MODELLING THE RELATIONSHIP BETWEEN TRADE LIBERALISATION AND INFLATION

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ABSTRACT

The paper examines the long run relationship between trade and inflation using time series data from Ghana for the period 1970-2011 in order to verify the hypothesis by Romer (1993) that states that there is negative relationship between trade openness and inflation. Johansen cointegration method and Granger causality test were used in analysing data using Stata and Gretl. The findings indicate significant stable negative long run relationship between trade openness and inflation in a model estimated with trade openness as the dependent variable and inflation as the explanatory variable with income as a control variable. There is bidirectional causality between trade openness and inflation. Opening trade could be useful in controlling inflation in Ghana as indicated in the literature. Policy makers should take into consideration when taking strategies control inflation in order to achieve economic stability. Future researchers should consider other proxies of inflation and trade openness.

Key Words: Trade openness; Long run negative relationship; Cointegration; Granger causality

Jel Classifications: F15; F14; F17; E31

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INTRODUCTION

The long run stable relationship between trade liberalisation and inflation has attracted the attention of researchers in economics, finance and international business since the work of Romer (1993). According to Romer (1993) there is stable inverse link between trade openness and inflation. Since the work of Romer (1993), empirical verification of the hypothesis has resulted in inconsistent findings in the literature. Trade liberalisation according to researchers (Afzal et al., 2013; Burger & Krueger, 2003) is expected to results in increase in economic growth, creation of employment and reduction in poverty. Afzal et al. (2013) states that "trade openness is a tool of anti-monopoly as well as a medium for the long-windedness of the new technology, ideas and managerial skills among nations. It also harmonizes or even unifies the monetary and fiscal policies".

Many factors influence trade negatively to prevent nations to fully realise the benefits of trade among nations. Among the factors that affect trade are technological shocks, overpopulation, supply shock, demand shock and inflation (Afzal et al., 2013). Of all these factors higher inflation rates are more devastating on macroeconomic variables and this has attracted attention in the literature (Afzal et al., 2013). According to researchers (Afzal et al., 2013) higher inflation rates leads to various macroeconomic problems as well as social problems which is a source of worry for the managers of an economy. Among the social problems are hoarding and smuggling of goods. The macroeconomic problems are unemployment, balance of payments deficits, market imperfections, income inequality and poverty.

According to the literature (Afzal et al., 2013; Wynne & Kersting, 2007; Jin, 2006; Gruben & Macleod, 2004; Tytell & Wei, 2004; Rogoff, 2003; Sachsida et al., 2003; Romer, 1993; Grossman & Helpman, 1991) opening trade is effective to control inflation in various ways (For comprehensive review of the various channels through way openness check inflation, read Afzal et al., 2013). The current paper is based on the theoretical framework of Romer (1993) who hypothesized that opening an economy lowers inflation. Thus, there is negative link between trade openness and inflation.

The current paper test if Romer (1993) is valid for Ghana during the period under discussion. Review of the empirical literature has produced mixed findings. Some empirical studies (Afzal et al., 2013; Lin, 2010; Mukhtar, 2010; Yi Lin, 2010; Al Nasser *et al.*, 2009; Farvaque & Shah,

2009; Aron & Muellbauer, 2007; Badinger, 2007; Wynne & Kersting, 2007; Hanif & Batool, 2006; Nunziata & Bowdler, 2006; Bowdler & Adeel, 2005; Kim & Beladi, 2005; Gruben & McLeod, 2004; Agarwal & Narayanan, 2003 ; Sachsida et al., 2003; Ashra, 2002; Temple, 2002; Alfaro, 2001; Lane, 1997;) have validated Romer (1993) hypothesis whereas other have not supported the hypothesis (Zakaria, 2010; Alfaro, 2005; Kim & Beladi, 2005). The empirical works that support Romer (1993) hypothesis indicate that there is negative relationship between trade openness and inflation in various economies (developed and developing).

The empirical works that do not support Romer (199) hypothesis revealed positive relationship between trade openness and inflation for developed and developing economies. These inconsistencies according to researchers such as Afzal et al. (2013) might results from factors such as the nature of data used such as cross-country data; country level time series data. The inconsistencies might also results from the model use such as multivariate; univariate and bivariate models. In addition, in models without enough control, the results might not be as expected.

STATEMENT OF PROBLEM/JUSTIFICATION/SIGNIFICANCE

In economy such as Ghana where inflation has become intractable, given its devastating effect on the economy (hoarding, smuggling, unemployment, balance of payment deficit, market imperfections, income inequality and poverty), there is the need to understand the link between inflation and trade openness. The current paper examines the nature of the relationship between trade openness and inflation as well as the direction of causality.

The review of the empirical literature indicates inconsistent findings (Afzal et al., 2013; Menghan, 2008; Aisen & Veiga, 2006; Chung-Shu Wu & Jin-Lung Lin, 2006) which call for further empirical validation using data from opened but small economy such as Ghana which is a lower middle income economy. Few empirical works on the nature of link and causality have been done in the study area and the current paper fills in the literature gap. The findings provide understanding on the theory underlying the study by providing answers to the research questions raised and the assumptions made. The findings serve as useful reference material for researchers interested in examining the relationship between inflation and trade. Policy maker will also find the findings useful policy tool in dealing with inflation, especially in an economy with intractable inflation.

GENERAL OBJECTIVE

The general objective of the current paper is to contribute to the body of knowledge that exist in literature on trade and inflation by examining the nature of the link between inflation and trade openness and the nature of causality. Specifically, the current study examines

- The cointegration relationship between inflation and trade openness in order to verify Romer's (1993) hypothesis.
- The nature of causality between trade openness and inflation.

RESEARCH QUESTIONS

The question underlying the research is;

- What is the nature of long run relationship between inflation and trade openness?
- What is the nature of causality between inflation and trade openness?

Hypothesis tested

The assumptions tested in the current research are;

- There is cointegration relationship between inflation and trade openness.
- Romer's (1990) hypothesis holds for Ghana.
- There is bidirectional causality between the inflation and trade openness.

LIMITATIONS/SCOPE

The data on inflation and trade openness used in the current study are from World Bank data base. Issues such as missing values, errors in variables and data massaging if present might not be known by the researchers. The paper did not consider the causality between economic growth and inflation or trade openness and economic growth. Structural breaks are not considered in the current study. The period for the study is between 1970-2011. Single country level data is used in a cross sectional study.

ORGANISATION OF THE PAPER

The rest of the current study considers the methodology, empirical results (unit root; descriptive statistics; correlation results; cointegration results; long run results; short run results and Granger causality test results); conclusions and policy implications.

METHODOLOGY

The current study is based on quantitative design and descriptive in nature research format. The study is based on annual inflation (proxied by consumer price index-CPI) and trade openness (TO) series variables for Ghana for the period 1970-2011. The period was chosen for availability of data. The sample size is 41. Reviewed Articles were selected through purposive sampling method from journals on the internet.

Data Analysis method

The analysis of the data for the current study is based on KPSS and ADF models, central tendencies; correlation models; ARDL cointegration model and Granger causality test model. The Stata and Gretl were used in analysis data. Results are presented in Tables and figures.

The ADF model

The Augmented Dickey-Fuller (1981) and Kwiatkowski, D., Phillips, P., Schmidt, P., Shin, Y. (1992) (KPSS) (ADF) is used to examine the unit root properties of the series. ADF model of unit root is considered to have low power of tests as compared to the KPSS test (Nanthakumar and Subramaniam, 2010) and it is considered to easily accept a false null hypothesis of unit root. The null assumption (H_o) is that there is a unit root in the levels of the series. The alternative hypothesis (H_1) is that the series are stationary in levels. The current study specifies the ADF model as in equations (i) and (ii) for trade and inflation respectively.

$$\Delta TO_t = \mu + \partial T + \beta G_{t-1} \sum_{i=1}^{q} \lambda_i \Delta TO_{t-i} + e_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (i)$$

$$\Delta CPI_t = \mu + \partial T + \beta G_{t-1} \sum_{i=1}^{q} \lambda_i \Delta CPI_{t-i} + e_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots (ii)$$

Where λ= trend coefficient, TO= trade openness; CPI= inflation; e_t = error term or stochastic error term; T = time trend, q = number of lags, Δ= shows the series are in their first difference. The e_t is the error term/ white noise which have the features of normal distribution. It's expected mean value is zero and has constant variance. The errors are independent of each other.

KPSS Model

It is used as a confirmatory test after the ADF test has been used since the ADF is considered to have low power of test. The KPSS is based on the null assumption of stationarity against the alternative hypothesis of unit root. The model is specified as equation (iii)

$$N_t = M_t\beta + e_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

Where N_t = the series variable under investigation (trade openness and inflation); M_t = a vector of exogenous variable(s). The Lagrange Multiplier is based on equation (iv).

$$LM = T^{-2} + \sum_{i=1}^{T} S(t)^2 / f_o \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iv)$$

Where T= the sample size; S (t) = the partial sum of residuals, given by: S(t) = $\sum_{i=1}^{t} S_r$;

ε_t = the estimated residual; f_o = an estimator of the residual spectrum at zero frequency.

Johansen Cointegration Model

Series variables are considered to be cointegrated if they are integrated of order one, 1(1) in the presence of none zero vector which is integrated of order zero, 1(0). The cointegration test based on Johansen (1991) cointegration test to determine the long run link among the variables is specified as in equation (v).

$$\Delta X_t = \mu + \beta X_{t-1} + \sum_{i=1}^{q} \gamma_i \Delta X_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (v)$$

Where X_t = (3x1) vector of the series, β and γ are (3x3) matrices of coefficients. μ is (3x1) vector of the constant terms in the model. In the Johansen cointegration test analysis the critical values are provided by the 'trace' statistics, "maximum eigen value" statistics, and the information criterion statistics (SBIC, HQIC, AIC). It is prefer in cases where the sample size is large. The Johansen Juselius (1990) cointegration model is used to establishing long run statistical significant stable relationship among the variables. The short run link is examined through the use of the error correction model. In the use of the trace statistics the following hypotheses hold. H_0: r=0 (There is no cointegration among the variables) H_1: r >0 (There is one or more cointegration vector). In the cases of the use of the maximum eigen value statistics, the assumptions are

H_0: r=0: H_1: r=1 Or H_0: r= 1: H_1: r=2 Or H_0: r=2 H_1: r=3

Ones cointegration link is established among the series in the model the error- correction model formulated in equation (vi) is estimated. The error correction term (EC_{t-1}) measures the speed of

adjustment from short run disequilibrium to long run equilibrium. The error-correction model can be formulated in different forms depending on the number of variables in the model. An error-correction model is specified as

$$\Delta M_t = \rho_0 + \rho_1 \Delta M_{t-i} + \rho_2 \Delta N_{t-i} - \lambda K_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots (vi)$$

Where K_{t-1} is the residual error term from the static regression of M_t on N_t. For three variables (N, M, K) case the model is given as in equation (vii).

$$\Delta M_t = \mu + \sum_{i=1}^{q} \alpha_i \Delta N_{t-1} + \sum_{i=1}^{q} \beta_i \Delta M_{t-i} + \sum_{i=1}^{q} \lambda_i \Delta K_{t-i} + \partial EC_{t-1} + e_t \ldots\ldots\ldots\ldots\ldots\ldots (vii)$$

Where ∂ measures the speed of adjustment from the short run to long run, e_t is the error term, EC_{t-1} is the equilibrium error term. 'q' represents the lag length. In the estimation, the coefficient of the EC_{t-1} that is ∂ and λ from equation (vii), (vi) respectively and must be negative and significant at either 5%, 1%, and 10% to indicate significant long run relationship among the variables.

Granger causality test Model

The nature of causality among the variables is examined using Granger causality test. According to Granger (1986), if series are integrated of order one and are cointegrated there is at least one form of causality. The current paper specifies the Granger causality model as equations viii and ix.

$$LY_t = \alpha_0 + \sum_{i=1}^{q} \alpha_{1i} LY_{t-i} + \sum_{i=1}^{v} \alpha_{2j} LX_{t-i} + e_t \ldots\ldots\ldots\ldots\ldots\ldots (viii)$$

$$LX_t = b_0 + \sum_{i=1}^{p} b_{1i} LX_{t-i} + \sum_{i=1}^{s} b_{2j} LY_{t-i} + e_t \ldots\ldots\ldots\ldots\ldots\ldots (ix)$$

The null hypothesis is that H_0: $\alpha_2 = b_2 = 0$ (That is there is no causality between the series in the model). The alternative hypothesis (H_1) is given as H_1: $\alpha_2 \neq b_2 \neq 0$ (There is causality between the series variables).

The model

The conceptual model for the study following the empirical literature states that: Trade openness is a function of consumer price index. That is TO=f (CPI, RGDP). RGDP= Real gross domestic product. RGDP is included in the model to service as a control variable. The model is estimated in natural log form.

EMPIRICAL RESULTS

The empirical results on descriptive statistics; correlation; ADF test results; KPSS test results; ARDL cointegration test results and Granger causality test results are presented and discussed in this section of the paper. The results are reported in Tables.

Descriptive Statistics

The results of the summary statistics of the variables are shown in Table 1. The minimum and maximum values measure the degree of variations in the variables under investigation. The mean measures the central tendency of the series variables and the values indicate a good fit. The volatility of the series variables are measured by the coefficient of variation. Of the series, the most volatile is RGDP, CPI and TO respectively.

The nature of the distribution of the series is measured using the coefficient of skewness. The three types of distribution are normal, positive skewness and negative skewness. The range of the coefficient of skewness is between positive one (1) and negative one (-1). The results are shown in Table1. All the series variables are positively skewed. The value of the coefficient of skewness of RGDP and CPI are outliers since they are greater than unity (1).

The nature of the peakness of the series is measured using the coefficient of kurtosis. The three forms of the nature of peakness are platykurtic (more flat-topped distribution- γ 0); leptokurtic (less flat-topped distribution-γ 0) and leptokurtic (equally flat-topped distribution- γ=0). A higher coefficient value of kurtosis is an indication of more extreme observation or the distribution is more single-peaked. The results of the values of the coefficients of kurtosis are shown in Table 1. The coefficient values of the kurtosis of the series variables TO is less than zero (0) which indicates more flat-topped distribution. The coefficient value of the kurtosis of RGDP and CPI series are more than unity (1) which indicates less flat-topped distribution.

Table 1 Summary Statistics, using the observations 1970 - 2011

Variable	Mean	Median	Minimum	Maximum
Real gross domestic product (RGDP)	29.210	2.3417	0.0032078	213.63

Consumer price index (CPI)	36.149	4.4513	0.0038720	205.42
Trade openness (TO)	53.603	44.933	6.3203	116.05
Variable	**Std. Dev.**	**C.V**	**skewness**	**Ex. Kurtosis**
Real gross domestic product (RGDP)	55.337	1.8944	2.1272	3.3745
Consumer price index (CPI)	57.338	1.5861	1.6453	1.5657
Trade openness (TO)	29.326	0.54709	0.36398	-0.82853

Source: Author's Computation, 2013

Correlation Analysis

Table 2 reports the results on Multi-collinearity among the series using the correlation matrix. There is significant positive relationship between CPI and RGDP; CPI and TO and RGDP. The magnitudes of the correlation coefficients indicate that multi-collinearity is a potential problem in the regression models.

TABLE 2: CORRELATION MATRIX FOR TEST'S VARIABLES

Variables (levels)	RGDP	CPI	TO
RGDP	1.0000		
CPI	0.9786**	1.0000	
TO	0.4356**	0.5767 **	1.0000

NOTE: 5% critical value (two-tail) = 0.3044: ** denotes significance at 5%

Results of Unit Root Tests without Structural Breaks

The two main unit root tests used in the current thesis are the Augmented Dickey-Fuller test (ADF) and Kwiatkowski, Phillips, Schmidt and Shin (KPSS).

Time series Plot of Trade openness, consumer price index and real gross domestic product

Figure 1 to figure 3 indicates the series (trade openness, consumer price index and real gross domestic product) are non-stationary and need to be made stationary through differencing.

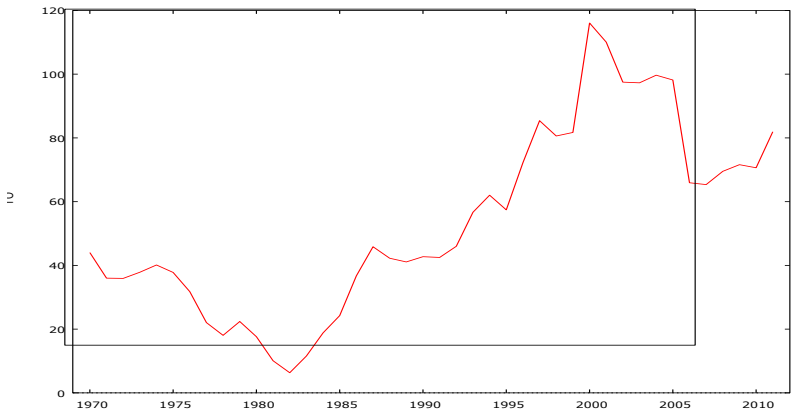

Figure 1: A Plot of non-stationary time series data (Trade openness)

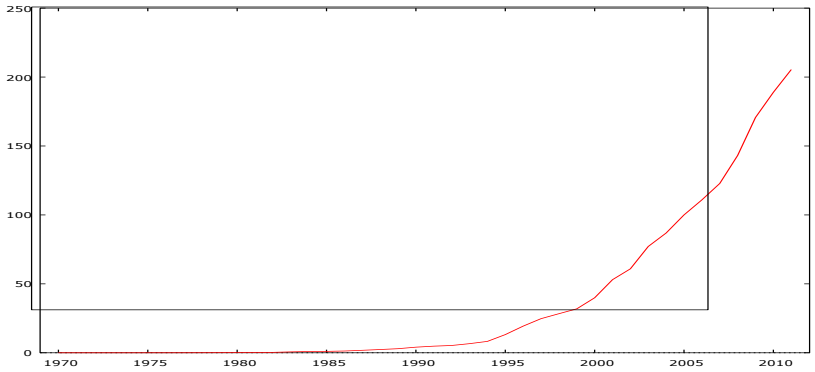

Figure 2. A Plot of levels of stationary time series data (CPI)

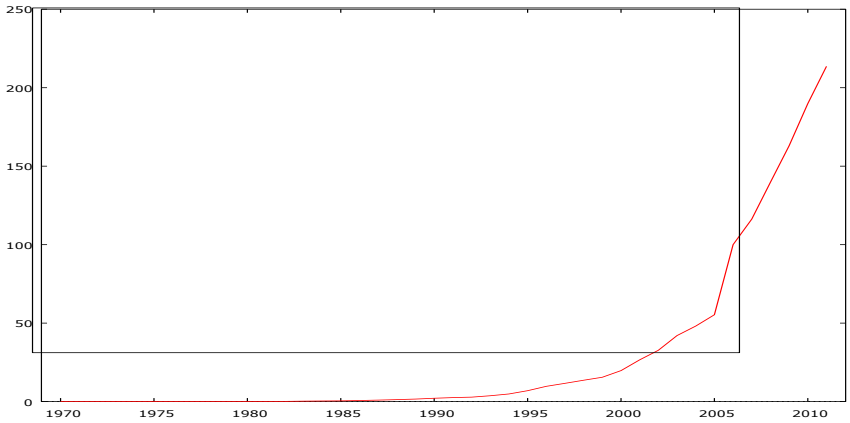

Figure 3. A Plot of levels of time series data (RGPD)

The ADF Model

The unit root test results based on the ADF test are reported in Table 3 and Table 4. The results of the ADF test for unit root in levels show that the series are non-stationary in intercept and trend. The null hypothesis of unit root was accepted for all the series in levels.

Table 3: ADF stationarity test results with a constant and a time trend

Variables (Levels)	t-statistics	ADF P-Value	Results	Lag length
RGDP	4.85154	1.000	Not stationary	1
RGDP-1st dif.	-2.08822	0.5519	Not stationary	1
TO	-2.03577	0.5649	Not stationary	1
TO-1st dif.	-5.43876	0.0003485***	Stationary	1
CPI	6.335	1.000	Not stationary	1
CPI-1st dif.	-3.00133	0.1445	Not stationary	1

Source: Author's computation, 2013: Note *** denotes significance at 1% level of significance

Taking the logarithm of the first difference of the series and testing these with intercept and time trend made the series stationary. That is, the null hypothesis of unit root was rejected. These results indicate that the series exhibit unit root processes and are integrated of order two, I (1). The results are reported in Table 4

Table 4: ADF stationarity test results with a constatnt and a time trend

Variables (First Difference)	t-statistics	ADF P-Value	Results	Lag length
ΔlnRGDP	-5.5524	0.0001***	Stationary	1
ΔlnTO	-4.67444	0.0007281***	Stationary	1
ΔlnCPI	-4.7219	0.002565***	Stationary	1

Source: Author's computation, 2013: Note *** denotes significance at 1% level of significance

The KPSS Model

The KPSS test results are presented in Table 5 and 6. The KPSS is a reversed test for unit root. It is used in the current study for confirmation of the stationarity properties of the series. The series

were examined in levels and in first difference as well as in their logarithm form. The results confirm that of the ADF test results. All the series attained stationarity status in logarithm form.

Table 5: KPSS stationarity test results with a constant and a time trend

Variables	t-statistics	KPSS P-Value	Results	Lag length
RGDP	0.239611	n.a	Not Stationary	3
RGDP-1st dif.	0.230848	n.a	Not stationary	3
TO	0.134766	0.076	Not stationary	3
TO-1st dif.	0.121051	n.a	Not Stationary	3
CPI	0.272644	n.a	Not Stationary	3
CPI-1st dif.	0.256955	n.a	Not stationary	3

NB: Critical values at 10%, 5% and 1% significant levels are 0.122 0.149 0.212 respectively

Table 6: KPSS stationarity test results with a constant and a time trend

Variable	KPSS P-value	Results	Lag length
ΔlnRGDP	0.105237	Stationary	3
ΔlnTO	0.103818	Stationary	3
ΔlnCPI	0.0902278	Stationary	3

NB: Critical values at 10%, 5% and 1% significant levels are 0.122 0.149 0.212 respectively

In summary, the test results from the ADF and the KPSS indicates that the series exhibit unit root processes in levels. The detection of unit roots in the series indicates that shocks to the series will have permanent effects and not transitory effects. The results indicate that cointegration analysis can be performed.

Johansen cointegration Test

Table 6 reports the results of the Johansen cointegration test for the presence of cointegration. The Trace statistics (λ_{Trace}) and the max statistics (λ_{max}) are used to examine the presence of cointegration among the series variables under investigation. The λ_{Trace} and λ_{max} are base on the null hypothesis of no cointegration among the series variables (no long run association or the

series do not move together in the long run) against the alternative hypothesis that there is cointegration. Both the λ_{Trace} and λ_{max} tests reject the null of zero co-integrating vectors. The null hypothesis that there is no co-integrating vector among the series variables is rejected using both tests. Based on the results in Table 6, we conclude that there exists a co-integrating relationship among the series variables at least one co-integrating vectors. Hence, RGDP and CPI are the long-run equilibrium variables that explain Trade openness for the period under discussion. Since there is cointegration among the series, long run and short run parameters are estimated.

Table 6: Test for cointegration relationship

Eigen value	0.90138	0.20860	0.097555
Null hypothesis	$r = 0$	$r \leq 1$	$r \leq 2$
Alternative hypothesis	$r = 1$	$r = 2$	$r = 3$
λ_{Trace}	108.78	13.801	4.2086
P-value	0.0000***	0.0879*	0.0402**
λMax	94.974	9.5921	4.2086
P-value	0.0000***	0.2453	0.0402**

The VAR estimation covered the period 1972- 2011. It comprised two lags of each explanatory variable. A constant term entered into the unrestricted form. The null hypothesis is expressed in terms of co-integrating rank r. The maximum Eigen-value and trace statistic are indicated by λ max and λ trace.

Note: ***, ** and * denotes significance at 1%, 5% and 10% levels of significance

Long run Parameters

Table 7 reports the results on the long run estimates. The results indicate significant long run negative relationship between trade openness and consumer price index. One Percent increase in consumer price index leads to about 81.25% decrease in trade openness. There is insignificant positive link between income and trade openness. One percent increase in income leads to about 73.96% increase in trade openness.

Table 7: Estimated long-run coefficients. Dependent variable is lnTO

Variable	Coefficient	Std. Error	T-ratio	P-value
Constant	-4.702788	n.a	n.a	n.a
InCPI	-0.81251	0.4511687	-1.80	0.072*
InRGDP	0.7396019	0.458514	1.61	0.107

Note: * denotes statistical significance at the 10%. ARDL (1) selected based on Akaike Information Criterion

Short Run Parameters

Table 8 reports the results on the short run estimates. The results indicate significant short run negative relationship between trade openness and consumer price index. One percent increase in consumer price index leads to about 88.79% decrease in trade openness. There is insignificant positive link between income and trade openness. One percent increase in income leads to 42.29% increase in trade openness. The error correction term is statistically significant and does have the theoretical expected sign which is negative. The coefficient of -0.1976688 indicates that, after 1 percent deviation or shock to the system, the long-run equilibrium relationship of trade openness is quickly re-established at the rate of about 19.77% per annum. The value indicate weak adjustment rate.

Table 8: Vector error-correction model: Dependent variable: ΔlnTO

Variable	Coefficient	Standard error	T-statistic	P-value
Constant	-0.1305195	0.0772122	-1.69	0.091*
$\Delta lnTO_{-1}$	0.3596872	0.1308761	2.75	0.006***
ΔlnCPI	-0.8879425	0.2947548	-3.01	0.003***
ΔlnRGDP	0.4229393	0.3546166	1.19	0.233
ecm (-1)	-0.1976688	0.0596246	-3.32	0.001***
No. of obs = 40				
Sample: 1972 - 2011		AIC = -2.861386		
Log likelihood = 74.22772		HQIC = -2.601862		
Det(Sigma_ml) = 4.91e-06		SBIC = -2.143612		

Note: * and *** denotes statistical significance at the 10% and 1% levels respectively

The Causality Link between Consumer Price Index (CPI) and Trade Openness (TO)

The Granger causality test is based on the null assumptions that trade openness does not Granger cause inflation and inflation does not Granger cause trade openness. The alternative assumptions are that trade openness Granger cause inflation and inflation Granger cause trade openness. The results are reported in Table 10. The results in Table 10 shows that the null hypothesis that trade openness does not Granger cause inflation is rejected at 10% level. This means trade openness causes inflation. The null assumption that inflation does not Granger cause trade openness is rejected at 1% level. Thus, inflation causes trade openness. The results indicate bidirectional causality between trade openness and inflation. The results means that the past values of trade openness are useful to forecast the value of inflation in Ghana, whereas the past values of inflation are also useful in forecasting the values of trade openness.

Table 10. Granger Causality test between trade openness and inflation

Variables	Chi-square value	P-values	Decision
TO does not Granger cause CPI	7.1911	0.066*	Reject the Ho
CPI does not Granger cause TO	34.515	0.000***	Reject the Ho

Note: * and * denote significant at 1% and 5% levels of significance**

CONCLUSION AND POLICY IMPLICATIONS

The objective of the paper has been achieved. The paper contributes to existing literature on trade-inflation nexus by examining the cointegration and causality between trade integration (proxied by trade openness) and inflation (proxied by consumer price index). There is cointegration and bidirectional causality between trade and inflation. Romer's (1993) hypothesis is validated by the current study. There is significant stable negative long run relationship between trade and inflation for Ghana during the period under discussion. The findings are consistent with that of previous researchers such as Afzal et al. (2013), Lin (2010), Al Nasser et al. (2009) who reported of stable statistical significant long run negative link between trade and inflation. The findings support the notion that opening trade reduces inflation rate in an economy such as Ghana. According to Afzal et al. (2013), economies that open trade are able to control inflation when monetary tools fail to control inflation. The findings are not in line with studies such as Zakaria (2010); Alfaro (2005) who reported of significant positive relationship between

trade and inflation. Policy makers should incorporate these findings into their policies and focus on trade integration in order to control inflation. Future studies should consider other proxies of trade openness as well as other proxies of inflation. Different econometric model such as panel unit root, panel cointegration and structural breaks should be considered in future studies.

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