www.jard.edu.pl http://dx.doi.org/10.17306/J.JARD.2023.01709

Journal of Agribusiness and Rural Development

pISSN 1899-5241
eISSN 1899-5772

3(69) 2023, 333–340
Accepted for print: 18.09.2023

AN ANALYSIS OF THE RELATIONSHIP BETWEEN EXPORTS AND ECONOMIC GROWTH IN SOUTH AFRICA, 2000–2020

Molobe Joyce Ramakgasha✉, Lungile Sivuyile Gidi, Tshephi Kingsley Thaba

University of Limpopo, South Africa

Abstract. This study aimed to investigate how exports affect the overall growth of the economy in South Africa. Quarterly time series data from StatsSA and the South African Reserve Bank covering 2000 to 2020 were used. The study utilized numerous econometric approaches, such as the unit root test, Johansen's cointegration procedure, the Vector Error Correction Model (VECM), and the Granger causality model, to gain a clear perception of the relationship between exports and the rate of South Africa's economic growth. The Johansen cointegration test was conducted, confirming the presence of a long-term equilibrium relationship between the data series. The results of the unit root test indicated that both variables became stationary at the first difference, as evidenced by both passing the Augmented Dickey-Fuller (ADF) test. The correlation between exports and growth of the economy is positive in the short term and in the long term. The outcomes of the Granger causality tests indicated that GDP Granger-causes exports, signifying that economic growth in South Africa has an effect on exports. Additionally, the VECM outcomes demonstrated that there exists both a short-term and long-term relationship between economic growth and exports in South Africa.

Keywords: exports, economic growth, Vector Error Correction Model, Granger Causality test and South Africa

INTRODUCTION

Most economists describe economic growth as a rise in the number of goods and services manufactured by a nation overtime (Broughel and Thierer, 2019). The economic sizes of different countries across the world vary greatly, with some countries being very rich while others are very poor. While some countries experience rapid economic growth, others either grow slowly or not at all (Soylu, 2017). Numerous studies have been carried out globally to investigate whether a nation should concentrate on boosting exports to drive economic growth or prioritize local trade to promote export expansion (Mehrara and Firouzjaee, 2011).

Economic welfare is significantly impacted by economic growth, to the extent that the latter is one of the most critical determinants of the former. The link between economic growth and exports is a common subject of discussion, as evidenced by economists' efforts to explain variations in the level of economic growth between different countries. Exports of goods and services are a significant source of foreign exchange income, which helps to alleviate the burden on the balance of payments and generate job opportunities (Shihab et al., 2014).

In recent years, export performance has played a crucial role in the economic advancement of many developing nations. It has led to accelerated growth and a reduction in poverty levels (Tekle, 2018). Exporting goods has yielded economic advantages stemming from efficiency gains linked to leveraging comparative advantages and the better allocation of limited resources (Arsawan et al., 2022). Furthermore, there are dynamic gains in the export industry propelled by amplified competition, increased economies of scale, improved utilization of capacity, knowledge and know-how dissemination, and technological advancements (Shafaeddin, 2010).

✉Molobe Joyce Ramakgasha, University of Limpopo, Pretoria, South Africa, e-mail: joycem.jm3@gmail.com, https://orcid.org/0000-0001-8313-2815

When economists attempt to describe the varying degrees of economic growth across different nations, they often examine the link between exports and economic growth, which is a frequently discussed subject (Yanikkaya, 2003). The reason exports are viewed as a driving force for economic and social development is that they have the potential to increase technological innovation, meet foreign demand, and generate more foreign exchange inflows (Ramos, 2001). Exports are considered to be a driver of economic and social development because they have the potential to reduce poverty and influence economic growth (Bakari and Mabrouki, 2016).

Prior to South Africa's transition to a democratic government, the country encountered a range of challenges, including harsh trade barriers, financial sanctions, and inner political turmoil (Du Plessis, 2006). These barriers were underpinned by a trade policy that prioritized domestic interests (Thurlow, 2006). However, after the transition to democracy, there was a major shift in national fiscal and monetary policies (Thirlwall, 2011). For instance, in 1990, African governments started adopting trade liberalization policies and even endorsed the Uruguay Round of the General Agreement on Tariffs and Trade (Mabugu and Chitiga, 2007).

There was widespread anticipation that lifting these restrictions would improve South Africa's economic performance (Thurlow, 2006). South Africa opened its trade to other nations, with the expectation that promoting trade with other countries would boost economic growth, in the year 1996 (Du Plessis, 2006). Aside from those steps, South Africa implemented two Free Trade Areas (FTAs), one of which was the South African FTA, which was ratified in 1999 but was not enforced until 2000. The other was the Southern African Development Corporation (SADC), consisting of fourteen (14) African countries, which was established in 1996 and came into effect the same year.

Although real GDP remained 3.2% lower than in the same period in the previous year, the South African economy experienced an unexpected uptick in growth during the first quarter of 2021, with the GDP expanding by 1.1% in real terms compared to the previous quarter (IDC, 2021). This growth appears to have been driven by a rise in revenue among export-oriented businesses across various parts of the agriculture and manufacturing sectors, as the improvement of trading conditions in their respective global markets (IDC, 2021).

LITERATURE REVIEW

Academics and policymakers have conducted various studies on exports and economic growth. Most recent studies have primarily concentrated on the application of VAR and VEC models, along with the cointegration approach.

Jordaan and Eita (2009) investigated the cause-and-effect connection between the expansion of the economy and exports in Botswana during the period spanning from 1996 to 2007. The findings showed a bidirectional causal relationship between exports and economic growth, suggesting support for the export-led growth hypothesis and inverse causality. The research outcomes suggested that to accomplish significant economic growth, it is advisable to support measures that facilitate the increase of exports.

Ajmi et al. (2015) investigated the dynamic causal link between exports and economic growth using both linear and nonlinear Granger causality tests. The study used annual South African data on real exports and real GDP from 1911 to 2011. The linear Granger causality result showed no evidence of significant causality between exports and GDP. Accordingly, the study turned to nonlinear methods to evaluate Granger causality between exports and GDP. It used both Hiemstra and Jones (1994) and Diks and Panchenko's (2005) nonlinear Granger causality tests. Using the Hiemstra and Jones (1994) test, it found unidirectional causality from GDP to exports. However, using the Diks and Panchenko (2005) test, the study found evidence of significant bidirectional causality.

Agrawal (2014) conducted a study on the contribution of exports to economic growth in India and investigated whether or not the export-led growth hypothesis (ELGH) was applicable to India. The study employed a causality test to establish the authenticity of ELGH for India during the trade liberalisation era. Other analyses, such as error variance decomposition, were also conducted, and the outcome supported the ELGH, indicating that the speedy progression of exports played a crucial part in elevating the growth rate in India after the economic reforms of 1991.

Figure 1 shows the behaviour of GDP relative to prices and exports in South Africa over the period from 2000 to 2020. The South African economy has registered an average annual rate of economic growth of 3.3 percent since 1994. This compares with an average

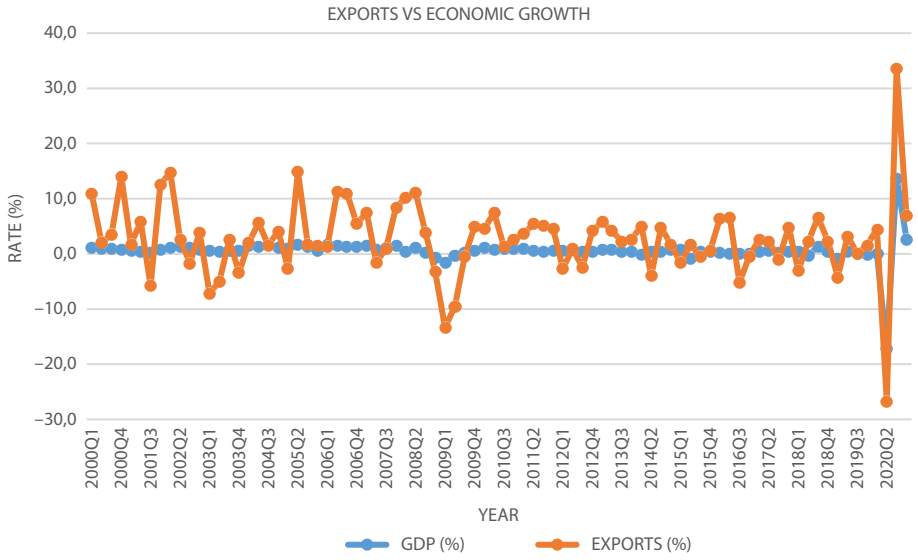

Fig. 1. Relationship between exports and GDP
Source: own computation.

of 3.6 percent for the world economy at large. In the period from 1994 to 2000, the economy grew on average by 2.9 percent; in the period from 2001 to 2007, the economy grew on average by 4.3 percent; and since the Global Financial Crisis (GFC), it has grown by 2.2 percent.

South Africa experienced the longest economic boom in its history during the period from 2003 to 2008. Employment increased, unemployment fell, investment rose and inflation and real interest rates declined rapidly. As a result, the rand gained in value, which caused export growth to increase. However, the global economic recession that followed reversed many of the gains in employment creation, and investment levels decreased (DTI, 2013). This can be seen in the 1.6 percent and 13.36 percent declines in GDP and exports, respectively, in the first quarter of 2009.

RESEARCH MATERIALS AND METHOD

This analysis of the relationship between exports and economic growth was based on data from South Africa. The research employed a set of secondary time-series data spanning 21 years, specifically from the beginning of the first quarter of 2000 until the end of the fourth quarter of 2020, to evaluate the relationship between exports and economic growth. The total number of observations is 84 (21 x 4). The data used in the study were obtained from StatsSA and the South African Reserve Bank. The unit root test was implemented using the Augmented Dickey-Fuller test (ADF), after which the study employed the Johansen cointegration model to determine the role of exports in promoting economic growth. To evaluate the short-term and long-term relationships between exports and economic growth in South Africa, the study utilized the Vector Error Correction Model (VECM). Lastly, the Granger causality test was employed to examine the direct causal relationship between exports and economic growth.

Model description

Unit root test

In economic modelling, it is important that both variables being studied, dependent and independent, exhibit stationarity. Stationarity refers to a statistical property of a process whereby the average and standard deviation remain constant over time (Challis and Kitney, 1991).

Augmented Dickey fuller (ADF) test

Non-stationary variables often exhibit multiple trends, where the average value does not revert to its previous level over time. The ADF test was developed to build on the work of Dickey and Fuller from 1979 and 1976, respectively. These researchers refined their model with the primary goal of testing their hypothesis, which

suggested that the parameter φ equals 1 in the equation $Y_t = \varphi Y_t{-}1 + U_t$.

Therefore, their hypotheses are:

H0: Series encompasses a unit root ($\varphi = 1$).

H1: Series is stationary ($\varphi < 1$).

If the time series data do not have a unit root issue, then it is acceptable to reject the null hypothesis. This means that the hypothesis put forward for testing can be rejected with confidence (Gujarati and Porter, 2009).

Johansen cointegration test

In this study, the Johansen multivariate framework was utilized to investigate the correlation between exports and growth in the South African economy (Johansen, 1987). The framework was employed to investigate the extent to which exports impact the country's economic growth. The Johansen cointegration test, which comprises the Trace statistic and the Max-Eigen statistic, was employed to accomplish this.

Vector Error Correction Model

In this study, the aim was to explore the connection among between growth and exports in both the short-term and long-term. To achieve this, the Vector Error Correction Model was utilized. The VECM helped to analyse the dynamics between the variables in the dataset in the short run and the equilibrium relationship between them in the long run.

The model can be illustrated as:

$$\Delta LGDP_t = \beta_0 + \beta_1 \Delta X_{t-1} + \beta_2 IM_{t-1} + \beta_3 X GDP_{t-1} + \varepsilon_t \quad (1)$$

In the above equation, ΔL represents the variation in the natural logarithm of GDP, while β_0 is a fixed value. The parameters β_1, β_2 and β_3 correspond to the independent variables, and εt represents the error term.

Granger causality test

Hurlin and Venet's (2001) causality test is a method commonly utilized by researchers to evaluate the correlation between economic growth and exports. The test is employed to ascertain if one variable's previous values can be used to predict another variable's upcoming values. As per this test, if variable *X* is beneficial in predicting the values of variable *Y*, then it is said to Granger-cause variable *Y*.

The relationship between the *X* and *Y* variables can be established by employing the following model:

$$Y_t = b_0 + a_0 X_t + \sum m_j{=}1\ a_j X_{t-j} + \sum n_i{=}1 b_i Y_{t-i} + u_t \quad (2)$$

$$X_t = c_0 + d_0 Y_t + \sum n_i{=}1\ c_i Y_{t-i} + \sum m_j{=}1 d_j Y_{t-j} + v_t \quad (3)$$

Where:

The error terms of the model are represented by u_t and v_t. By testing the null hypothesis that $a_j = d_j = o$ for all j (j = o, 1...m), as opposed to the alternative hypothesis that $a_j \neq 0$ and $dj \neq 0$ for some j_s, the direction of the relationship between *X* and *Y* can be determined.

RESULTS AND DISCUSSIONS

Table 1, located below, displays the mean, median, standard deviation, maximum, and minimum values for exports and GDP data series. For GDP, the minimum value is –17.09 and the maximum value is 13.76, while for exports, the minimum value is –26.76 and the maximum value is 33.63. The average real GDP growth rate is 0.60%, with a standard deviation of 2.50, whereas exports have a mean of 2.73%, with a standard deviation of 6.96. Notably, all variables' extreme values are far from the mean, indicating significant variation. This is confirmed by the relatively low standard deviations. Therefore, it can be concluded that there are no high magnitude variations in the examined macroeconomic variables of exports and GDP growth data.

Table 1. Descriptive statistics of exports and GDP measured in percentages

Properties	GDP (Y)	Exports (X)
Mean	0.60	2.73
Median	0.62	2.56
Maximum	13.76	33.63
Minimum	17.09	–26.762
Standard deviation	2.50	6.96

Source: own computation, 2022.

Unit root test

To determine the stationarity characteristics of the data set in a statistical manner, the study employed the ADF unit root test. This test involves rejecting the null hypothesis of unit root at a significance level of 5% if the absolute value of the ADF statistic is higher than the critical value associated with it. Table 2 illustrates the

Table 2. Augmented Dickey-Fuller (ADF) test results

Variables	Exports(X) – (levels)			First difference		
	intercept	intercept &trend	none	intercept	intercept &trend	none
ADF statistics	–9.910580	–9.927039	–8.690619	–9.433006	–9.386502	–9.500942
Critical values at 5% level	–2.896779	–3.464865	–1.944762	–2.897678	–3.466248	–1.944862
	Output/GDP(Y) – (levels)			First difference		
	intercept	intercept &trend	none	intercept	intercept &trend	none
ADF statistics	–2.393269	–3.361575	–2.186902	–12.76092	–12.64379	–12.82490
Critical values at 5% level	–2.897678	–3.465548	–1.944862	–2.897678	–3.466248	–1.944862

Source: own computation, 2022.

outcomes of the three ADF test series that were performed in the study. As evidenced by the outcomes presented in Table 2, both exports and GDP rate data are stationary at the first difference level for each variable, although the fact that the ADF statistics for exports and GDP rate (9.38 and 12.64, respectively) are higher than the critical value of 3.47 suggests that non-stationarity is present in the data. Therefore, the null hypothesis of non-stationarity for the unit root test is rejected at the 5% level of significance. This means that the Johansen cointegration test can be employed.

Johansen cointegration tests

To determine whether a long-term relationship exists between the variables, the Johansen cointegration test was conducted as part of this study. The results of the cointegration test are presented in Table 3 above, using trace statistics to analyse the variables. The results show that there is a co-integrated equation at the 5% level of significance, as indicated by the trace test. The decision rule requires that the null hypothesis is rejected when there is no cointegration between the variables. Based on the Johansen cointegration test results, there is evidence that the two variables are cointegrated. The trace test reveals that there is one cointegration association between the two variables at the 5% level of significance. During the test, the null hypothesis that the rank is 0 was tested, and the p-value for the trace statistic was less than 5%. Thus, we reject that null hypothesis and assume that at least one cointegration relationship exists in the system.

Table 4 displays the outcomes of the cointegration test that used maximum eigenvalue statistics for the variables, and the test indicates that a cointegrated equation exists at a 5% level of significance. The Johansen cointegration test outcomes support the idea that the two variables are cointegrated. The Max-Eigen statistics test reveals that there is one cointegration link between the two variables at a 5% level of significance. When the null hypothesis was tested, and the rank was 0, the p-value for the trace statistic was found to be less than 5%, leading to the rejection of the null hypothesis.

Table 3. The results of the cointegration test using trace statistics

Hypothesized No. of CE(s)	Eigenvalue	Trace statistics	0.05 critical value	Prob.**
None*	0.285626	39.40114	29.79707	0.0029
At most 1	0.136230	12.15694	15.49471	0.0094

Source: own computation, 2022.

Table 4. The results of the cointegration test using Max-Eigen statistics

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen statistics	0.05 critical value	Prob.**
None*	0.285626	27.24419	21.13162	0.0061
At most 1	0.136230	11.86234	14.26460	0.0091

Source: own computation, 2022.

The results of both the trace and eigenvalue cointegration tests imply that there is a long-term link between the variables. Consequently, a Vector Error Correction Model (VECM) could be employed.

Vector Error Correction Model results

Table 5 above displays the error correction term (ECT), which has a positive coefficient and is not statistically significant at the 5% level. The value of the ECT is 0.148984, which indicates that the link among the variables is in line with prior expectations and that the stability condition is met. This suggests that in the long run, the system will return to equilibrium, and any short-run imbalances will be corrected. The current period adjusts for the previous period's deviation from short-run equilibrium at a speed of 14.9%. The positive sign and the value of the ECT, along with its t-statistical value of 0.95047, suggest a significant impact of economic growth on exports in South Africa. The value of R-squared (R^2) is 0.715669, demonstrating that 71.6% of the difference in real GDP is accounted for by the explanatory variables, while the remaining 28.4% is attributable to the effects of other variables not included in the model. In the short run, a 1% change in LGDP leads to a 0.1140% rise in the change in X, holding other factors constant.

Table 5. The results of the Vector Error Correction Model

Error Correction:	D(LGDP)	D(X)
CointEq1	0.148984 (0.15675)	1.975552 (0.44731)
	[0.95047]	[4.41655]
D (GDP(–1))	–1.786487 (0.19536)	–3.690879 (0.55750)
	[–9.14452]	[–6.62044]
D(X(–1))	0.114044 (0.07531)	0.350965 (0.21490)
	[1.51441]	[1.63316]
C	68.81315 (45.4177)	140.7121 (129.607)
	[1.51512]	[1.08568]
R-squared	0.715669	0.624601
Adj. R-squared	0.688404	0.588604

Source: own computation, 2022.

Granger causality test

Table 6 illustrates that the null hypothesis, suggesting that exports do not cause GDP, is accepted at a significance level of 5%. However, the null hypothesis suggesting that GDP does not cause exports is rejected at a significance level of 5%, indicating that GDP can forecast the growth of exports in South Africa. These findings reveal the presence of one-way causality between exports and GDP, indicating that the growth in exports causes economic growth and vice versa. This also implies that over the long run, changes in exports align with changes in GDP.

Table 6. The results of the Granger causality test

Null hypothesis	Obs	Lags	*F*-statistic	Prob.
X does not Granger Cause GDP	82	2	0.43265	0.6504
GDP does not Granger Cause *X*			5.50066	0.0058

Source: own computation, 2022.

CONCLUSION

The main aim of the study was to investigate the connection between economic growth and exports in South Africa, with GDP serving as a substitute for economic growth and exports denoted by *X*. The initial analysis showed that both variables had unit roots and were non-stationary. However, after applying first differencing, both series became stationary, enabling the use of cointegration approaches. The study examined the long-term relationship among exports and economic growth and the results demonstrated that the variables have some sort of relationship.

The study presented three hypotheses. The first stated that exports do not contribute to the development of the South African economy, which was refuted based on the cointegration test using both the trace and Max-Eigen statistics. The second was that there is no short-run and long-run relationship between exports and economic growth, which was rejected as there was evidence that a long-run relationship exists among variables, although there is no short-run relationship. The third stated that there is no causal relationship between exports and economic growth, which was accepted based on the *F*-statistic of 0.43 being greater than the critical value of 0.05.

The study recommends that the South African government restructure its spending to align it with its macroeconomic growth objectives. The government's proposed export promotion policy seems to be on the right track. Economic initiatives should aim to increase South Africa's exports and competitiveness. As a result, strategic trade agreements with various partners need to focus on ensuring that South Africa increases its export share in various markets while preserving its ability to use tariff policy. The government should support the industrial sector through measures such as encouraging the provision of information and communication technology, education, and skills development, among other things.

REFERENCES

Agrawal, P. (2014). The role of exports in India's economic growth. IEG Working Paper No. 345. Retrieved from: https://iegindia.org/upload/publication/Workpap/wp345.pdf

Ajmi, A.N., Aye, G.C., Balcilar, M., Gupta, R. (2015). Causality between exports and economic growth in South Africa: evidence from linear and nonlinear tests. J. Dev. Areas, 49(2). https://www.jstor.org/stable/24241294

Arsawan, I.W.E., Koval, V., Rajiani, I., Rustiarini, N.W., Supartha, W.G., Suryantini, N.P.S. (2022). Leveraging knowledge sharing and innovation culture into SMEs sustainable competitive advantage. Int. J. Prod. Perform. Manag. Retrieved from: https://www.emerald.com/insight/content/doi/10.1108/IJPPM-04-2020-0192/full/html

Bakari, S., Mabrouki, M. (2016). The relationship among exports, imports and economic growth in Turkey. Higher Institute of Companies Administration Universityhaa of Gafsa, Tunisia. Retrieved from: https://mpra.ub.uni-muenchen.de/76044/1/MPRA_pape

Brooks, C. (2008). Introductory econometrics for Finance. Cambridge University Press.

Broughel, J., Thierer, A.D. (2019). Technological Innovation and Economic Growth: A Brief Report on the Evidence. Mercatus Research Paper. retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3346495

Challis, R.E., Kitney, R.I. (1991). Biomedical signal processing: medical and biological engineering and computing. London, UK.

Diks, C., Panchenko, V.A. (2005). Note on the Hiemstra-Jones test for granger noncausality. Stud. Nonlin. Dyn. Econ., 9(2). https://doi.org/10.2202/1558-3708.1234

DRI (Department of Research and Information). (2021). Economic overview: recent developments in the global and South African economies. Retrieved from: https://www.idc.co.za/wp-content/uploads/2021/05/Economic-Overview-IDC-Research-Information-publication-May-2021-External.pdf

Du Plessis, B. (2006). Economic growth in South Africa since 1994. Berue for Economic Research.

Edwards, L., Hlatshwayo, A. (2020). Exchange rates and firm export performance in South Africa. The United Nations University World Institute for Development Economics Research (UNU-WIDER), Helsinki. https://doi.org/10.35188/UNU-WIDER/2020/758-3

Gujarati, D.N., Porter, D.C. (2009). Basic Econometrics. (5th ed.). New York: McGraw Hill Inc.

Hiemstra, C., Jones, J.D. (1994). Testing for Linear and Nonlinear Granger Causality in the Stock Price-Volume Relation. J. Fin., 49(5), 1639–1664. https://doi.org/10.2307/2329266

Hurlin, C., Venet, B. (2001). Investigating causal relations by econometric models and cross-spectral methods. Econometrica, 37.

IDC (Industrial Development Corporation). (2017). Economic overview: recent developments in the global and South African economies. Department of Research and Information, South Africa. Retrieved June 12th 2021 from: https://www.idc.co.za/wp content/uploads/2018/11/economic_overview_august2017.pdf

Johansen, S. (1987). Statistical analysis of cointegration vectors. J. Econ. Dyn. Cont., 12. https://www.math.ku.dk/bibliotek/arkivet/preprints-fra-ims/1987/preprint_1987_-_no_7_johansen__s_ren_-_statistical_analysis_of_cointegration_vectors.pdf

Jordaan, A.C., Eita, J.H. (2009). Testing the export-led growth hypothesis for Botswana: a causality analysis. Botswana J. Econ., 6(10), 2–14. Retrieved from: http://www.ajol.info/index.php/boje/article/view/60205

Mabugu, R., Chitiga, M. (2007). South Africa trade liberalization and poverty in a dynamic microsimulation CGE model. Retrieved from: https://www.up.ac.za/media/shared/61/WP/wp_2007_18.zp39499.pdf

Mehrara, M., Firouzjaee, B.A. (2011). Granger causality relationship between export growth and GDP growth in developing countries: panel cointegration approach. Int. J. Human. Soc. Sci., 1(16). Retrieved from: https://api.semanticscholar.org/CorpusID:56022236

Ramos, F.R. (2001). Exports, imports, and economic growth in Portugal: evidence from causality and cointegration analysis. Econ. Model., 18(4), 613–623. https://doi.org/10.1016/S0264-9993(00)00055-9

Shafaeddin, M. (2010). Trade liberalization, industrialization and development: the experience of recent decades. Retrieved from: https://mpra.ub.uni-muenchen.de/26355/1/MPRA_paper_26355.pdf

Shihab, R.N.A., Thikraiat, J., Shatha, S., Abdul-Khaleq, S.A, Zaytoonah, A.I., Jordan, J.A. (2014). The causal relationship between the agricultural exports and agricultural growth in Jordan. Int. J. Bus. Soc. Sci. Retrieved from: https://www.researchgate.net/publication/319186258_The_Causal_Relationship_between_Exports_and_Economic_Growth_in_Jordan

Soylu, Ö.B., Çakmak, İ., Okur, F. (2017). Economic growth and unemployment issue. Panel data analysis in Eastern European Countries. J. Int. Stud., 11(1). Retrieved from: https://www.jois.eu/?401,en_economic-growth-and-unemployment-issue-panel-data-analysis-in-eastern-european-countries

Tekle, T.A. (2018). The relationship between export and economic growth in Ethiopia. Int. J. Multidiscip. Educ. Res., 7, 4(1). Retrieved from: http://ijmer.s3.amazonaws.com/pdf/volume7/volume7-issue4(1)-2018.pdf#page=52

Thirlwall, A.P. (2011). Balance of payments constrained growth models: history and overview. PSL Quart. Rev., 64(259), 307–351. Retrieved from: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2049740

Thurlow, J. (2006). Has trade liberalization in South Africa affected men and women differently? DSGD Disc. Paper. International Food Policy Research Institute. Retrieved from: https://www.ifpri.org/publication/has-trade-liberalization-south-africa-affected-men-and-women-differently

Yanikkaya, H. (2003). Trade openness and economic growth: a cross-country empirical investigation. J. Dev. Econ., 72(1), 57–89. https://doi.org/10.1016/S0304-3878(03)00068-3