241	1200.736
Sum Sq. Dev.	10907.71	143.0912	12891522	3337.561	1044.299	5372.903	211.6433	1477.497	19856.40
Observations	41	41	41	41	41	41	41	41	41

Note: Produced from Eview 10 with IMF & WDI data, 2022.

Unit Root Tests

To determine the integration order, unit root tests were conducted to assess the stationarity status of the nine (9) variables. The motive for these tests was to avoid spurious results because the bounds test is based on the assumption that none of the variables is stationary at order two (2) or beyond. This implies that the variables are expected to be integrated at order zero [I(0)] or one [I(0)]. The unit root tests were conducted with intercept and trend. Table 3 shows the results of the Augmented Dickey-Fuller (ADF) tests and the Phillips-Perron (PP) tests. Zivot-Andrwes unit root test was also conducted. The ADF results show that only INF is integrated at levels [I(0)], and the rest of the variables are integrated at the first difference [I(1)]. The PP results show that REER and INF are integrated at levels [I(1)] and the rest of the variables are integrated at the first difference [I(1)]. Based on the PP and ADF tests results, the ARDL model can be used for this study.

Table 3: ADF and PP Unit Root Tests

		ADF Test		PP Test	
Variable		*Intercept*	*Intercept & Trend*	*Intercept*	*Intercept & Trend*
IMPGS	Level	-1.874639	-1.435598	-1.797905	-1.154382
	1st Difference	-6.586569***	-7.490314***	-6.505186***	-8.184059***
MAN	Level	-2.558717	-2.700641	-2.293335	-2.619690
	1st Difference	-5.623968***	-5.548503***	-6.715564***	-6.746987***
REER	Level	-2.859379*	-2.917451	-2.651013*	-3.412645*
	1st Difference	-7.992566***	-7.938084***	-10.59029***	-16.26563***
CBPR	Level	-1.806349	-2.039280	-1.914204	-2.040115
	1st Difference	-6.811141***	-6.810656***	-6.784981***	-6.795359***
DCPS	Level	-1.429810	-1.438096	-1.395569	-1.211572
	1st Difference	-7.348149***	-7.476753***	-7.367483***	-7.821175***
GEX	Level	-2.959801**	-2.9812292	-3.079105**	-3.099571
	1st Difference	-6.477396***	-6.413884***	-8.183749***	12.16705***
HCE	Level	-1.991045	-2.378295	-2.147146	-2.558969
	1st Difference	-6.939761***	-6.841416***	-6.939761***	-6.841416***
INF	Level	-5.303063***	-6.761790***	-5.341447***	-6.761790***
	1st Difference	-7.754013***	-4.645741***	-34.65186***	-40.49499***
EXP	Level	-1.807308	-1.914938	-1.784259	-1.902547
	1st Difference	-6.623604***	-6.662209***	-6.627579***	-6.734669***

*Note: *, ** and *** indicates the rejection of the null hypothesis of non-stationary at 10%, 5% and 1% significance levels. Produced from Eviews 10 with IMF & WDI data, 2022.*

Diagnostic Tests

Serial correlation test was conducted on the import model and the null hypothesis of the serial correlation is that there is no serial correlation. The result in Table 4 indicates that the P-value of the serial correlation test was 0.1942 which implies that there is no serial correlation and therefore, the import model is good for forecasting. Also, Breusch-Pagan-Godfrey test was carried out on the import model and the null hypothesis was that the variance of the residual is constant. The test result revealed that there was homoscedasticity (P-value = 0.426). This suggests that the variance of the residual is constant and the model has no heteroscedasticity problem.

In addition, normality test was conducted using Jarque-Bera test. Normality test is conducted to check if the population is normally distributed. The null hypothesis for normality test is that the population is normally distributed. The P-value for the test was 0.890, and because it is greater than the 5% significant level, we infer that the population is normally distributed. Last but not least, Ramsey's Reset test was performed, with a P-value of 0.970 for the F-statistic, indicating that the model was correctly constructed.

Table 4: Diagnostic Tests

Item	Test Applied	Probability
Functional Form	Ramsey's Reset Test	0.970
Heteroscedasticity	Breusch-Pagan-Godfrey	0.426
Normality	Jarque-Bera Test	0.890
Serial Correlation	Breusch-Godfrey LM Test	0.1942

Note: Produced from Eview 10 with BoG, IMF & WDI data, 2022.

Stability Test For The Long-run Model

Both the cumulative sum of recursive residuals (CUSUM) and the CUSUM of square (CUSUMSQ) tests were used to determine stability of the model. For a model to be accepted as stable, it is expected that both cumulative sum of recursive residuals (CUSUM) and the CUSUM of square (CUSUMSQ) plots should fall within the critical bounds at 5% significant level. This expectation was met because figure 1 depicts that both cumulative sum of recursive residuals CUSUM and the CUSUMSQ plots fell within the critical bounds at 5% significant level. The implication is that the model is stable and can be used for policy formulation.

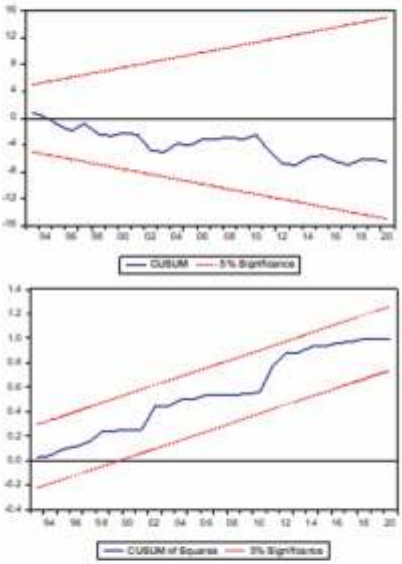


Figure 1. Stability test results for Auto Regressive Distributed Lag (ARDL)

Note: Produced from Eview 10 with IMF & WDI data, 2022

Bounds Test

The bounds test is conducted to examine the existence of long-run relationship among the variables. The computed value of F-statistics is compared to the critical bounds value to determine whether or not to reject the null hypothesis of no long-run relationship exists among the variables. The comparison might lead to three different conclusions. Firstly, if the F-statistic value exceeds the upper-bound critical value, the null hypothesis of no long-run relationship among the variables is rejected. This indicates that long-run co-integration relationships amongst the variables exist. The second conclusion that can be drawn is that if the F-statistics value is less than the lower-bound critical value, we fail to reject the null hypothesis of no long-run relationship among the variables and therefore, assumed that the variables used do not have a long-run relationship. Thirdly, we cannot draw a conclusion about long-run relationship among the variables if the F-statistic value is between the lower- and upper-bound critical values.

Table 5 revealed that the computed F-statistic for the Bounds test is 20.142 and the 5% critical value for the upper critical bound value is 3.15. The computed F-statistic for the bounds test exceeds the 5% critical value for the upper bound, therefore, the null hypothesis of no co-integration against its alternative hypothesis of presence of co-integration is hereby rejected at 5 % significance level. This indicates that the variables have long-run co-integration relationship.

Table 5: Long run bound test: ARDL(1, 0, 1, 0, 0, 0, 1, 0, 0)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Significance.	I(0)	I(1)
F-statistic	20.1420	10%	1.85	2.85
k	8	5%	2.11	3.15
		2.5%	2.33	3.42
		1%	2.62	3.77

Note: Produced from Eview 10 with IMF & WDI data, 2022.

Estimated Long-Run Results

The estimated long-run results are shown in Table 6. The findings reveal that in the long-run, central bank policy rate, government expenditure, household consumption expenditure, manufacturing sector development, export, real exchange rate, domestic credit to private sector and inflation have significant impacts on import demand in Ghana. The empirical results in Table 6 show that central bank policy rate is statistically significant at five percent significant level and has positive relationship with import. This indicates that, in the long-run a percentage increase in Central Bank's policy rate will result to 0.236 percent increase in import of goods and service holding all other factors constant. It is expected that an increase in Central Bank's policy will reduce commercial banks borrowing from Central Bank and reduce the amount of money the commercial banks can give out as loans which will affect investment and production.

This is in consistent with the finding of Beck (2002). Beck (2002) found that more availability of finance helps domestic merchandise importers to produce goods at home with cheaper rates. The justification is that increase in credit to the private sector will increase production of goods and services and reduce import in the long-run.

Manufacturing sector development which was measured as manufacturing sector contribution to GDP was our main variable of interest. It was found to be significant at five percent significant level (P-value = 0.0114) and has positive relationship with import. This implies that in the long-run an increase in manufacturing sector contribution to GDP, holding all other factors constant, will lead to an increase in import. Although, we were expecting an increase in manufacturing sector contribution to result to reduction in import yet the positive relationship between the

two variables is not surprising. This can be attributed to the fact that manufacturing firms in Ghana import their machinery and

equipment parts and some of them even import raw materials they use to produce. Also, government of Ghana has been given import duties exception to companies in the manufacturing sub-sector. For instance, factories under the government of Ghana's One District One Factory (1D1F) Agenda enjoy exception of import duties and taxes on machinery and equipment parts. These companies under 1D1F enjoy 100% exemption from payment of direct and indirect duties and levies on all raw materials for production.

The manufacturing sector's contribution to GDP will rise when manufacturing companies are able to produce more, which can only be done by importing more duty-free equipment, machinery, parts, and raw materials. An increase in manufacturing sector development will lead to 1.561 percent increase in import.

Government expenditure and household consumption expenditure were found to have positive effects on import and both were statistically significant at one percent significant level. Increase in government expenditure and household consumption expenditure will in the long run lead to increase in import. Increase in government expenditure is expected to increase income of the people in the country holding all other factors constant. An increase in income of the people will cause increase in demand of goods and services which will lead to increase in import of goods and services. Similarly, increase in household consumption holding all factors constant, will increase demand for goods and service which will also increase import of goods and service to meet market demand of goods and services.

A percentage increase in government expenditure and household consumption expenditure will in the long run increase import by 2.143 percent and 0.829 percent respectively. Wang and Lee (2012) conducted a study on import demand function in China economy and found that domestic income has a positive and significant impact on import volume. This shows that an increase in domestic income will increase import and therefore, a factor like government expenditure that can increase domestic income can increase import holding all other factors constant. Also, this finding is consistent with the finding of Vacu and Odhiambo (2019). They found that consumer spending has a positive effect on aggregate import in Ghana. Service sector was significant at 10% significance level and had a positive relationship with import.

The real exchange rate, which we expected to have a negative correlation with import, had a positive association with import, as seen in Table 5 and was significant at five

percent significant level. Holding all other factors constant, an increase in real exchange rate will increase import of goods and services by 0.0074 percent. This is due to the fact that some of the commodities we import do not have local producers, and even if they do, they are unable to produce enough to meet market demand, therefore a rise in the exchange rate would have little

effect on the quantity imported by Ghanaian importers. Companies that import raw materials, equipment, and machinery will continue to import regardless of the exchange rate, therefore an increase in the exchange rate will not have a negative impact on imports if all other factors remain constant.

Domestic credit to private sector was significant at one percent significant level and had the expected sign. Domestic credit to private sector has positive relationship with import of goods and services. An increase in Domestic credit to private sector will lead to an increase in import of goods and services in the long-run. An increase in domestic credit to private sector will increase the total amount available to businessmen and holding all factors constant they would increase import of goods and service. This relationship indicates that some of the Ghanaian businessmen borrow to import instead of investing into production and even the borrowers who are into production most at times, import raw materials, equipment and machinery. Farmers who engage in commercial farming, for example, import machinery and equipment such as tractors, egg incubators, and hand tillers, and businesses import raw materials and machinery regardless of the exchange rate because they lack substitutes for the equipment, machinery, and some raw materials they import.

Export has a positive correlation with import of goods and services. An increase in export of goods and services will lead to an increase in import by 1.18 percent in the long-run. Holding all other factors constant, an increase in export will increase foreign exchange and an increase in foreign exchange will induce import of goods and services. This finding is consistent with the finding of Vacu and Odhiambo (2019). They found that export of goods and services has a positive correlation with import of goods and services in Ghana.

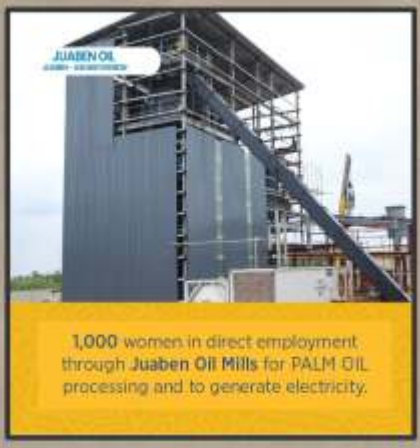


Table 6: Long-run Coefficient estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MAN	1.561449	0.576557	2.708230	0.0114
REER	0.007407	0.003041	2.435629	0.0215
CBPR	0.236497	0.082792	2.856539	0.0080
DCPS	0.895298	0.223559	4.004761	0.0004
EXPO1	1.178784	0.096388	12.22960	0.0000
GEX	2.142966	0.371107	5.774531	0.0000
HCE	0.829583	0.129127	6.424575	0.0000
INF	-0.056909	0.043911	-1.296026	0.2055
C	-111.8815	17.51814	-6.386606	0.0000

Note: Produced from Eview 10 with BoG, IMF & WDI data, 2022

Error Correction Model Results

Table 7 shows the error correction model results. The R-squared is 0.9088 which indicates that the independent variables in the model jointly explain 90.88% variation in the dependent variable (import). Durbin Watson statistics is a test for serial correlation. If the value is ranging between two and four it means there is absence of serial correlation but if the value is less than two, it means there is serial correlation. The Durbin Watson statistics for this study is 2.035. The value indicates an absence of serial autocorrelation and therefore, the statistical estimates can be relied upon.

The error correction term (CointEq(-1)) was found to be statistically significant at 1% significant level and also had the negative expected sign. According to Abonazel and Elnabawy (2020), the error correction term explains the extent to which any disequilibrium in the previous period is being adjusted in current point. In other words, it means that any disequilibrium that shall occur in the short run will be corrected in the long run and the greater the value in absolute terms, the faster the rate of convergence to equilibrium. Abonazel and Elnabawy (2020) argued that if the estimate of the error correction term is equal to one (1), it implies that hundred percent (100%) of the adjustment takes place within the period and if it is equal to 0.7 then 70% of the adjustment takes place within the period. The estimate of the error correction model for this study is -0.805 which implies that the speed of adjustment is approximately 80.5% in a year. In other words, the -0.805 means that 80.5% of the adjustment from short run to long run take place within a year.

The real exchange rate has positive relationship with import and is statistically significant at 1% in the short-run. An increase in real exchange rate will lead to an increase in import in the short-run. Specifically, a one percent increase in real exchange rate will cause import in Ghana to increase by 0.0034 percent. Government expenditure is also significant at 1% and has positive effect on import. A percent increase in government expenditure will increase importation of goods and services by 1.20 percent holding all other factors constant.

Table 7: Short run Coefficient estimates and Error Correction Representation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(REER)	0.003389	0.000762	4.449994	0.0001
D(GEX)	1.200175	0.175192	6.850634	0.0000
CointEq(-1)*	-0.805048	0.049346	-16.31448	0.0000
R-squared	0.908899			
Adjusted R-squared	0.903974			
Durbin-Watson stat	2.035665			

Note: Produced from Eview 10 with BoG, IMF & WDI data, 2022.

Conclusion and Recommendations

The objective of this paper was to examine effect of manufacturing sector development on import demand in Ghana. Using ARDL approach, this study found that manufacturing sector has positive relationship with import demand in the long-run and this implies that an increase in manufacturing sector contribution to GDP will increase import in Ghana in the long-run. Government expenditure, household consumption expenditure, real exchange rate, central bank policy rate, export and domestic credit to private sector were found to have long-run relationship with import in Ghana. Government expenditure and real exchange rate were found to have positive correlation with import in the short-run. Based on the findings, this study recommends that the government of Ghana should collaborate with management of financial institutions to make credit available to investors who are willing to establish commercial farms and companies that will produce raw materials to feed the existing One District One Factory (1D1F) companies and other companies in Ghana. This will reduce importation of raw materials that can be produced locally to feed our manufacturing companies. This study also recommends that under One District One Factory (1D1F) Agenda, the Ghana Export-Import Bank and other financial institutions financing the 1D1F agenda should Finance manufacturing companies that will manufacture similar essential equipment and machinery that are imported into the country. This will initially increase import but in the long-run it may reduce importation of equipment and machinery.

REFERENCES

Abbott, A. J., & Seddighi, H. R. (1996). Aggregate imports and expenditure components in the UK: an empirical analysis. *Applied Economics*, *28*(9), 1119-1125.

Abonazel, M. R., & Elnabawy, N. (2020). Using the ARDL bound testing approach to study the inflation rate in Egypt. *consultant*, *31*(3), 24-41.

Ackah, C., Adjasi, C., & Turkson, F. E. (2016). *Industrial policy in Ghana: its evolution and impact*. Oxford University Press.

Addo, E.O. (2017). The impact of manufacturing industries on Ghana's economy. *International Journal of Research Studies in Management*, *6*(2), 73-94.

Ahad, M., & Dar, A. A. (2018). A Dynamic Relationship between Financial Development and Import Demand for Bangladesh: An Evidence from Combine Cointegration and Granger Causality Approach. *Global Business Review*, *19*(3), 543-555.

Beck, T. (2002). Financial development and international trade: Is there a link?. *Journal of international Economics*, *57*(1), 107-131.

Enu, P & Havi, E.D. (2014). The Manufacturing Sector of Ghana: Are There Any Macroeconomic Disturbances? *Asia Pacific Journal of Multidisciplinary Research*, *2* (2), 111-122

Goldstein, M., & Khan, M. S. (1985). Income and price effects in foreign trade. *Handbook of international economics*, *2*, 1041-1105.

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of economics and finance*, *51*(1), 88-104.

Hor C., Keo K. and Suttiprapa C. (2018). An empirical anaysis of Cambodia's import demand function. *Journal of Management, Economics, and Industrial Organization*, *2*(1).1-12.

Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of economic literature*, *35*(2), 688-726.

Luttermann, S., Kotzab, H. & Halaszovich, T. (2022). The impact of logistics performance on exports, imports and foreign direct investment. *World Review of Intermodal Transportation Research*, *9*(1), 27-48

Majeed, S. (2019). Modeling the Effects of Macroeconomic Expenditure Components on Pakistan's Import from China. *Journal of Economic Cooperation & Development*, *40*(2).

Ogbonna, B. C. (2016). Estimating aggregate import-demand function for Nigeria revisited. *IOSR Journal of Business and Management*, *18*(3), 64-72.

Oluleye, F. A., & Koginam, A. O. (2019). Nigeria's Energy Sector Privatization: Reforms, Challenges and Prospects. *South Asian Research Journal of Humanities and Social Sciences*, *1*(2), 189-197.

Oluyemi, O., & Essi, I. D. (2017). The effect of exchange rate on imports and exports in Nigeria from January 1996 to June 2015. *International Journal of Economics and Business Management*, *3*(2), 66-77.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326.

Shahbaz, M. (2009). A reassessment of finance-growth nexus for Pakistan: under the investigation of FMOLS and DOLS techniques. *IUP Journal of Applied Economics*, *8*(1), 65-80.

United Nations. (2020). *Country Brief Ghana: Leveraging industrialization for inclusive growth*. UNIDO | United Nations Industrial Development Organization. https://www.unido.org/sites/default/files/files/2020-11/Country_Brief_Ghana.pdf

Vacu, N.P. & Odhiambo, N. (2019), The determinants of aggregate and dis-aggregated import demand in Ghana. *African Journal of Economic and Management Studies*, *10*(3), 356-367

Wang, Y. H., & Lee, J. D. (2012). Estimating the import demand function for China. *Economic Modelling*, *29*(6), 2591–2596

IMPACT OF DOMESTIC CREDIT TO PRIVATE SECTOR AND MANUFACTURING SECTOR DEVELOPMENT ON EXPORT IN GHANA

ABSTRACT

The ARDL model was employed to examine the impact of manufacturing sector and domestic credit to private sector on export in Ghana using Annual time-series data from 1980 to 2020. The study found that manufacturing sector contribution to GDP has a negative effect on exports in both the short-run and long-run and domestic credit to private sector has positive effect on export in the short-run.

This reveals that an increase in domestic credit to private sector holding all other factors constant, will increase export of goods and services in Ghana. Real exchange rate was also found to have negative effect on export in Ghana in both short-run and long-run. Based on the findings, this study recommends that the Ghana Export-Import Bank should continue to provide credit to businesses that produce export products. Increase in credit to businesses that produce exported products will increase production of the products which will lead to increase in export and forex.

Keywords: Export, domestic credit to private sector and Manufacturing sector Development in Ghana.

INTRODUCTION


Lawrence Agyinsam
CEO Ghana Exim Bank

Productivity is impacted by a country's exposure to trade. In the absence of entry barriers, more exposure to trade enhances competitiveness in export markets. Consequently, only the most productive enterprises export and the least productive are pushed to depart. The withdrawal of most minor productive enterprises, coupled with the ensuing increase in the export market share of the more productive firms, leads to productivity improvements (Haasnoot & Vaal, 2022; Howell, 2020; Kapri, 2018)

Domestic credit is a significant source of external capital for enterprises in developing countries, of which Ghana is no exception. Beck (2002) shows that a greater domestic lending to the private sector improves total merchandise exports. The private sector, according to Kenton (2018), is the part of the economy that is run by individuals and companies for profit and is not state-controlled. The private sector has become the engine of economic growth for Ghana. Products produced by firms in the private sector are mainly consumed in the country and partly exported to earn forex. Merchandise exports in Ghana depend mainly on private-sector production. An increase in private sector production will likely increase exports.

Ghana's export of goods and services increased from $7.96 billion in 2010 to $15.67 billion in 2019 and declined to $14.47 billion in 2020. The government of Ghana through the National Export Development Strategy has aimed at increasing the volume of Ghana's non-traditional export to US$25 billion from US$2.85 billion in 2020 by 2030. The goal of the Export Development Strategy

is to achieve a substantial increase in the manufactured goods and services components of Ghana's exports to attain a projected revenue of at least $25.3billion by 2029. For Ghana to achieve the $25.3 billion, the manufacturing sector has to develop to the extent that it can increase production for export. To increase manufacturing sector production, the government of Ghana has embarked on an industrialization policy called the One-District-One Factory Programme. This programme is a private sector-led initiative and it is aimed at establishing at least one medium-scale to large-scale factory in all the 254 districts in Ghana.

The government of Ghana for the past years embarked on industrialization policies aimed at increasing the production of manufactured goods in Ghana. Ghana's 2017 budget had policies that focused on National Industrial Revitalization Program with a stimulus package for industry, and a National Entrepreneurship and Innovation Plan.

Ghana Export-Import Bank and other banks in Ghana have also provided funds to the manufacturing companies under the One District-One Factory programme to solve the credit constraints that have bedeviled the manufacturing sector. The question that needs to be answered is does increasing domestic credit to the private sector and improving the performance of manufacturing have a positive impact on exports in Ghana? This paper examines the effects of manufacturing sector development and domestic credit to the private sector on exports in Ghana? This paper has been divided into sections. The first part focuses on theoretical and empirical literature review, the second part focuses on the method employed for the study and the last part focuses on the results and recommendations.

THEORETICAL LITERATURE

Eli Heckscher

Bertil Ohlin

Heckscher-Ohlin Theory

Heckscher (1919) and Ohlin (1924) propose a trade framework that differs from other neo-classical theories in that it emphasizes the roles of land, labour, and capital in agricultural and industrial production, and attempts to explain how variations in the availability of these factors of production determine a country's nature of specialization and trade patterns. By inventing a two-factor, two-sector, and two-country version of the Heckscher-Ohlin model, Paul Samuelson added elegance to this framework, which formed the cornerstone of current theory of international commerce.

According to the Heckscher-Ohlin-Samuelson trade theory, a country should specialize in and export a product that exploits the element of production with which it is richly endowed more intensely. As a result, a capital-rich country such as the United States should export capital-intensive products, whereas a labour-rich country such as Ghana should export labour-intensive ones. While this theory is more logical than the Ricardian approach in terms of thinking about commerce among nations, it also focuses solely on the supply side of the economy, implying that differences in factor endowments can explain specialization patterns and the volume of trade between countries.

The demand side is masked by consumer preferences for homothetic products and the assumption that countries trade in homogeneous goods. The H-O-S trade model is still being refined, as is the research into the empirical consequences of the factor content of net trade flow. (Helpman, 1999).

As a result of this hypothesis, it is believed that, because Ghana has extensive land and a large section of its population work in agriculture, it should develop and export labour-intensive commodities in order to boost its export. As a result, it should import capital-intensive commodities, such as machines for use in the development of

EMPIRICAL LITERATURE

processing industries that will add value to the agricultural commodities that will be exported. This will boost GDP even further, allowing for more surplus to be exported.

Export and Manufacturing

Anwar and Sun (2018), using industry-level panel data from China's manufacturing sector, and measuring the industry export quality by the industry export unit value, they found that an increase in foreign presence in China's manufacturing sector contributes to a significant increase in China's export quality. Sankaran et al (2021) found that manufacturing value-added is an important ingredient, which influences export. Tulasi et al (2021) also, assessed the role of manufacturing exports in the growth of the Malaysian economy and found a positive and significant relationship between the level of the manufacturing sector and exports that contributes to economic growth in Malaysia.

Export and Domestic credit to the private sector

Golder and Hossain (2022) examined the effect of domestic credit to the private sector on export growth in Bangladesh. Their study confirmed a cointegrating relationship between domestic credit to the private sector and export growth. Their study also revealed that domestic credit to the private sector augments export growth in the long run. Tsaurai (2019) investigated the impact of financial development on exports in BRICS (Brazil, Russia, India, China and South Africa) nations using panel data analysis (fixed effects and pooled ordinary least squares) with annual data ranging from 1994 to 2015. Tsaurai (2019) study revealed that domestic credit to the private sector triggered exports growth in BRICS countries.

Siddiqui (2018) identified the determinants of export diversification during this period 1972-2015 in Pakistan. The study revealed that private sector credit has a negative association with product export diversification.

Export and Real Effective Exchange Rate

Ngondo and Khobai (2018) assessed the impact of the exchange rate on exports in South Africa between the periods 1994 to 2016 and the results showed that exchange rate has a significant negative relationship with exports in South Africa. Nweke et al (2020) examined the impact of exchange rate depreciation on export performance of Nigeria.

The study utilized the Auto-Regressive Distributed Lag model in the analysis. Their results indicated that exchange rate has a positive and significant impact on oil export performance and total export performance in both the short-run and long-run. Their study also showed that exchange rate has a positive and insignificant effect on non-oil export performance in the short-run; while in the long-run, exchange rate has a negative and insignificant effect on non-oil export performance.

Rilwanu (2021) investigated the effect of exchange rate on export with respect to the level of financial development in Nigeria over the period of 1983 to 2020 through the application of Error Correction Model. The results of the marginal effects revealed that exchange rate has significant positive impact on export at a maximum and average level of Financial Development in Nigeria over the study period. However, at minimum level of financial development, the exchange rate showed an insignificant positive impact on export in Nigeria.

Methodology

This subsection focuses on the source of data, the model specification, measurement of the variables and the ARDL Co-integration Approach.

Source of Data

Secondary data was used for this study. Annual time-series data from 1980 to 2020 were obtained from the World Development Index (WDI) database and International monetary fund (IMF) database in 2021.

Specification of the Model

The study adopts the analytical framework by Fugaza (2004) and Mervar (2009) because it succinctly outlines factors that affect exports within the demand and supply confines. This function is based on the Heckscher-Ohlin theory. Following Fugaza (2004) export function is usually assumed to be Foreign Market Access (demand capacity of importing country) and supply capacity of the exporting country. Hence the export equation may be written:

$$EXP_{ij} = \alpha + \gamma DD_i + \delta SS_i + \varepsilon_i$$

Where EXP_{ij} is Volume of Exports from *i* to *j*, γDD_i is the Demand Capacity of importing country SS_i, refers to the Supply capacity of exporting country ε_i and consist of all other factors that affect export growth.

According to Mervar (2009), there are three (3) main determinants that define the supply of exports of a country. These determinants are the world price levels of exports (as Ghana is a developing country, it is assumed that the country is price-taker), exchange rates, and income index of trading-partners. Mervar (2009) expressed his export supply function as following.

$$EXP_t = f(Price_t^{World}, GDP_t^{Part}, EXP_t)$$

Following Fugaza (2004) and Mervar (2009), we construct Ghana's exports supply function by adding some major variables to the variables used by Fugaza (2004) and Mervar (2009). The new variables introduced were manufacturing sector development, service sector development, agricultural sector development, central bank policy rate, which was a proxy for interest rate, inflation, government expenditure and household consumption expenditure. The export supply function for Ghana can then be expressed:

$$EXP_t = f(MAN_t, REED_t, CBPR_t, DCPS_t, GEX_t, HCE_t, INF_t, IMPGS_t, AGR_t, SER_t)$$

Or the linear regression form of the long-run aggregate export supply function of Ghana can be written as follows:

$$EXP_t = \alpha_0 + \beta_1 MAN_t + \beta_2 REER_t + \beta_3 CBPR_t + \beta_4 DCPS_t + \beta_5 IMPGS_t + \beta_6 GEX_t + \beta_7 HCE_t + \beta_8 INF_t \beta_9 AGR_t + \beta_{10} SER_t + \varepsilon_t$$

Where, EXP_t = level of export of goods and services during time t, where time t is the period 1980 to 2020; MAN_t = manufacturing sector contribution as a percentage of GDP during time t; $REER_t$ = real effective exchange rate during time t; $CBPR_t$ = central bank policy rate during time t; which represent interest rate; $DCPS_t$ = domestic credit to private sector during time t; $EXPO_t$ = level of export of goods and services during time t; GEX_t = government expenditure during time t; HCE_t = household consumption expenditure during time t; INF_t = inflation during time t, which represents price levels of goods and services; $IMPGS_t$ = import during time t, AGR_t represent agricultural sector contribution in time *t*, SER_t represent service sector contribution in time *t*, α_0 = the intercept, $\beta_1 \ldots \beta_{10}$ = the parameter of the variables; ε_t = the error term.

Table 1: Variable description, measurement and source.

Variable	Description	Measurement	Source
EXPO	Export	Annual percentage of GDP	WDI
MAN	Manufacturing sector contribution	As a percentage of GDP	WDI
REER	Real effective exchange rate	Annual percentage	IMF
CBPR	Interest rate	Proxied as Central bank policy rate	IMF
DCPS	Domestic credit to private sector	Annual percentage of GDP	WDI
GEX	Government Expenditure	Annual percentage of GDP	WDI
HCE	Household Consumption Expenditure	Annual percentage of GDP	WDI
INF	Price of good and service	Proxied as annual inflation rate	IMF
IMPGS	Imports of Goods and Services	Annual percentage of GDP	WDI
AGR	Agriculture contribution	Annual percentage of GDP	WDI
SER	Service Sector contribution	Annual percentage of GDP	WDI

Source: Author's construct, 2022

THE ARDL CO-INTEGRATION APPROACH

The purpose of this paper is to observe the long run and short-run effects of manufacturing sector development on Ghana's imports along with other determinants of import as controls. The ARDL bounds testing approach to cointegration proposed by Pesaran, Shin and Smith (2001) was employed to examine the effect of manufacturing sector development on Ghana's imports. This approach was used because it gives effective results whether all variables are stationary at the level I(0) or I(1) or mixed integration (Pesaran et al., 2001).

Before employing the ARDL bounds testing approach to examine long-run relationships between dependent and independent variables, the Augmented Dickey-Fuller test and the Philip-Peron test must be conducted to ensure that none of the variables are integrated order at I(2) level. If there is no evidence of the existence of unit root for all variables at level I(2), then the equation of the ARDL model can be specified as follow:

$$\Delta EXP_{t} = \delta_0 + \sum_{i=1}^{k} \gamma_1 \Delta EXP_{t-i} + \sum_{i=1}^{k} \gamma_2 \Delta MAN_{t-i} + \sum_{i=1}^{k} \gamma_3 \Delta REER_{t-i} + \sum_{i=1}^{k} \gamma_4 \Delta CBPR_{t-i} + \sum_{i=1}^{k} \gamma_5 \Delta DCPS_{t-i} + \sum_{i=1}^{k} \gamma_6 \Delta GEX_{t-i} + \sum_{i=1}^{k} \gamma_7 \Delta HCE_{t-i} + \sum_{i=1}^{k} \gamma_8 \Delta INF_{t-i} + \sum_{i=1}^{k} \gamma_9 \Delta IMPGS_{t-i} + \sum_{i=1}^{k} \gamma_{10} \Delta AGR_{t-i} + \sum_{i=1}^{k} \gamma_{11} \Delta SER_{t-i} + \theta_1 EXP_{t-1} + \theta_2 MAN_{t-1} + \theta_3 REER_{t-1} + \theta_4 CBPR_{t-1} + \theta_5 DCPS_{t-1} + \theta_6 GEX_{t-1} + \theta_7 HCE_{t-1} + \theta_8 INF_{t-1} + \theta_9 IMPGS_{t-1} + \theta_{10} AGR_{t-1} + \theta_{11} SER_{t-1} + \mu_t$$

Where Δ is the different operator; δ_0 refers to the intercept; k denotes the maximum lag length; i is the number of lags; γ_i (i = 1,..., 10) denotes the short-run coefficient of the variables; θ_i (I, k = 1, ...,10) de$_n$otes the lo$_n$g-ru$_n$ coefficient of the variables; and μ_t is the disturbance error term. The hypothesis for testing long-run relationship exists among the variables are:

H_0: θi . $_0$. *No lo$_n$g-ru$_n$ relatio$_n$ship*

H_1: $\theta_i \neq 0$, *Long-run relationship*

Whether the null hypotheses of no long-run relationship among the variables will be rejected or failed to be rejected depends on the computed value of F statistics, which is compared to the value of the critical bound to conclude. Three possible conclusions can be drawn. Firstly, if the F-statistic value is higher than the upper-bound critical value, the null hypothesis of no long-run relationship existence would be rejected. This means the variables have a long-run relationship among others. Secondly, if the F-statistics value is less than the lower-bound critical value, the variables do not have a long-run relationship existence. Finally, if the F-statistic value falls between the lower- and upper-bound critical values, the decision is inconclusive.

The Error Correction Model (ECM) for the short-run relationship can be written as follow:

$$\Delta EXP_{t} = \delta_0 + \sum_{i=1}^{n} \varphi_0 \Delta MAN_{t-i} + \sum_{i=1}^{n} \varphi_{11} \Delta REER_{t-i} + \sum_{i=1}^{n} \varphi_{12} \Delta CBPR_{t-i} + \sum_{i=1}^{n} \varphi_{13} \Delta DCPS_{t-i} + \sum_{i=1}^{n} \varphi_{14} \Delta GEX_{t-i} + \sum_{i=1}^{n} \varphi_{15} \Delta HCE_{t-i} + \sum_{i=1}^{n} \varphi_{16} \Delta INF_{t-i} + \sum_{i=1}^{n} \varphi_{17} \Delta IMPGS_{t-i} + \sum_{i=1}^{n} \varphi_{18} \Delta AGR_{t-i} + \sum_{i=1}^{n} \varphi_{19} \Delta SER_{t-i} + \lambda ECM_{t-1}$$

Where, δ_0 is the intercept; φ_{ij} (j, i = 1, ... ,10) denotes the short-run coefficients; λpresents the coefficient of the lagged error correction term (ECMt−1). The coefficient of ECMt−1 shows the adjustment speed from the short-run towards the long-run equilibrium among the variables (Pesaran et al., 2001). The coefficient of ECMt−1 must be statistically significant, and the sign must be negative (Pesaran et al., 2001).

RESULTS AND DISCUSSIONS

Stationarity Test Result

Table 2 shows the results of the Unit Root Test (Augmented Dickey-Fuller and Phillips-Perron tests). The results indicate that inflation, government expenditure and real effective exchange rate, manufacturing sector contribution to GDP, central bank policy rate, domestic credit to private sector, household consumption expenditure, import, agricultural sector contribution to GDP and Service sector contribution to GDP are stationary at the first difference. The inflation variable is the only variable that is stationary at level. The results indicate that the order of integration is a mixture of I (0) and I (1), making it valid to use the Autoregressive distributed lag (ARDL) bound test approach.

Table 2: ADF and PP Unit Root Tests

		ADF Test		PP Test	
Variable		*Intercept*	*Intercept & Trend*	*Intercept*	*Intercept & Trend*
EXP	Level	-1.807308	-1.914938	-1.784259	-1.902547
	1st Difference	-6.623604***	-6.662209***	-6.627579***	-6.734669***
MAN	Level	-2.558717	-2.700641	-2.293335	-2.619690
	1st Difference	-5.623968***	-5.548503***	-6.715564***	-6.746987***
REER	Level	-2.859379*	-2.917451	-2.651013*	-3.412645*
	1st Difference	-7.992566***	-7.938084***	-10.59029***	-16.26563***
CBPR	Level	-1.806349	-2.039280	-1.914204	-2.040115
	1st Difference	-6.811141***	-6.810656***	-6.784981***	-6.795359***
DCPS	Level	-1.429810	-1.438096	-1.395569	-1.211572
	1st Difference	-7.348149***	-7.476753***	-7.367483***	-7.821175***
GEX	Level	-2.959801**	-2.9812292	-3.079105**	-3.099571
	1st Difference	-6.477396***	-6.413884***	-8.183749***	12.16705***
HCE	Level	-1.991045	-2.378295	-2.147146	-2.558969
	1st Difference	-6.939761***	-6.841416***	-6.939761***	-6.841416***

Source: Author's Estimation and E-Views 10 Output
Note: For the unit roots tests, *, ** and *** denote 10%, 5% and 1% levels of significance respectively.

		ADF Test		PP Test	
Variable		*Intercept*	*Intercept & Trend*	*Intercept*	*Intercept & Trend*
INF	Level	-5.303063***	-6.761790***	-5.341447***	-6.761790***
	1st Difference	-7.754013***	-4.645741***	-34.65186***	-40.49499***
IMPGS	Level	-1.874639	-1.435598	-1.797905	-1.154382
	1st Difference	-6.586569***	-7.490314***	-6.505186***	-8.184059***
AGR	Level	-1.259094	-3.728802**	-1.266923	-3.180750
	1st Difference	-7.826858***	-7.809417***	-9.912878***	-9727248***
SER	Level	-1.461112	-2.090261	-1.505554	-2.090261
	1st Difference	-6.212392***	-6.216047***	-6.213151***	-6.217990***

Source: Author's Estimation and E-Views 10 Output
Note: For the unit roots tests, *, ** and *** denote 10%, 5% and 1% levels of significance respectively.

Lag Selection Criteria

To ensure that the lag length is chosen appropriately, the study relied on Akaike Information Criterion (AIC) to select the best lags for the variables and lag two was selected. This test was conducted because inappropriate lag length can lead to biased results which will affect the acceptability of the results.

Table 3 Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1381.178	NA	2.81e+17	71.39373	71.86294	71.56208
1	-1124.284	355.6987	3.32e+14	64.42483	70.05535*	66.44501
2	-913.7516	172.7447*	1.84e+13*	59.83342*	70.62524	63.70543*

** indicates lag order selected by the criterion*

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Source: Author's Estimation and E-Views 10 Output

DIAGNOSTICS TEST

Table 4 shows Breusch-Godfrey LM, Breusch Pagan Godfrey and Ramsey reset results for serial correlation, Heteroscedasticity and functional form tests respectively. The Breusch Godfrey test result indicates that there is no serial correlation and therefore, the export model is good for forecasting. The P-value for Breusch Pagan Godfrey test is 0.991 and it indicates that the variance of the residual is homoscedastic and the model has no heteroscedasticity problem. Also, the P-value of the F-statistic of Ramsey's Reset test was 0.6223 which implies that the model is correctly specified.

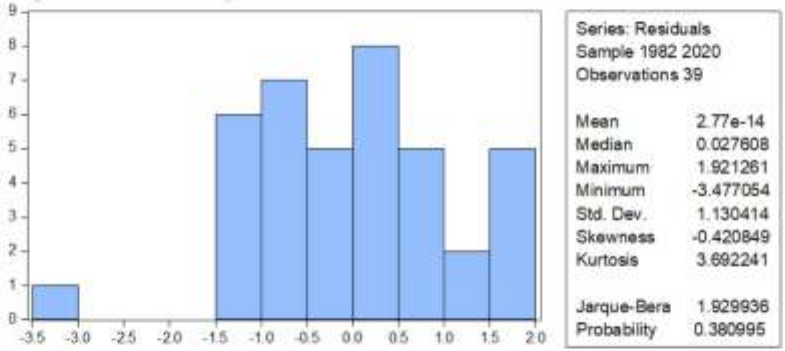
Table 4: Diagnostic Tests

Item	Test Applied	Probability
Functional Form	Ramsey's Reset Test	0.0763
Heteroscedasticity	Breusch-Pagan-Godfrey	0.9906
Serial Correlation	Breusch-Godfrey LM Test	0.2729

Source: Author's Estimation and E-Views 10 Output

Normality Test

Figure 1 shows the graphs of the normality test. This uses the Jacque berra test to ascertain the distribution of the residuals after estimation. The jaque-berra results of 1.929 with an insignificant probability of 0.0381 indicates that the residuals are normally distributed.



Stability Tests For The Long-run Model

Figure 2 shows the graphs of CUSUM and CUSUM square. CUSUM and CUSUM square tests on recursive residuals are used to check the constancy of the coefficient of the long-run model in the sample period. CUSUM and CUSUM of square test results indicate that the coefficient of the long run ARDL is stable. The results of the figures show that the blue line is in the range of critical bonds, so it indicates that the ARDL model is stable.

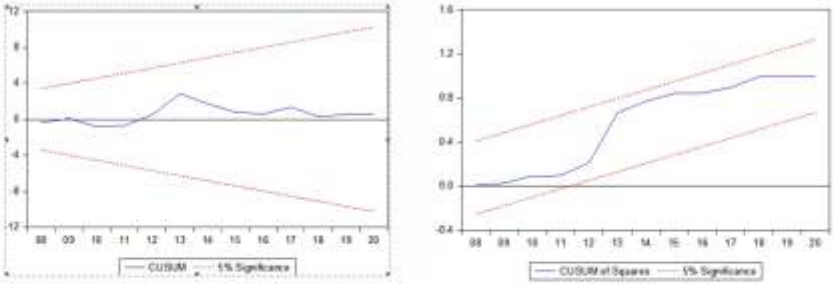


Figure 2 : CUSUM and CUSUMSQ

BOUNDS TEST

In order to examine the existence of a long-run relationship among the variables, the bounds test was performed. The computed F-statistic for the Bounds test is 5.184 and the 5% critical value for the upper critical bound value is 3.04. The computed F-statistic for the bounds test exceeds the 5% critical value for the upper bound, therefore, the null hypothesis of no co-integration against its alternative hypothesis of the presence of co-integration is hereby rejected at 5 % significance level. This implies that long-run cointegration relationships exist among the variables.

Table 5: ARDL Bound Tests

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.183999	10%	1.76	2.77
k	10	5%	1.98	3.04
		2.5%	2.18	3.28
		1%	2.41	3.61

Source: Author's Estimation and E-Views 10 Output

ESTIMATED LONG-RUN RESULTS

Exports was used as dependent variable and manufacturing, real effective exchange rate, central bank policy rate, domestic credit to private sector, government expenditure, household consumption expenditure, inflation, agricultural sector contribution, service sector contribution and imports were used as independent variables in this research paper. The Table 4 is the estimated long run results. Results of the ARDL model indicate that the Manufacturing sector contribution has negative and significant effect on exports in the long run. The coefficient of manufacturing sector contribution (MAN) reveals that 1% increase in manufacturing sector contribution to GDP, decreases exports by 3.62%. This means that in the long-run manufacturing sector contribution to GDP has inverse relationship with export. Holding all other factors constant an increase in manufacturing sector

contribution will lead to a decrease in export. This finding can be attributed to the fact that an increase in manufacturing sector contribution will lead to increase in untilisation of raw materials which most of them are export commodities and also, most of the manufacturing companies' are import substituted companies so their output are mostly consumed locally. This finding is in consistent with the finding of Sankaran, Krishna and Vadivel (2021) who found that the manufacturing output has negative effect on export volume. Their study revealed that a 1% increase in the manufacturing output decreased the total export by 0.43%. They attributed their finding to the fact that manufacturing units need sufficient maturity time to develop exportable commodities.

Theoretically, real exchange rate is expected to reduce the export prices and therefore increase volume of exports. The coefficient of real effective exchange rate shows the negative and significant effect on export levels in the long run. High rate of exchange rate (REER) minimalize effectiveness of country in international market. Results of REER rate indicated that 1% increase in REER in the Ghanaian economy causes a reduction of export levels up to 0.023%. This finding corroborates the finding of Kemal and Qadir (2005) and Nguyen et al. (2021). Kemal and Qadir (2005) found that in the long-run real exchange rate is negatively associated with the exports Household consumption expenditure was found to have negative effect on export. An increase in household consumption expenditure will increase demand of goods and services and therefore, reduces export of goods and services. An increase in household consumption expenditure will decrease export by 0.52 %. Government expenditure, agricultural sector contribution to GDP and service sector contribution to GDP have negative impact on export and inflation rate has positive impact on export in the long-run.

The negative relationship between export and agricultural sector contribution to GDP can be attributed to government of Ghana's industrialisation agenda.

Most of the factories in Ghana are agro-based factories and therefore, increase in production of agricultural output will increase raw materials availability for the firms and will reduce export because the factories will use most of the agricultural output as their inputs.

Table 6: ARDL Long Run Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MAN	-3.615255	0.890164	-4.061337	0.0013
REER	-0.022613	0.005950	-3.800718	0.0022
CBPR	-0.168786	0.109503	-1.541380	0.1472
DCPS	0.034810	0.396277	0.087843	0.9313
GEX	-3.453480	0.601240	-5.743926	0.0001
HCE	-0.521474	0.179681	-2.902215	0.0124
INF	0.289629	0.093449	3.099318	0.0085
IMPGS	0.285840	0.189630	1.507358	0.1556
AGR	-0.405525	0.175279	-2.313592	0.0377
SER	-1.006816	0.387492	-2.598292	0.0221
C	177.8566	34.32645	5.181329	0.0002

*EC = EXP01 - (-3.6153*MAN -0.0226*REER -0.1688*CBPR + 0.0348*DCPS -3.4535*GEX -0.5215*HCE + 0.2896*INF + 0.2858*IMPGS -0.4055*AGR -1.0068*SER + 177.8566)*

Source: Author's Estimation and E-Views 10 Output

Error Correction Model Results

The R-squared of the error correction model indicates 95% variation in Ghana's export is explained by the independent variables and when taken a degree of freedom the variation is 92.3% as explained by the adjusted R-Square AIC and SIC values show that the model fits for analysis.

Durbin Watson value is 2.06 which indicates that there is no problem with autocorrelation in the data. F statistics values show that the Model is fit (Gujarati, 2003). The error correction term (CointEq(-1)) was found to be statistically significant at 1% significant level and also had the negative expected sign. The error correction term explains the extent to which any disequilibrium that shall occur in the short run will be corrected in the long run and the greater

the value in absolute terms, the faster the rate of convergence to equilibrium. The estimate of the error correction model for this study is -1.06 implies that hundred percent (100%) of the adjustment takes place within the period.

Manufacturing sector contribution to GDP was found to have a negative relationship with export in the short-run. An increase in the manufacturing sector contribution to GDP decreases export in Ghana. Real exchange rate has negative relationship with export in the short-run. This shows that an appreciation will result in a decrease in export of goods and services in the short-run.

Domestic credit to private sector is significant at five percent and has positive relationship with exports in the short run. An increase in domestic credit to private sector increases exports by 0.64 percent. This implies that the more the private sector gets access to credit the more their able to produce for export which will increase forex for the country.

Table 7: ARDL Error Correction Regression — *Selected Model: ARDL(1, 1, 2, 2, 1, 2, 0, 1, 2, 1, 2)*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MAN)	-2.231690	0.351686	-6.345686	0.0000
D(REER)	-0.007756	0.001330	-5.830133	0.0001
D(REER(-1))	0.004823	0.001122	4.297556	0.0009
D(CBPR)	-0.124947	0.050994	-2.450239	0.0292
D(CBPR(-1))	-0.283677	0.061504	-4.612361	0.0005
D(DCPS)	0.640094	0.235307	2.720255	0.0175
D(GEX)	-1.150697	0.183814	-6.260121	0.0000
D(GEX(-1))	2.058291	0.289218	7.116736	0.0000
D(INF)	0.164307	0.021592	7.609766	0.0000
D(IMPGS)	0.364172	0.054637	6.665271	0.0000
D(IMPGS(-1))	0.153565	0.044952	3.416209	0.0046
D(AGR)	-0.104594	0.103455	-1.011006	0.3305
D(SER)	-0.627369	0.105417	-5.951309	0.0000
D(SER(-1))	0.500180	0.101146	4.945112	0.0003
CointEq(-1)*	-1.062260	0.099123	-10.71660	0.0000

R-squared	0.951109	Mean dependent var	0.704220
Adjusted R-squared	0.922589	S.D. dependent var	5.112377
S.E. of regression	1.422407	Akaike info criterion	3.826301
Sum squared resid	48.55778	Schwarz criterion	4.466132
Log likelihood	-59.61286	Hannan-Quinn criter.	4.055867
Durbin-Watson stat	2.061644		

Source: Author's Estimation and E-Views 10 Output

Conclusion and Recommendations

This research paper examined the effect of manufacturing sector and domestic credit to private sector on export in Ghana. ARDL model was employed and the study found that the manufacturing sector contribution to GDP has a negative effect on exports in both the short-run and long-run. Also, the study found that domestic credit to private sector has positive effect on export in the short-run. This reveals that an increase in domestic credit to private sector holding all other factors constant will increase export of goods and services in Ghana.

Government expenditure, real exchange rate, central bank policy rate and inflation were other variables that were found to have effect on export in the short-run. Real exchange rate, government expenditure, household consumption expenditure, inflation, agricultural contribution to GDP and service contribution to GDP were also found to have effect on export in Ghana in the long-run.

Based on the findings, this study recommends that the Ghana Export-Import bank should continue to provide credit to businesses that produce export products. Increase in credit to businesses that produce exported products will increase production of the products which will lead to increase in export and forex. The study also recommends that Ghana Export-Import bank should support manufacturing companies that produce exportable products to produce goods for export.

REFERENCES

Golder, U., Sultana, F., & Hossain, M. K. H. (2022). Finance-Growth Nexus in Bangladesh: Is it Important to Quantify Financial Development? *Available at SSRN 4018336*.

Heckscher, E. 1919. The effect of foreign trade on the distribution of income. Ekonomisk Tidskriff: 497–512. Translated as chapter 13 in American Economic Association, Readings in the theory of international trade. Philadelphia: Blakiston, 1949, and a new translation is provided in Flam and Flanders (1991).

Helpman, E. (1999). The Structure of Foreign Trade. *Journal of Economic Perspectives*, 13 (2): 121-144.
Martin, T., Fauzi, M. A., Nallaluthan, K., & Balasundran, K. (2021). The Role of manufacturing exports in the economic development in Malaysia. *International Journal of Academic Research in Economics and Management and Sciences*, 10(2), 92–109

Ngondo, M., & Khobai, H. (2018). *The impact of exchange rate on exports in South Africa*.
Nweke, A. M., Eze, O. M., & Atuma, E. (2020). Analysis of the Effect of Exchange Rate Depreciation on Export Performance in Nigeria. *IORS Journal of Business and Management*, *22*(6), 48-60.
Ohlin, B. (1924). The Theory of Trade. Translated and reprinted in Flam, H., & Flanders, M. J. (editors and translators), *Heckscher-Ohlin Trade Theory*. Cambridge: MIT Press.

Rilwanu, I. S. (2021). The effect of exchange rate on export in Nigeria: the role of financial development. *International Journal of Management, Social Sciences, Peace and Conflict Studies*, *4*(4).

Sankaran, A., Krishna, A. & Vadivel, A. (2021). How does manufacturing output affect export behaviors in emerging market economies? Evidence from a dynamic panel ARDL for ten biggest emerging m arket economies. *Future Business Journal*, 7, 26

Siddiqui, A. H. (2018). Export diversification and growth in Pakistan: An empirical investigation from 1972 to 2015 1. *Business and Economic Review*, *10*(1), 107-131.

Tsaurai, K. (2019). *How relevant is financial sector development in the FDI-exports nexus in BRICS?*.

Fugazza, M. (2004). Export performance and its determinants: supply and demand constraints. *Policy Issues in International Trade and Commodities Study Series*, (26).

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326.

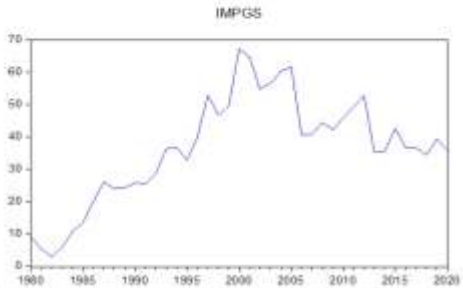
Mervar, A. (2009). The tourism-growth nexus in Croatia. *Tour Econ*, *16*(4), 1089-1094.

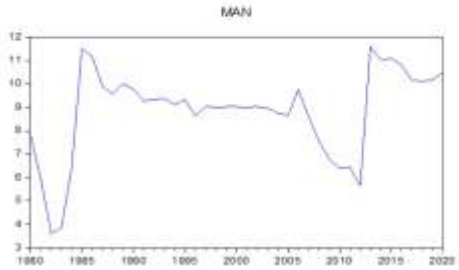
APPENDICES

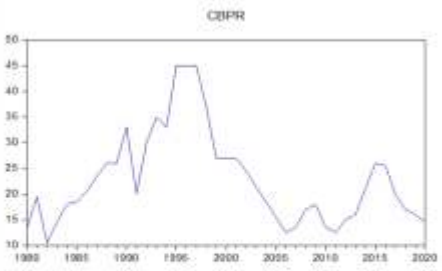
DESCRIPTIVE STATISTICS OF THE VARIABLES

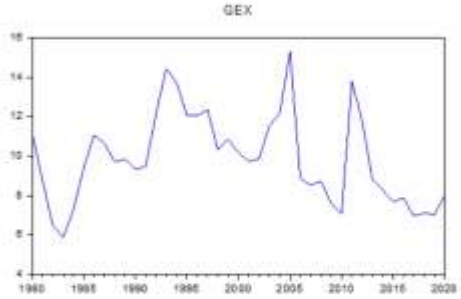
	EXP01	IMPGS	MAN	REER	CBPR	DCPS	GEX	HCE	INF	AGR	SER
Mean	26.418	36.510	8.821	283.475	22.744	9.310	9.848	82.372	29.286	36.036	36.444
Maximum	48.802	67.246	11.586	3054.03	45.000	15.882	15.308	94.231	123.061	59.731	48.181
Minimum	3.338	2.982	3.606	67.097	10.500	1.542	5.861	71.295	7.112	17.323	26.246
Std. Dev.	11.589	16.513	1.891	567.704	9.135	5.109	2.301	6.078	22.280	12.089	7.226
Skewness	-0.276	-0.261	-1.016	3.694	1.027	-0.196	0.425	-0.105	2.334	0.130	0.231
Kurtosis	2.313	2.508	3.736	16.553	3.373	1.422	2.506	2.308	9.452	2.069	1.650
Jarque-Bera	1.328	0.879	7.978	407.01	7.451	4.510	1.653	0.894	108.358	1.594	3.476
Probability	0.515	0.644	0.019	0.000	0.024	0.105	0.438	0.639	0.000	0.451	0.176
Observations	41	41	41	41	41	41	41	41	41	41	41

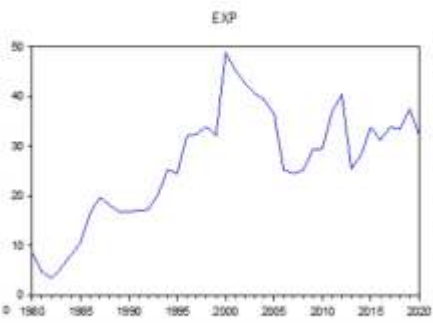
Graphs

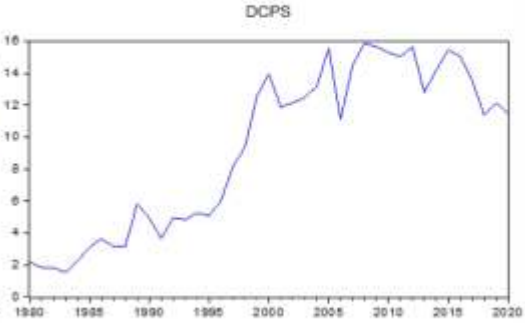


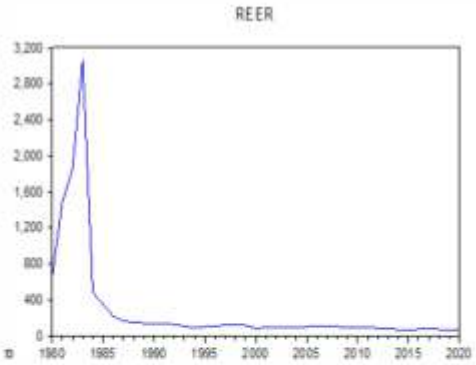


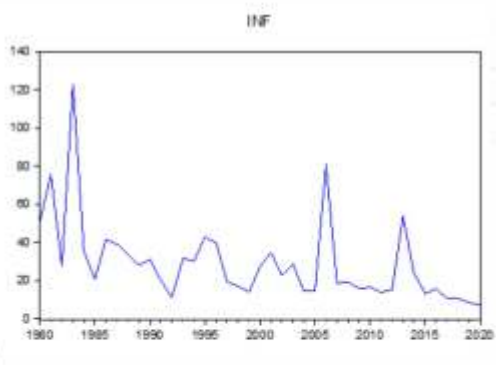


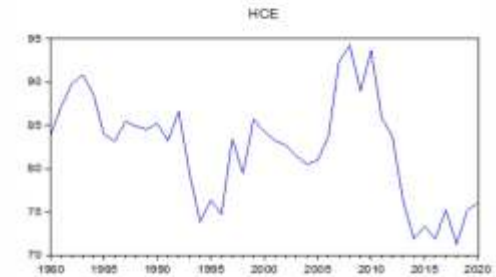


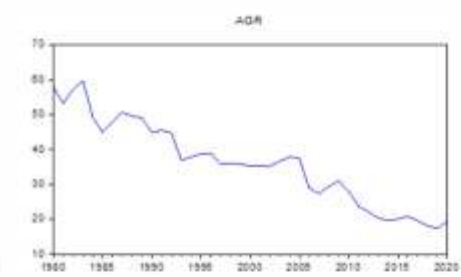

EXP

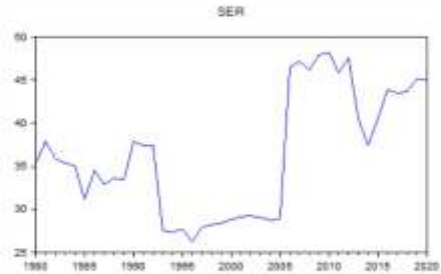

DCPS


REER


INF


HCE


AGR


SER

GEXIM, THROUGH THE IDIF INITIATIVE HAS FINANCED THE CASA DE ROPA IN THE CENTRAL REGION CREATING OVER 1000 JOBS

5,000 direct and indirect jobs in JUTE BAGS & SACKS processing, created through **Royal Jute Limited** in the Ashanti Region

GEXIM, THROUGH THE IDIF INITIATIVE HAS FINANCED AKUAPEM GOLD AGRO PROCESSING LIMITED

Do you know that the BOSKWAN MULTI-FRUIT PROCESSING FACTORY is a GH¢45 million project, which is expected to provide direct employment for over one hundred (100) people and generate at least one thousand (1,000) indirect job opportunities particularly for the youth of this area.

Cassava Enterprise Project. The main aim is to take advantage of the potentials and opportunities in the cassava industry, while tackling its challenges.

Did you know **high quality** and **nutritious** vegetables are grown right here in Ghana?

60 jobs in PINEAPPLE JUICE processing to be created by 2021, through **Nene Foods**

WEDDI

AFRICA TOMATO PROCESSING AND AGRO FARMS

Dormaa, Berekum West District

250 people employed in GARMENTS & APPAREL making

GHANA EXIMBANK

The Ghana export-import Bank (GEXIM) is a corporate body established by the Ghana export-import bank act, 2016 (Act 911).

The objective of the bank is to support and develop directly or indirectly trade between Ghana and other countries, and also build Ghana's capacity and competitiveness in the international market place.

The bank's operational functions are summarized under the following three categories:

A) Support For International Trade
- Credit
- Overseas investment
- Market advisory service

B) Building Ghana's Capacity In International Trade Market
- Supplier's and buyers credits
- Export finance
- Import finance (Manufacturing of goods for export)
- SME financing (Agro-processing and export)
- Equity financing
- Domestic investment (Support of export or import)
- Export product development and capacity building. Other financial services.

C. Facilitation
- Guarantees
- Insurance

We look forward to working with businesses and entrepreneurs operating within the bank's mandate areas with a view to facilitating Ghana's international trade.

HEAD OFFICE

AFRICA TRADE HOUSE
Ambassadorial Enclose, Liberia Road.
Ridge – Accra.

P.O. Box MB 493, Accra.
0302 234 668/9

CONTACTS

Kumasi: 0578 594 352 / 0578 594 351
Takoradi: 03012 002 263
Ho: 0362 028 392
Tamale: 0372 028 053

Info@eximbankghana.com
www.eximbankghana.com

enquiry@eximbankghana.com
www.eximbankghana.com

@eximbankghana