Trade openness and economic growth in SADC countries

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29 January 2018

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ABSTRACT

In spite of the wave of liberalisation studied during the past decades, the debate still remains open on the issue of the trade openness and economic growth nexus. The paper reviews the relationship between trade openness and economic growth for 11 SADC countries for the period between 1990 and 2016. Investments, labour and inflation are incorporated in the model to form a multivariate framework. The study employed the ARDL-bounds test approach and the Pooled Mean Group (PMG) model to estimate the long run relationship among the variables. The evidence suggests that co-integration is detected at the 1% level in all countries with the exception of Malawi, Mauritius, Swaziland and Tanzania. Co-integration is only detected at the 10% level in Tanzania while Malawi, Mauritius and Swaziland the null of no co-integration is not rejected. Furthermore, the results revealed trade openness has a negative impact on economic growth in the long-run.

JEL: F14, F10, C33, C13, C01,

Keywords: Trade Openness, Economic growth, ARDL model, PMG model, SADC

1 INTRODUCTION

The relationship between trade openness and economic growth has been analysed extensively in literature. The traditional trade theory of Ricardian-Heckscher-Ohlin outlines that trade openness enhances output in the short-run through more efficient allocation of resources. This model however, does not address the impact of trade openness on long-term growth. According to the endogenous growth models of Grossman and Helpman (1991) and Rivera-Batiz and Romer (1991), trade openness promotes growth in the long-run through the transmission of

technologies, increases in the size of the market available to domestic firms and through product specialisation.

A number of empirical studies have examined the long-term impact of trade openness on economic growth and most studies conclude that there is a positive relationship between the variables (Olufemi 2004, Dava 2012, Alragas et al (2015 and Keho 2017). Other studies suggest that trade openness does not spur growth (Trejos and Barboza 2015, Musila and Yiheyis 2015). Furthermore, some studies argue that trade openness has a positive effect on economic growth under certain conditions. Ahmed and Suardi (2009) suggest that trade openness is beneficial in countries with a more diversified export structure while Fetaki-Vehapi et al (2015) state that trade openness impacts positively on economic growth in countries with higher initial per capita incomes, higher levels of foreign direct investments and gross fixed capital formation.

The Southern African Development Cooperation (SADC) was created to enhance economic growth and development, eradicate poverty and to promote the free movement of goods and services, capital and labour amongst regional members (SADC 2011). Trade openness has been one of the objectives of SADC as stipulated in the Regional Indicative Strategic Development Plan (RISDP) (Genesis Analytics, 2004). Furthermore, the Trade Protocol initiated in the year 2000 also sought to promote trade openness in goods and services in the region, with the hope that a free trade area would be formed in 2012 to boost intra-SADC trade.

Despite the initiatives implemented to boost trade openness in the SADC region, barriers to the movement of goods and services are still present. This study therefore, investigates whether trade openness has a positive effect on economic growth in SADC. Panel data analysis is employed for 11 countries over the period 1990-2016. The Pooled Mean Group (PMG) estimator is utilised to determine the long-run and short-run impact of trade openness on economic growth. The technique estimates homogenous long-run and heterogenous short-run coefficients.

The layout of the paper is as follows. Section 2 provides a brief survey of the existing literature on the relationship between trade openness and economic growth. Section 3 introduces the data and methodological approach employed in the paper. Section 4 presents the results of the econometric analysis while section 5 concludes the paper.

2 LITERATURE REVIEW

It is argued that trade openness boosts economic growth in various ways. For instance, through the transfer of technology skills transfer increase labour and total factor productivity. The notion that trade openness affects economic growth is not new in literature. Most of the literature has focused on single-country studies while a few concentrated on multi-country studies. The following literature is going to be classified into two categories: Single-country studies and multi-country studies.

Olufemi's (2004) study forms part of the earlier researches that examined the relationship between trade openness and economic growth focusing on single-country study. A Nigerian time series data covering the period between 1970 and 2000 was used. The study employed Johansen co-integration technique to determine the long run relationship between the variables. The study established that there is existence of a long run relationship between trade openness and economic growth. Furthermore, the results suggest that there is a negative relationship between trade openness and economic growth. On the other hand, one of the most recent studies which was conducted in Nigeria by Kalu et.al (2016) established that exports have a positive and significant effect on economic growth, while imports have a positive but non-significant effect.

A South African study on the nexus between trade openness and economic growth was undertaken by Sikwila et.al (2014) covering the period between 1994Q1 and 2013Q3. Applying the co-integration technique, the study found that trade openness boosts economic growth.

Musila and Yiheyis (2015) examined the relationship between economic growth and trade openness in Kenya. The annual time series data used covered the period from 1982 to 2009. Incorporating investment as an additional variable, it was established that trade openness has a positive and significant effect on investment but a positive and non-significant on growth. In addition, the findings purported that trade openness Granger-causes economic growth in the long run.

Moyo et.al (2017) examined the linkage between trade openness, economic growth, investment, exchange rates and inflation in Nigeria and Ghana. The findings from the Autoregressive distributed lag model suggested that there is a long run relationship among the variables. The results indicated that there is an existence of a positive relationship between

economic growth and trade openness in Ghana while a negative relationship was exhibited in Nigeria.

Trejos and Barboza (2015), purposed to determine the causal relationship between economic growth and trade liberalisation, focusing on twenty-three Asian countries. The study used static ordinary list square (OLS) and a dynamic ECM estimation models. The findings at country specific level suggested that higher trade openness is not the main engine for the Asian economic growth. The findings validate that countries with a growing degree of trade openness may experience faster per-capita output growth through gains in productivity associated to capital accumulation rather than the assumed technological spillover effects from the trading sector.

Fetahi-Vehapi et,al (2015) aimed to investigate the impact of trade openness on economic growth in 10 South East European (SEE) countries covering the period 1996-2012. The study incorporated human capital, gross fixed capital formation, foreign direct investment and labour force as additional variables to form a multivariate framework. The system GMM is employed to estimate the relationship among the variables. The findings indicate that the positive effect on economic growth are conditioned by the initial income per capita. It was also discovered that trade openness in more beneficial to countries with higher level of initial income per capita. Trade openness also favours countries with higher level of FDI and gross fixed capital formation.

Zahonogo's (2016) study investigated the relationship between trade openness and economic growth focussing on 42 sub-Saharan Africa countries. Annual data used in this study covers the period 1980 – 2012. The empirical results from the Pooled Mean Group estimation technique show an inverted U-curve response, which indicates the non-fragility of the relationship between trade openness and economic growth in the Sub-Saharan countries. The results of this study indicate that the linkage between economic growth and trade openness in Sub-Saharan Africa is not linear.

Burange *et.al.* (2013) aimed to analyse the causal linkage between economic growth and trade openness for the member countries of BRICS: Brazil, Russia, India, China and South Africa. To estimate the long run relationship between trade openness and economic growth, the study employed the co-integration technique by Johansen (1998) and Johansen and Juselius (1990). The Granger causality test was used to find the direction of causality between the variables. The findings suggested existence of a long run relationship between the variables while the

Granger causality techniques showed different results for each country. Commencing with Brazil, the results show that trade openness Granger-causes economic growth. In South Africa, a growth-led export hypothesis was established while in China the export-led growth hypothesis was realised. A bidirectional causality between economic growth and trade openness was discovered in Russia and India.

Dava (2012) employed a difference-in-difference technique to explore the linkages between trade openness and economic growth in seven SADC countries for the period 1980 – 2008. The fixed-effect results suggested that the mean change in the growth rate to real GDP from the period prior to and after trade liberalisation was 4.1% points. In general, it was discovered that trade openness has a positive and significant effect on economic growth in the SADC countries.

Another SADC countries study was done by Mbulawa (2015) in exploring the determinants of economic growth. The study employed GMM technique for the period from 1996 to 2010. It was discovered that trade openness only has a positive effect on economic growth when there is high levels institutional quality.

Alragas et.al (2015) explored the relationship between trade openness and economic for 182 countries covering the between 1971 and 2011. To examine the relationship between the variables, the study utilises the Common Correlated Effects Mean Group (CCEMG) estimator and to take into consideration the heterogeneity of the countries being explored, the Cavalcanti et.al (2011) is applied. The empirical findings suggested that on average, trade openness has a significant impact on economic growth.

It can be learnt that there is scant evidence of linkages between trade openness and economic growth in SADC countries using the Pooled Mean Group technique and the ARDL bounds test. Therefore, this study serves to fill the gap.

3 DATA ANALYSIS AND METHODOLOGY

This section presents the data description and the methodology. The data was sourced from the World Bank's world development indicators and covers the period 1990 to 2016 for 11[1] SADC countries. The description of the variables is presented on table 1.

[1] Angola, DRC, Seychelles and Zimbabwe are omitted because of insufficient data.

Table 1: Description of the variables

Variable	Description
GDP	Gross value added by all resident producers in the economy
INV	Gross fixed capital formation as a percentage of GDP
TRA	Imports plus exports as a percentage of GDP
LAB	Labour force participation rate
INF	Consumer price index reflecting the percentage change in the cost of a basket of goods

Source: World Bank (2017)

3.1 Descriptive statistics

Descriptive statistics are shown on table 2. The mean value of GDP growth is 4.34%. The average for inflation is 13.70% which is higher than the target of 3% set by SADC authorities. Investment to GDP ratio averages 22.88%. This ratio is lower than those of the fastest growing regions in the world such as Asia. The labour force participation rate averages 68.98%. Trade as a percentage of GDP is 87.77% which indicates that the level of trade openness in SADC countries is high.

Table 2: Descriptive statistics

	GDP	INF	INV	LAB	TRA
Mean	4.34	13.700	22.88	68.98	87.77
Maximum	26.85	183.31	69.03	89.64	209.89
Minimum	-12.67	-9.62	6.18	48.56	33.49
Std. Dev.	3.82	18.94	10.29	13.71	37.18

Source: Researchers' own computations

3.2 Correlation analysis

Table 3 presents correlation analysis. This is conducted using Spearman's rank order correlation test. GDP and trade openness are negatively correlated; however, the coefficient is insignificant. GDP is positively correlated with investment and labour force participation which is in line with *a priori* expectations. GDP and inflation are negatively correlated but

insignificantly. The correlations provide some evidence that multicollinearity is not a problem in the study as all the correlations between the independent variables are lower than 0.8.

Table 3: Correlation analysis

Variables	GDP	INF	INV	LAB	TRA
GDP	1.00				
INF	-0.09	1.00			
INV	0.19*	-0.19*	1.00		
LAB	0.16*	0.21*	-0.05	1.00	
TRA	-0.0003	-0.25*	0.41*	-0.42*	1.00
Where: * represents significance at the 1% level					

Source: Researchers' own computations.

3.3 Unit root tests

Unit root tests were conducted to determine the order of integration of the variables. The tests utilised are the Levin, Lin & Chu (2002), Im, Pesaran & Shin (2003) tests, as well as the ADF Fischer Chi-Square and PP Fischer Chi-Square tests proposed by Maddala and Wu (1999). The null for each test is that the series has a unit root while the alternative states that the series is stationary. Unit root test results are presented on table 4. The results show that all variables are either stationary in levels and at first difference. There are no variables integrated of order two (I(2)) which means that the PMG model is appropriate for the analysis.

Table 4: Unit root tests

LLC				
Variable	**Levels**		**First Difference**	
	Intercept	**Trend & Intercept**	**Intercept**	**Trend & Intercept**
GDP	-2.73*	-1.20	-9.20*	-7.03*
TRA	-0.13	-1.07	-8.37*	-6.88*
INV	-0.42	0.77	-4.72*	-3.03*
LAB	-0.79	-0.82	-1.49***	-2.12**
INF	-4.96*	-5.67*	-14.48*	-12.59*
IPS				
GDP	-5.69*	-3.90*	-15.07*	-13.616*
TRA	-0.45	-1.50***	-8.67*	-6.83*
INV	0.14	0.47	-7.74*	-5.60*
LAB	0.57	0.11	-2.92*	-1.43***
INF	-4.13*	-4.99*	-14.42*	-12.95*
ADF Fisher Chi-square				
GDP	75.17*	53.40*	205.32*	169.74*
TRA	24.03	32.02***	113.58*	84.95*
INV	18.62	16.06	101.66*	73..76*
LAB	16.42	18.37	46.77*	31.95***
INF	57.06*	66.06*	198.51*	150.74*
PP Fisher Chi-square				
GDP	189.05*	175.79*	264.85*	2112.12*
TRA	25.59	27.06	185.15*	389.70*
INV	19.04	30.30	186.34*	164.01*
LAB	7.02	4.823	54.04*	35.92**
INF	66.75*	174.90*	405.26*	571.04*
Where *, **, ***, represent significance at 1%, 5% and 10% levels, respectively				

Source: Researchers' own computations.

3.4 Methodology

The study utilises the PMG model developed by Pesaran, Shin and Smith (1999). This technique involves pooling and averaging of individual estimates across groups whereby the intercept and short-run slope coefficients and the error variance are assumed to differ across units while the long-run coefficients are constrained to be similar across groups. The long-run relationship between the variables is specified as follows:

$$GDP_{it} = \theta_{0i} + \theta_{1i}TRA_{it} + \theta_{2i}INV_{it} + \theta_{3i}\,LAB_{it} + \theta_{4i}INF_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where: GDP = GDP growth rate

TRA = Trade openness

INV = Investments

LAB = Labour force participation

INF = Inflation

μ_i = The country-specific effect

ε_{it} = Error term

An $ARDL(1,1,1,1,1)$ dynamic specification is used for this relationship as follows:

$$GDP_{it} = \lambda_{1i}GDP_{it-1} + \delta_{10i}TRA_{it} + \delta_{20i}INV_{it} + \delta_{30i}LAB_{it} + \delta_{40i}INF_{it} + \delta_{11i}TRA_{it-1} + \delta_{21i}INV_{it-1} + \delta_{31i}LAB_{it-1} + \delta_{41i}INF_{it-1} + \mu_i + \varepsilon_{it} \quad (2)$$

The error correction form of equation (2) is specified as follows:

$$\Delta GDP_{it} = \phi_i(GDP_{it-1} - \theta_{0i} - \theta_{1i}TRA_{it-1} - \theta_{2i}INV_{it-1} - \theta_{3i}LAB_{it-1} - \theta_{4i}INF_{it-1}) + \delta^*_{i01}\Delta\mathrm{TRA}_{it} + \delta^*_{i02}\Delta INV_{it} + \delta^*_{i03}\Delta LAB_{it} + \delta^*_{i04}\Delta INF_{it} + \mu_i + \varepsilon_{it-1} \quad (3)$$

Where: $\phi = -(1 - \lambda_i)$,

$\theta_{0i} = {}^{\mu_i}/_{(1-\lambda_i)}$,

$\theta_{1i} = \dfrac{\delta_{10i} + \delta_{11i}}{1 - \lambda_i}$

$$\theta_{2i} = \frac{\delta_{20i} + \delta_{21i}}{1 - \lambda_i}$$

$$\theta_{3i} = \frac{\delta_{30i} + \delta_{31i}}{1 - \lambda_i}$$

$$\theta_{4i} = \frac{\delta_{40i} + \delta_{41i}}{1 - \lambda_i}$$

Investment is captured by gross fixed capital formation as a percentage of GDP which includes land improvements, plant, and machinery and equipment purchases (World Bank, 2017). According to the growth theories such as Solow-Swan as well as Harrod-Domar, higher investment levels enhance the productive capacity of an economy and thus impact positively on economic growth (Romer, 2012). The coefficient is thus expected to be positively signed. Inflation captures the effect of macroeconomic instability on economic growth. High and fluctuating inflation is an indication of macroeconomic instability which increases the uncertainty with regards to the profitability of investment projects (Misati & Nyamongo, 2012). The increase in uncertainty dampens both domestic and foreign investments which negatively impacts on economic growth. The labour force participation rate captures the level of human capital in the economy and expected to be positively signed.

The PMG model assumes that variables are cointegrated and as such cointegration tests have to be conducted initially. The variables in the study have different orders of integration and therefore ARDL bounds test proposed by Pesaran, Shin and Smith (2001) is employed. The test is applied to the individual countries in a similar approach followed by Pesaran et al (1999). The ARDL approach has a number of advantages over the other cointegration tests. Firstly, the test can be conducted with variables of varying orders of integration unlike tests such as the Johansen cointegration test which requires all variables to be integrated of order one. Secondly, the ARDL approach is robust in case of small sample sizes. Lastly, the technique utilised a reduced form equation compared to the system approach adopted by other techniques such as the Johansen test.

The implementation of the ARDL-bounds test approach involves two steps. In the first step, equation (1) is estimated using the OLS in order to determine the existence of long-run relationship between unemployment rate and relevant energy variables as well as the control variables. The long-run relationship is determined using the Wald-coefficient test or F-test for joint significance of the lagged level of the variables. In the present study, the null hypothesis

of no co-integration is performed by setting $\phi_1 = \phi_2 = \phi_3 = \phi_4 = \phi_5 = 0$ against the alternative that $\phi_1 \neq \phi_2 \neq \phi_3 \neq \phi_4 \neq \phi_5 \neq 0$. Similar restriction is imposed when other variables in equation (1) are used as dependent variables (Pesaran et al. 2001).

Pesaran et al. (2001) provide two sets of asymptotic critical value for the F-test. One set assumes that all the variables are I(0) and another assumes the variable are all I(1). The null hypothesis is rejected if the computed F-statistic is shown to be higher than the upper bound of the critical values. Conversely, if the computed F-statistic falls below the lower bound of the critical values, then the null hypothesis cannot be rejected. However, if the computed F-statistic falls within the band, then the result is inconclusive and prior information about the order of integration of the variable is necessary to make a decision on long-run relationships.

4 EMPIRICAL RESULTS

Table 5: Bounds test

Country	**F-statistics**
Botswana	17.34
Lesotho	6.04
Madagascar	8.75
Malawi	2.11
Mauritius	1.29
Mozambique	11.21
Namibia	26.35
South Africa	13.87
Swaziland	2.77
Tanzania	3.69
Zambia	4.73

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
1%	3.29	4.37

Source: Researchers' own computations

The bounds test results are shown on table 5 and these reveal that cointegration is detected at the 1% level in all countries with the exception of Malawi, Mauritius, Swaziland and Tanzania. Cointegration is only detected at the 10% level in Tanzania while Malawi, Mauritius and Swaziland the null of no cointegration is not rejected.

Diagnostic tests are conducted on the individual ARDL models and the results are presented on table 6. The level of significance chosen for the analysis is the 5% level. Residual normality is detected 10 of the 11 countries while no country shows evidence of serial correlation and heteroscedasticity. Model misspecification is only detected in Swaziland. Therefore, co-integration is detected in the majority of the countries in the study and most of the individual ARDL models pass the diagnostic tests which provides an indication that the PMG model is adequate for the analysis. As a result, it can be concluded that there is a long run relationship between trade openness and economic growth.

Table 6: Diagnostic tests

Country	**Normality**		**Serial correlation**		**Heteroscedasticity**		**Reset test**	
	JB	**Prob.**	**F-stat**	**Prob.**	**F-stat**	**Prob.**	**F-stat**	**Prob.**
Botswana	0.36	0.83	3.39	0.36	1.89	0.33	0.05	0.85
Lesotho	1.41	0.50	1.78	0.22	0.85	0.58	0.92	0.36
Madagascar	0.23	0.89	3.03	0.19	1.76	0.28	3.32	0.45
Malawi	0.78	0.68	2.07	0.27	1.22	0.45	5.71	0.75
Mauritius	0.77	0.68	1.58	0.26	0.66	0.76	1.34	0.25
Mozambique	0.71	0.70	3.04	0.15	0.90	0.60	0.26	0.32
Namibia	0.18	0.92	50.80	0.09	3.51	0.25	0.75	0.55
South Africa	1.60	0.45	0.01	0.94	0.42	0.93	0.04	0.85
Swaziland	11.40	0.00	0.72	0.44	0.15	0.99	11.65	0.012
Tanzania	5.58	0.06	3.46	0.16	0.54	0.84	0.59	0.60
Zambia	1.09	0.59	0.65	0.45	1.10	0.46	0.70	0.43

Source: Researchers' own computations

The PMG homogenous long-run and short-run results are shown on table 7. GDP and trade openness have a negative and significant long-run relationship which is against *a priori* expectations. A possible reason for the negative impact of trade openness on economic growth

is that SADC countries do not export diversified products which is necessary for trade openness to exert a positive impact on economic growth according to Ahmed and Suardi (2009). Moreover, the initial per capita income as well as the institutional quality in SADC countries are low. These results are consistent to Olufemi (2004).

Table 7: PMG results

Variables	Coefficient	Std. Error	T-statistics	Prob.
INF	-0.16	0.02	-9.80	0.00
INV	0.23	0.03	8.57	0.00
LAB	0.43	0.05	8.39	0.00
TRA	-0.16	0.02	-8.68	0.00
Short run				
COINTEQ01	-0.85	0.18	-4.69	0.00
D(GDP(-1))	-0.06	0.09	-0.64	0.52
D(INF)	0.07	0.10	0.73	0.47
D(INV)	-0.22	0.11	-2.02	0.05
D(INV(-1))	-0.11	0.07	-1.49	0.14
D(INV(-2))	-0.19	0.09	-2.20	0.03
D(LAB)	-4.99	3.07	-1.63	0.11
D(LAB(-1))	3.97	4.31	0.92	0.36
D(LAB(-2))	-1.23	2.47	-0.50	0.62
D(TRA)	0.10	0.07	1.35	0.18
D(TRA(-1))	0.11	0.05	2.15	0.03
D(TRA(-2))	0.09	0.03	2.86	0.00
C	-11.88	3.00	-3.96	0.00

Source: Researchers' own computations

Investment and labour force participation are positively related to economic growth which supports *a priori* expectations. Capital expenditures enhance productivity and hence are one of the major drivers of economic growth. Labour force participation rates are a measure of human capital in an economy. Therefore, the results suggest that higher levels of human capital boost economic growth in SADC countries. Inflation has a negative impact and significant on economic growth which confirms *a priori* expectations as inflation indicates macroeconomic instability in an economy.

The adjustment coefficient implies that 85% of the disequilibrium in the short-run is corrected in the first period. The coefficient is negative and less than one in absolute terms which is an indication of model stability. The homogenous short-run coefficients suggest that trade openness has a positive impact on economic growth in SADC countries. Investment is negatively related to GDP in the short-run while labour force participation rate has an insignificant effect on economic growth. However, as mentioned earlier, the PMG model assumes that the short-run coefficients are individual specific and as such the heterogenous short-run coefficients are estimated.

Table 8: PMG short-run coefficients

Country	GDP(-1)	INF	INV	LAB	TRA	Adjust
Botswana	-0.05 (-1.83)	0.92 (27.69)*	0.17 (3.66)**	-10.74 (-0.14)	0.39 (92.11)*	-0.63 (-4.93)*
Lesotho	-0.39 (-10.67)*	-0.13 (-139.98)*	0.10 (6.57)**	8.87 (1.41)	0.09 (71.67)*	0.05 (7.69)*
Madagascar	-0.26 (-79.44)*	-0.03 (-28.99)*	0.09 (17.92)*	5.22 (3.87)**	0.47 (350.15)*	-1.20 (-74.38)*
Malawi	0.001 (0.02)	0.30 (18.48)*	-0.28 (-2.73)***	-2.26 (-0.77)	-0.36 (-10.47)*	-0.36 (-8.35)*
Mauritius	-0.21 (-9.46)*	0.25 (11.61)*	0.22 (5.31)**	-2.24 (-3.84)**	0.13 (37.26)*	-0.80 (-19.51)*
Mozambique	-0.11 (-1.21)	0.05 (4.40)*	-0.15 (-2.09)	-3.10 (-0.19)	-0.20 (-8.51)*	-0.84 (-3.86)**
Namibia	0.57 (46.79)*	-0.18 (-15.28)*	-0.50 (-16.53)*	-0.63 (-2.39)***	0.08 (16.39)*	-2.09 (-57.19)*
South Africa	-0.13 (-2.28)	0.05 (0.93)	0.14 (0.67)	-0.81 (-4.35)*	0.23 (24.30)*	-0.47 (-10.04)*
Swaziland	0.25 (10.33)*	0.01 (0.92)	-0.37 (-16.79)*	-33.40 (-1.10)	0.01 (7.32)*	-0.61 (-17.64)*
Tanzania	-0.45 (-27.02)*	-0.30 (117.42)*	0.12 (31.80)*	0.27 (3.33)**	0.03 (44.26)*	-0.59 (-20.63)*
Zambia	0.16 (9.27)*	-0.14 (-24.76)*	-0.52 (108.42)*	-2.04 (-27.35)*	0.20 (127.13)*	-1.65 (-31.17)*

Where: (*), (**) and (***) indicate 1%, 5% and 10% significance levels, respectively. Figures in parentheses are t-statistics

Source: Researcher's own computations

The heterogenous PMG results are presented on table 8. Trade openness has a positive impact on economic growth in nine countries which suggests that trade liberalisation is growth enhancing only in the short-run. Most of the adjustment coefficients are all negative and significant. However, the adjustment coefficients for Lesotho, Madagascar Namibia and

Zambia are either positive or greater that one which is an indication of model instability. In the seven countries with stable models, trade openness has a positive short-run effect on economic growth in five of the countries.

5 CONCLUSION

This paper served to shed some light on the ongoing controversy over the linkage between economic growth and trade openness. In doing so, we focus on 11 SADC countries covering the period between 1990 and 2016. The ARDL-bounds test approach and the Pooled Mean Group model are employed to estimate the long run relationship between economic growth, trade openness, investment, labour and inflation. The results evidenced a long run relationship between the variables at the 1% level of significance in all countries with the exception of Malawi, Mauritius, Swaziland and Tanzania. In Tanzania, the long run relationship is discovered at the 10% level of significance while Malawi, Mauritius and Swaziland are not co-integrated.

GDP and trade openness have a negative and significant long-run relationship which is against *a priori* expectations. A possible reason for the negative impact of trade openness on economic growth is that SADC countries do not export diversified products which is necessary for trade openness to exert a positive impact on economic growth according to Ahmed and Suardi (2009). Trade openness has a positive impact on economic growth in nine countries which suggests that trade liberalisation is growth enhancing only in the short-run. Most of the adjustment coefficients are all negative and significant. However, the adjustment coefficients for Lesotho, Madagascar Namibia and Zambia are either positive or greater that one which is an indication of model instability. In the seven countries with stable models, trade openness has a positive short-run effect on economic growth in five of the countries.

From an economic policy perspective, the findings of this study detected that trade openness is hinders growth in SADC countries in the long run. It is recommended that the government should moderate its trade liberalisation policies as their economies prove to be weak in absorbing the negative shocks from external trade. Therefore, suitable monetary and fiscal policies need to be put in place to protect the economy against the external influences. Furthermore, SADC should diversify the export structure and export more manufactured products. This will enhance employment and economic development.

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