

An Empirical Analysis on the Causality Effect between Aggregated Imports and Economic Growth for Botswana

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Abstract: This study examined the causal relationship between Aggregated Imports and Economic Growth of Botswana for the period 1979 to 2014. In this study we use the Granger Causality to estimate the regression equation. The first step is to make the data stationary to avoid spurious regression. Based on the stationarity test results, cointegration tests were conducted to test for the existence of long-run relationship between Aggregated Imports and Economic Growth. The Error Correction Model (ECM) was employed to establish the short-run dynamics and speed of adjustment to the long-run. The estimation results for both the short-run and joint period revealed that there is no relationship between Aggregated Imports and Economic Growth. However, in the long-run period, there was evidence of causality, with Economic Growth granger causing Aggregated Imports.

Keywords: Economic growth, Aggregated Imports, Error Correction, Granger Causality, Cointegration.

1. INTRODUCTION

The debate on the causal relationship between Aggregated Imports and Economic Growth world over remain a moot point. Some studies which were carried out gave results which differed according to country specifics. Some studies found that there is no causal relationship between the variables, with others finding causality running from uni-directional to bi-directional. Frankel and Romer (2001) asserts that imports benefit growth in three ways, through Importation of Consumer goods, Importation of Intermediate goods and Importation of Capital goods. In contrast, Chen (2009) argues that imports impact negatively on growth, as they are leakages from the economic cycle, hence need to be bottled up. It is in the interest of this study to find out how aggregated imports relate to economic growth in Botswana.

BACKGROUND OF THE STUDY:

Botswana is a net exporter of goods and services. Net exports accounted for 18% of GDP in 2005 (World Bank, 2017). The main exports are diamonds, copper, nickel, soda ash, beef and textiles. Botswana is the world's largest producer of quality gem diamonds which account for about 70% of exports by value (World Bank, 2016). Botswana is a major exporter of beef, mainly to the EU. The country imports foodstuffs, machinery, consumer goods, transport equipment, petroleum products, wood and paper products, and metal and metal products, with the Botswana Export Development and Investment Authority (BEDIA) supporting the development of export business (Common Wealth Network, 2018).

The graph below depicts the data trend followed by Aggregated Imports and Economic Growth for Botswana. The data are analysed on annual time series basis, with 35 observations, covering period from 1979 to 2014. A line graph was used in this analysis, due to its ability to track changes over short and long periods of time (Gay, 1987). When smaller changes exist, line graph are better to use than bar graphs (Gay, 1987).

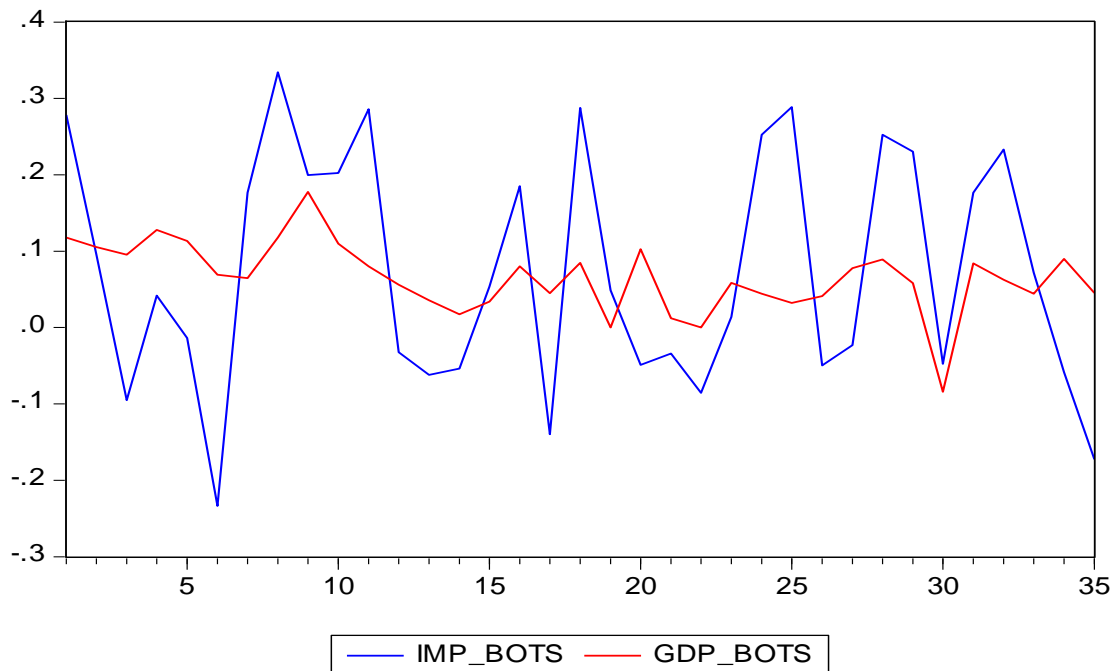


Figure 1: Aggregated Imports (IMP) and Gross Domestic Product (GDP) Trend for Botswana (Bots). Adapted from *Global Economy Data Base, (2017)*

The data for Aggregated Imports and Economic Growth for Botswana seem to be following the same trend, whereby when Aggregated Imports takes a positive trajectory, Economic Growth (GDP) does the same and vice-versa. It is, therefore, in the interest of this study, to empirically determine the nature of the relationship between the two macro-economic variables, so that possible policies that enhance growth can be recommended for the country.

PROBLEM STATEMENT:

Given the theoretical implications associated with imports on the growth of economies, with the first implication being from development economics perspective that, the demand for goods and services from domestic firms are shifted to foreign products, resulting in domestic firms shutting down operations due to suppressed demand, leading to increased unemployment rate (Chen, 2009). The second implication being that imports benefit growth through the importation of consumer goods, importation of intermediate goods and the importation of capital goods, which are paramount in the production process (Romer, 2001). Furthermore, given the empirical relationship depicted in Figure 1 above, which seem to be contradicting Chen's (2009) assertion and validating Romer's (2001) edict, it is in the interest of this study, to empirically determine how Aggregated Imports are related to Economic Growth, in the short-run, long-run and joint periods for the Botswana Economy, so that informed policies are determined.

RESEARCH OBJECTIVES AND HYPOTHESIS

The objective of this study is to determine the causal relationship between Aggregated Imports and Economic Growth, in the short-run, long-run and joint period for Botswana. It also seeks to make recommendations that would assist policy makers to come up with informed trade policies that improves economic growth. The hypothesis that pinned this study is that, by rejecting the null hypothesis in the short-run, long-run and joint periods, suggests the alternative hypothesis would have been accepted, meaning acausality is running either from uni-directional to bi-directional. On the other hand, rejecting the alternative hypothesis suggests that there is no causality between Aggregated Imports and Economic Growth.

2. LITERATURE REVIEW

Empirical literature exists on the relationship between exports and growth, largely because of its bi-directionality nature. Therefore, relative to the empirical literature on exports and economic growth, the number of empirical studies on the relationship between Aggregated Imports and Economic Growth is quite limited. A large body of trade and development literature generally considers exports as a vehicle to accelerate economic growth. However, very little attention is paid on the role of imports in promoting growth (Lawrence and Weinstein, 1999, Kim, 2007).

Although most of the empirical works support the export-led-economic growth hypothesis, there is no overall consensus on this issue. Some economists (Krueger, 1980; Balassa, 1987; 1987; Chow, 1987, Salvatore and Hatcher, 1991) seem to generally agree that exports benefit economic growth, with (Kwan and Cotsomitis, 1990; Dodaro, 1993; Oxley, 1993; Yaghmaian, 1994) as cited by Ahmad (2002), finding no support to the export-led-economic growth hypothesis. Reizman (1996), gave emphasis on the significance of imports in the export-economic growth relationship. Utilizing a multivariate framework to incorporate the role of imports, he found evidence of uni-directional causality from exports to economic growth-conditional on imports growth in only 30 countries out of 126 countries analyzed. This outcome contrasts sharply with some studies that ignore the role of imports in influencing economic growth.

Islam (2012), using the autoregressive distributed Lag (ARDL) model with the Granger Causality test, examined the imports-growth nexus in 62 countries and found that the direction of causality depends on the level of income. Their study revealed evidence in high-income countries like South Africa thereby supporting the imports-led growth hypothesis, while low income countries showed bi-directionality.

Evans (2013), using a multivariate VAR framework for the 1973 -2005 period in four Sub Saharan African countries, he found practical evidence for imports-led growth in South Africa, Kenya and Nigeria while there was no evidence of association between the two variables in Ghana. On the other hand, Coe and Helpman (1993) as cited in (Evans, 2013) studied the contribution of imported intermediate goods to economic growth. They conducted a study on productivity of foreign research and development on a pooled data set of 22 countries during the period 1970-1990. In their model, the measure of foreign research and development capital stock was imports share-weighted average of trade partners' domestic research and development. This suggests that technology is gained by buying intermediate goods. The result indicated that foreign Research and Design, as measured by imports flow, for developing countries has influential effect on domestic productivity and it is much stronger if the economy is more open to foreign trade. However, unlike developing countries, for a developed country, the domestic research and development is stronger than foreign research and development, their study confirmed.

Coe (1997) studied the effect of foreign research and development on productivity based on data for 77 developing countries over the period 1971-90. The results revealed that imports of machinery and equipment from industrialised first world countries positively and significantly affect total factor productivity in developing countries and a 1 % increase in the research and development embodied in capital stock in the industrial countries leads to an average of 0.1 % increase in output in the developing countries. According to their research findings, United States is the most important industrial country which is a trade partner for many developing countries and therefore the largest spill over to the third world.

Also, Keller (2004) carried out a study that revealed results similar to that of Coe (1997). He conducted a study on productivity of imports of intermediate goods that embody new technology using industry level data for eight OECD countries during the period 1970-1991. The results showed that productivity of foreign research and development as measured by imports of intermediate goods is less for developed countries. Lopez and Thomas (1990) as cited in (Sewasew Pawlos 2002), estimated imports model for the seven Sub-Saharan African countries with slight modification from that of using Ordinary least squares estimation procedure for the period 1966-86. The major difference of their model from one that was done by Moran (1989), is that they used export-debt ratio as an indicator for imports capacity, absorption as a percentage of GDP as another very influential demand variable, in addition to the real GDP and real effective exchange rate, instead of the relative price. In this study, it was shown that real income elasticity of imports has the expected sign and is statistically significant except for two countries.

However, Habibullah (2007), had a different approach where he tested for financial-led, export-led and imports-led growth hypotheses on four Asian emerging economies, Singapore, South Korea, Taiwan and Thailand. They employed a vector error correction model (VECM) to distinguish between short-run and long-run causal effects in examining the three led growth determinants. The empirical results suggest that financial deepening leads to economic growth in South Korea, Singapore and Thailand. In terms of exports, their findings demonstrate that export-led growth hypothesis is supported for all four Asian economies namely, Singapore, South Korea, Taiwan and Thailand.

Saungweme (2013) on the other hand gave a brief account of Zimbabwe's trade dynamics for the 1980-2012 periods. He revealed that the economy moved from being close to self-sufficiency in the 1990s to a totally imports dependent by 2008. This showed that there was a total economic transition from being export-oriented to imports-oriented economy according to the report. This gives a suggestion that imports have been expanding over the years given the economic growth that has been achieved so far. Amiri and Gerdtham (2008) studied the relationship among imports, exports and economic growth of France from 1961 to 2006.

The variables used are real GDP, imports and exports. The existence of cointegration between variables has been tested by using autoregressive distributed lag (ARDL) technique. Empirical, results imply that cointegration exists between variables. Linear Granger's causality test and causality test with geo-statistical methods have been employed to find the causality direction between variables. Both tests showed uni-directional causality from imports to economic growth and from exports to economic growth.

Lim and Park (2007), using quarterly data from 1980 to 2003, investigate the relationship between exports, imports, and economic Growth in Republic of Korea. Results indicate that imports have a significant positive effect on productivity growth but exports do not. Furthermore, the evidence reveals that the productivity-enhancing impact of imports is due to competitive pressures arising from consumer goods imports and technological transfers embodied in capital goods imports from developed countries. Most of the study's results still hold using gross domestic product growth rather than productivity growth as the measure of economic growth. The evidence implies that in certain conditions, imports liberalisation can make a positive and significant contribution to economic growth and development.

To reach almost similar conclusions although a bit different to the above findings, Tong (1995) as cited in (Chen, 2009) explored the relationship between economic growth and imports, and he recognized that imports at different times contributed to economy differently, but as a whole, there was a positive correlation between imports and economic growth. Humpage (2000) on the other hand, stressed that imports do not lower economic growth. He believed that imports and economic growth are positively correlated, with causality running in both directions. He went on to say that, faster economic growth does lead to higher imports and countries that are opened to trade tend to grow faster than those with a closed economy or less accessible.

The finding of these studies, clearly exhibits a mixed and inconclusive facts as to how imports are related to economic growth. Also, the findings failed to capture the heterogeneity as well as spatial effects between the countries which could result in potential bias in the estimates. It can be understood from the given background that economic policy makers face the difficult question of how best to promote rapid, sustainable economic growth in the face of depleted stocks of irreproducible natural resources.

Rather, improvements in technology are the best chance we have to overcome the apparent limits to growth. If greater output requires greater tangible inputs, then it seems more than likely that the fixity in the supplies of several of the earth's resources eventually will mean an end to rising per capita incomes. But if mankind continues to discover ways to produce more output or better output, while conserving on those inputs that cannot be accumulated or regenerated, then there seems no reason why living standards cannot continue to rise for many centuries to come.

3. MATERIALS AND METHOD

This section explores the econometric methodology applied in the study to establish the causal relationship between Aggregated Imports and Economic Growth for Botswana. The study employs secondary annual time series data to determine the existence of relationship between Aggregated Imports and Economic Growth for Botswana from 1979 to 2014. In this study, we use the Granger Causality Test to estimate the equation. The estimation procedure was such that, unit root test is first undertaken to determine the order of integration of the variables and was done using the ADF and PP tests. The results show that there is no unit root across the Botswana's data.

Given the significant confirmation for unit root, this research proceeded to test Economic Growth (GDP) and Aggregated Imports (IMP) for cointegration, in order to determine if there is a long-run relationship between the two macro-economic variables. The cointegration test significantly rejected the null hypothesis of no cointegration. The results lead to the conclusion that Aggregated Imports and Economic Growth move together in the long-run, indicating that there is a long-run steady state relationship between the variables for Botswana. Lastly for the determination of short-run dynamics and speed of adjustment to the long-run, the Error Correction Model, applied to Granger Causality Test was considered. Normality Test using the Jacque Bera normality Test and Correlation Test using Correlation Matrix were carried out.

The theoretical basis of the model is a linear relationship between Economic Growth as the dependent variable and Aggregated Imports and the lagged term of Economic Growth as the explanatory variables. Also, Aggregated Imports as the dependent variable and Economic Growth and the lagged term of the Aggregated Imports as the explanatory variable. The relationship between Economic Growth and Aggregated Imports for Botswana can be specified as,

$$\Delta IMP_t = \alpha_{10} + \sum_{i=1}^{q_{11}} \alpha_{11i} \Delta IMP_{t-i} + \sum_{j=1}^{q_{12}} \alpha_{12j} \Delta GDP_{t-j} + \alpha_{13} \varepsilon_{t-1} + u_{1t}$$

$$\Delta GDP_t = \alpha_{20} + \sum_{i=1}^{q_{21}} \alpha_{21i} \Delta GDP_{t-i} + \sum_{j=1}^{q_{22}} \alpha_{22j} \Delta IMP_{t-j} + \alpha_{23} \varepsilon_{t-1} + u_{2t} \dots\dots\dots 01$$

The *IMP* and *GDP* refer to the Aggregated Imports and real Gross Domestic Product in natural logarithmic form, respectively. The Δ is the difference operator, q is the number of lags which have been optimally determined by the AIC, α is the parameter estimated, u is the serially uncorrected error terms and ε_{t-1} is the error correction term which is derived from the cointegration relationship, meaning to say, it captures the long-run dynamics. Where Δ is the first difference operator, ε_{t-1} is the error correction term, α is the short-run co-efficient of the error correction term ($-1 < \alpha < 0$) and u is the white noise.

The error correction co-efficient α is very important in this error correction estimation as greater co-efficient indicates higher speed of adjustment of the model from the short-run to the long-run. The error correction term represents the long-run relationship. A negative and significant co-efficient of the error correction term indicates the presence of long-run causal relationship (Granger, 1988). If both the co-efficient of error correction terms in the two equations are significant, this suggests the bi-directional causality.

In interpreting the causal relationship results, if only α_{13} is negative and significant, this suggest a uni-directional causality from aggregated imports to economic growth, implying that aggregated imports drives economic growth towards long-run equilibrium but not the other way round. Similarly, if α_{23} is negative and significant, this suggests uni-directional causality from economic growth to aggregated imports, implying that economic growth drives aggregated imports towards long-run equilibrium but not the other way around. The lagged terms of ΔGDP_t and ΔIMP_t appeared as explanatory variables indicating short-run cause and effect relationship between the two macro-economic variables.

Thus, if the lagged co-efficient of ΔGDP_t appear to be significant in the regression of ΔIMP_t , it would mean that Economic Growth causes Aggregated Imports. Similarly, if the lagged co-efficient of ΔIMP_t appear to be significant in the regression of ΔGDP_t , this mean that Aggregated Imports cause Economic Growth. Ultimately, the joint test, represented by this model ($\lambda_1/\Delta IMP^*$ or $\lambda_2/\Delta GDP^*$) are implemented to check for a strong causality test, where the variables bear the burden of a short-run adjustment to re-establish in a long-run equilibrium, following a shock to the system.

Since the period of analysis has been divided into three, that is, the short-run, long-run and joint periods, the interpretation of results is based on the periods of analysis. In interpreting causality test results of the short-run and joint periods, F-statistic and its P-values are used, with the long-run period using the t-statistic value and its probability values. For the variable to be significant in influencing the other variable, its probability value should fall within the 5% significance level, meaning that the null hypothesis of no causation is rejected at 5% significance level. The joint period analysis used the F-statistic against its Prob (F-statistic) to determine if there is causation and the interpretation of results are the same as that of short-run and joint period.

We the take the logarithmic of the variables. This is because most economic time series are non-stationary. By the same token the model given above is in logarithmic form. The natural logarithms smoothen the data as they allow for the management of high magnitude of figures and give the direct estimation of economic growth sensitivity to explanatory variables.

4. DATA ANALYSIS AND INTERPRETATION OF RESULTS

This section focuses on the empirical estimation, presentation and economic interpretation of the regression results carried out using the methodology highlighted in the previous section.

PRELIMINARY TESTS:

Table 1: Descriptive Statistics for Botswana

	BOTSGDP	BOTSIMP
Mean	7.411111	2.843333
Median	7.100000	2.100000

Maximum	15.80000	8.630000
Minimum	1.600000	0.530000
Std. Dev.	4.032566	2.331181
Skewness	0.343295	1.202203
Kurtosis	2.124718	3.341381
Jarque-Bera	1.856287	8.846567
Probability	0.395287	0.101995
Sum	266.8000	102.3600
Sum Sq. Dev	569.1556	190.2042
Obs	36	36

Table 1 shows descriptive statistics of the dependent and explanatory variables used in the study for the period 1979 to 2014. Maximum and minimum statistics rule out the possibility of outliers in the data used. Classical linear regressions require that the residuals be normally distributed and judging by the probability value of the Jarque Bera, both the variables residuals follows a normal distribution therefore, the test for correlation between the variables can be conducted.

CORRELATION TEST:

The correlation matrix is used to test the linear relation among the explanatory variables. It is also important in determining the strength of explanatory variable in the explaining the dependent variable. Further, it helps in identifying which variable to include and those to drop from the model, especially if more than two variables are being used. The correlation matrix in Table 2 below presents the outcome of the correlation tests.

Table 2: Correlation Matrix Results for Botswana

	BOTS_GDP	BOTS_IMP
BOTS_GDP	1	0.9317
BOTS_IMP	0.9317	1

Empirical findings on the data for Botswana revealed a strong linear relationship between aggregated imports and economic growth as indicated by the value of the co-efficient of 0.9317, which is closer 1. The results, therefore, suggest that the two variables have a stable relationship which can be easily projected.

STATIONARITY TEST RESULTS:

Table 3: Unit root Tests Results for Botswana

Country	Variable	Lag	ADF				PP			
			No time effects		Time fixed effects		No time effects		Time fixed effects	
			Level	Δ	Level	Δ	Level	Δ	Level	Δ
BOTS	GDP	0	1.94	-5.70*	-0.83	-6.35*	3.74	-5.70*	-0.57	-6.76*
	IMP	2	0.62	-4.19*	-2.56	-4.42*	0	-2.78***	-1.73	-2.27

Notes: Δ denotes the first differences. All variables are in natural logarithms. *, **, *** Means that the null hypothesis of the unit root in the ADF and PP tests are rejected at the 1%, 5% and 10% levels respectively. The lag lengths are selected using Akaike's information criterion.

Macroeconomic time series data are generally characterized by a stochastic trend which can be removed by differencing. Some variables are stationary on levels, others become stationary after one differentiation, and some may become stationary by more than one differentiation. However, the study considers the level and first differencing for both Augmented Dickey-Fuller and Phillips and Perron (PP) test in determining the stationarity of the series for each country data set. The tests rely on rejecting a null hypothesis of unit root in favour of the alternative hypotheses of stationarity. The tests are conducted without a deterministic trend for each of the series on no time effects.

Under the no time fixed effects, Botswana GDP data are non-stationary at all levels, with a t-statistic value of 1.94, greater than the critical values of -3.632900 at 1% level, -2.948404 at 5% level and -2.612874 at 10% level. After differencing, the GDP data become stationary at 1% level, with a critical value of -3.639407, being greater than the t-statistic value of -5.70. The other critical values recorded are -2.951125 at 5% level and -2.614300 at 10% level. Under the time fixed effects, the GDP data are non-stationary at all levels, with a t-statistic value of -0.83, greater than the

critical values of -4.243644 at 1% level, -3.544284 at 5% level and -3.204699 at 10% level. After differencing, the GDP data become stationary at 1% level, with a critical value of -4.252879, greater than the t-statistic value of -6.35. The other critical values recorded are -3.5490 at 5% level and -3.207094 at 10% level.

Under the no time effects, Botswana GDP data are non-stationary at all levels, with an adjusted t-statistic of 3.74, greater than the critical values of -3.632900 at 1% level, -2.948404 at 5% level and -2.612874 at 10% level. After differencing, the GDP data became stationary at 1% level, with a critical value of -3.639407, being greater than the adjusted t-statistic value of -5.70. The other critical values recorded are -2.951125 at 5% level and -2.614300 at 10% level. Under the time fixed effects, the GDP data are non-stationary at levels, with an adjusted t-statistic of -0.57, greater than the critical values of -4.243644 at 1% level, -3.544284 at 5% level and -3.204699 at 10% level. After differencing, the GDP data become stationary at 1% level, with a critical value of -4.252879, being greater than the adjusted t-statistic of -6.76. The other critical values recorded are -3.548490 at 5% level and -3.207094 at 10% significance level.

Under the no time fixed effects, Botswana aggregated imports data are non-stationary at all levels, with a t-statistic value of 0.62, greater than the critical values of -3.646342 at 1% significance level, -2.954021 at 5% level and -2.615817 at 10% level. After differencing, the aggregated imports data became stationary at 1% level, with a critical value of -3.646342, being greater than the t-statistic value of -4.19. The other critical values recorded are -2.954021 at 5% level and -2.615817 at 10% significance level. Under the time fixed effects, the GDP data are non-stationary at all levels, with a t-statistic value of -2.56, greater than the critical values of -4.252879 at 1% level, -3.548490 at 5% level and -3.207094 at 10% level. After differencing, the aggregated imports data become stationary at 1% level, with a critical value of -4.262735, being greater than the t-statistic value of -4.42. The other critical values recorded are -3.552973 at 5% level and -3.209642 at 10% significance level.

Under the no time effects, Botswana aggregated imports data are non-stationary at all levels, with an adjusted t-statistic of 0.00, greater than the critical values of -3.632900 at 1% level, -2.948404 at 5% level and -2.612874 at 10% level. After differencing, the aggregated imports data became stationary at 10% level, with a critical value level of -2.614300, being greater than the adjusted t-statistic value of -2.78. The other critical values recorded are -3.639407 at 1% level and -2.951125 at 5% level. Under the time fixed effects, aggregated imports data are non-stationary at levels, with an adjusted t-statistic of -1.73, greater than the critical values of -4.243644 at 1% level, -3.544284 at 5% level and -3.204699 at 10% level. After differencing, the aggregated imports data still remained non-stationary as the critical values of -4.252879 at 1% level, -3.548490 at 5% level and -3.207094 at 10% level all smaller than the adjusted t-statistic value of -2.27. The findings for the Augmented Dickey Fuller have been used for both cointegration and causality tests in this study.

COINTEGRATION TEST:

Prior to the test for cointegration, we first determine the lag length of the estimation which must be small enough to allow estimation and high enough to ensure that errors are approximately white noise. The lag length selection procedure is based on five different information criteria: AIC, SIC, HQ, FPE and LR. However, the study implemented the AIC criteria to determine the lag length. The table 4 below shows the cointegration tests results.

Table 4: Cointegration Tests Results for Botswana

Country	Null hypothesis	Test statistic	
		Max Eigen	Trace
BOTS	$r = 0$	12.883*	12.941*
	$r \leq 1$	0.058	0.058

*Notes: Max Eigen and Trace statistics indicate 1 cointegrating equations at the 5% level for BOTS, ZAM and MW only. * Denotes that the null hypothesis of no Cointegration relationship is rejected at 5% significance level.*

Cointegration test was performed using Johansen's maximum likelihood approach to examine whether there is a long-run relationship between real GDP and imports for Botswana. The results confirm the existence of cointegration between aggregated imports and economic growth, as supported by the Maxi-Eigen value of 12.883, with a calculated P-value of 0.0253, falling within the 5% significance level, making it statistically significant. Since there is evidence of cointegration the study proceeds to test for causality.

GRANGER CAUSALITY TEST:

Table 5: Granger Causality Test Results and Interpretation for Botswana.

Country	Null Hypothesis	Source of Causation				
		Short run		Long run	Joint (Short/Long run)	
		F-Statistic		t-Statistic	F-Statistic	
		ΔIMP	ΔGDP	ϵ_{t-1}	$\Delta IMP, \epsilon_{t-1}$	$\Delta GDP, \epsilon_{t-1}$
BOTS	IMP does not cause GDP	0.281 (0.757)		-1.005	1.167	
	GDP does not cause IMP		0.038 (0.963)	2.540*		2.511

Notes: The lag lengths are selected using Akaike’s information criterion. The numbers in parentheses are p-values. * Means that the null hypothesis of no causation is rejected at the 5% level.

• **Short-Run Granger Causality Test Results**

The empirical findings revealed that using the F-statistic co-efficient of 0.281 and 0.038, there is no causality between aggregated imports and economic growth, for Botswana as supported by the variables P-values of 0.757 and 0.963, which are both outside the 5% significance level.

• **Long Run Granger Causality Test Results**

The empirical findings revealed that using the using the t-statistic co-efficient of 2.540, Economic Growth influences Aggregated Imports as indicated by the P-value of 0.0165 which is within the 5% significance level.

• **Joint Period Granger Causality Test Results**

The empirical findings revealed that using the F-statistic co-efficient of 1.167 and 2.511, there is no causation between aggregated imports and economic growth in Botswana. This is supported by the Prob (F-Statistic) value of 0.338578 and 0.077523 respectively, both being outside the 5% significance level.

5. CONCLUSION AND POLICY RECOMMENDATIONS

With reference to the findings in the joint period analysis, the bi-direction causality calls for both the Import Substitution Policy (ISP) and the Export Promotion Policy (EPP). Unlike import substitution strategy, the tariffs and quotas on imports should be reduced for exporters in order to encourage exportation. In addition to this, the banks should provide more easy and flexible financial terms to exporters. Also, the Botswana Government should adopt subsidies on specific products to encourage the exporting of cheaper goods to foreign consumers and at the same time giving some exemptions and incentives for those who want to export. Again, the Botswana government needs to maximise its trade potential by addressing binding constraints, with their governments taking a lead in discharging a development-state-mandate and to reassert themselves in other regional markets in order to garner sufficient muscle to penetrate the global economy.

It would therefore be imperative for the Botswana Government to adopt a proactive and strategic trade policy aimed at stimulating both the formal and non-formal sector that should focus not only on importing oriented trade but also on reforming the domestic industrial structure. This would therefore call for the deepening of regional trade integration initiatives.

In this regard, the Botswana government should actively engage its regional partners and support both regional and international forces seeking to make a strong regional trading bloc a reality. The government intervention strategy should extend protection to strategic and labour intensive sectors, at the same time promoting export diversification, value addition and beneficiation. Adequate funding and subsidies should be made available for research and development activities.

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