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THE IMPACT OF VEGETABLES EXPORTS ON ECONOMIC GROWTH IN TUNISIA

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Abstract

The aim of this paper is to investigate the long run term and the short run term impacts of vegetables exports on economic growth of Tunisia. In order, to achieve this purpose, annual data were collected from the reports of World Bank for the periods between 1970 and 2015, was tested by using Correlation Analysis, Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) stationary test, co integration analysis of Vector Error Correction Model. According to the result of the analysis, vegetables exports have a positive effect on economic growth in the long run term and in the short run term. These results provide on evidence that vegetables exports, thus, are seen as source of economic growth in Tunisia. For this reason, it is very important to refine investment in this sector.

Keywords: Vegetables exports, Economic growth, Cointegration, VECM, Tunisia

JEL classification: F11, F14, O47, O55, Q17, Q18

1. Introduction

For developing countries, economic growth remains a primary goal. Otherwise, it is reached quickly thanks to the increase and good handling of international trade. Moreover, the export has led the growth assumption that exports are the main source of economic growth including the existence of several theoretical justifications; (i) in the short run, export growth drivers to income growth via exchange rate multiplier. (ii) Export growth is driving up imports of manufactured goods, capital goods and technology. (iii) The intensification of exports encourages the further development of robust competition, which leads at the same time to economies of scale, technological development and economic growth. (iv) Export can Producing positive externalities (more efficient management, better production techniques and technical expertise in product design) that lead to economic growth.

Since the beginning of the training and regulation of international communities, international trade (which continues to this day) is intended to improve welfare especially through specialization in the production of each community. The positive effects of exports for economic growth are widely

proven both theoretically and empirically. However, they become less obvious when a distinction is made between export diversification and economic growth. An economy highly dependent on the income of a natural resource may be unstable or even collapse if the price of this product falls in the world market.

In addition, economic diversification contributes positively to job creation, the fight against corruption and the improvement of the institutional quality of countries. Economic diversification has been linked to the stability and sustainability of economic growth. An economy's dependence on a single source of income jeopardizes the ability of the economy to maintain a certain level of economic growth in the long run since the economy depends heavily on the income of this resource. Alhowais and Al-shihri (2010); Auty (1993); Mobarak and Karshenasan (2012). In addition, economic diversification contributes to job creation because more than one sector is active and contributes to the economic activities of Kayed and Hassan (2011). Economic diversification does not only affect economic growth, but positively influences political stability, social development and institutional quality Busse and Gröning (2013); Bjorvatn et al. (2012). On the other hand, corruption and inequality in income distribution have been linked to the low level of economic diversification in an economy which is a negative result in natural resource curse theory Serra (2006); Busse and Gröning (2011). The critical impacts of diversity on economic performance was confirmed by Malizia and Ke (1993), Wagner and Deller (1998), Herzer and Nowak-Lehnmann (2006), Saviotti and Frenken (2008), Hesse (2008), and Papageorgiou and Spatafora (2012) in their empirical analyses.

From a historical, theoretical and empirical point of view, there are several arguments that show the importance of agriculture in the fight against poverty, the evolution of economic growth and sustainable development in nations especially in countries in development. These were confirmed by some researches like Rosenstein-Rodan, (1943); Lewis (1954); Scitovsky (1954); Hirschman (1958); Jorgenson (1961). From a parallel point of view, the high proportion of the population in the world leads in turn to a high rate of consumption of agricultural products, the deterioration of the climate in recent decades and the high rate of pollution have a negative impact on the profitability of agricultural products, making their value at the moment the most valuable goods. All these arguments prove the importance of agricultural exports today. However, a very few studies have examined jointly the impact of agricultural exports on economic growth and special the structure of some agricultural exports on economic growth. Furthermore, such an empirical exercise has never been done in the context of Tunisia. In this paper, we try to bridge these gaps by investigating the impact of vegetables exports on economic growth in the long run and the short. The paper is organized as follows. The next section shows the review literature. Section 3 describes the used data and the econometric model. Section 4 presents the main results. Section 5 presents the concluding remarks and policy implications.

2. Literature survey

Among the studies that have shown the importance of exports to the contribution of economic growth are Michaely, (1977); Balassa, (1978); Grossman and Helpman, (1989) Rahman (1993); Savvides, (1995); Edward, (1998). On the other hand, a group of authors has shown that in the case of certain countries exports have no effect on economic growth, among these studies, we can cite Tyler (1981), Helleiner (1986), Onafowora and Owoye (1998) . Unfortunately, empirical research on the contribution of agricultural exports to economic growth has been neglected in the literature. But various economies support the importance of agricultural exports in improving economic growth, such as Johnston and Mellor (1961); Levin and Raut (1997); Ekanayake (1999), Karp and Perloff (2002); Ardeni and Freebairn (2002); Schiff and Valdes (2002); Lopez (2002); Dawson (2005).

Table 1 - Studies related to the relationship between exports and economic growth

No	Authors	Countries	Periods	Econometrics Techniques	Keys Findings
1	Gbaiye et al (2013)	Nigeria	1980 - 2008	Cointegration Analysis	AX => Y
2	Ojo et al (2014)	Nigeria	1980 - 2012	Cointegration Analysis VECM	AX => Y: LR
3	Gaber (2015)	Palestine	1986 - 2012	Cointegration Analysis VAR	X # Y
4	Gokmenoglu et al (2015)	Costa Rica	1980 - 2013	Cointegration Analysis Granger Causality Tests	X <= Y
5	Ijirshar (2015)	Nigeria	1970 - 2012	Cointegration Analysis ECM Granger Causality Tests	AX => Y: LR AX <=> Y: SR
6	Shah et al (2015)	Pakistan	1972 -2008	Cointegration Analysis VECM Granger Causality Tests	AX => Y: LR (-) AX # Y: SR
7	Tapşin (2015)	Turkey	1974 - 2011	Granger Causality Tests	X <=> Y
8	Alam and Myovella (2016)	Tanzanian	1980 - 2010	Cointegration Analysis Granger Causality Tests	AX => Y
9	Oluwatoyese et al (2016)	Nigeria	1981 - 2014	Cointegration Analysis VECM	AX => Y: LR AX # Y: SR

				Granger Causality Tests	
10	Pegkas and Tsamadias (2016)	Greece	1970 - 2012	Cointegration Analysis VECM	X <=> Y: LR X <=> Y: SR
11	Umar (2016)	Indonesia	2007 - 2013	OLS	X => Y (-)
12	Bakari (2017)	Gabon	1980 - 2015	Cointegration Analysis ECM Granger Causality Tests	X => Y : LR (-) X => Y : SR
13	Bakari and Mabrouki (2017)	Panama	1980 - 2015	Cointegration Analysis VAR Granger Causality Tests	X => Y
14	Mahmood and Munir (2017)	Pakistan	1970 - 2014	Cointegration Analysis Granger Causality Tests	AX <= Y

Note: X means Exports, Y means Economic Growth, LR means Long Run, SR means Short Run and (-) means Negative Effect.

To determine the short-term and long-run effects between exports and economic growth, the table shows that recent studies in this area of research have focused on the Sims model and the co-integration approach. On the other hand, these two techniques have given in several studies approximations closer to reality.

3. Data, methodology and model specification

To determine the contribution of vegetables exports to economic growth in Tunisia, we must study its short-term and long-term impact to better clarify the relationship between them. For this reason, we will use the Sims model that aims to achieve this mission. In addition, the Sims model consists of respecting a set of econometric rules and a well-defined statistical tools approach. First, all the variables included in our model must be stationary whether in level, in first difference or in secondary difference. Second, determine the optimal number of delays that characterizes the variables included in the econometric model. Third, as soon as, the optimal delay number is determined, we will apply the analysis of cointegration relationships to check whether the estimated variables are cointegrated or not. Fourth, this step depends on the result of the third step. In the case of the absence of a cointegration relationship, we will apply the VAR model which aims to study the causalities between the estimated variables. On the other hand, in the case of the presence of one or more cointegration relationships, we will apply the VECM model which aims to study the effects between the variables estimated in the short term and in the long term. Finally, since econometric

analysis is always an approximation of results and events. We will perform a set of diagnostic tests, robustness tests and stability tests to see the robustness of our results, the quality of our model and the credibility of our econometric analysis. The augmented production function including exports and investment is expressed as

$$Y = A X^{\alpha_1} I^{\alpha_2} \quad (1)$$

In equation (1) Y is GDP, X is Export, I is Investment and A show the level of technology utilized in the country which is assumed to be constant. The returns to scale are associated with export and investment which are shown by α_1 and α_2 respectively. All the variables are mutated into logarithms in order to fabricate linear the non linear form of Cobb-Douglas production. The Cobb-Douglas production function is presented in linear functional form as follows:

$$\text{Log}(Y_t) = \text{Log}(A) + \alpha_1 \text{Log}(X_t) + \alpha_2 \text{Log}(I_t) + \varepsilon_t \quad (2)$$

The overhead empirical will explore the influence of export and investment on economic growth by keeping technology constant. The linear model rendering the impact of export and investment on economic growth after keeping technology constant can be written as follows:

$$\text{Log}(Y_t) = \alpha_0 + \alpha_1 \text{Log}(X_t) + \alpha_2 \text{Log}(I_t) + \varepsilon_t \quad (3)$$

Export in Tunisia comprises a lot of sectors. As we note that we will focus on vegetables exports. In this case we will be devising exports in two sectors; the first sector represents vegetables exports and the second sector represents the remaining share of export in the other sectors.

$$X = VX + OX \quad (4)$$

Equation (4) presents our export division (X) of which (VX) presents the vegetable export and (OX) presents the export in the other sector. In equation (5), (VX) and (OX) are relocated into logarithms in order to carry out linear the nonlinear form of Cobb–Douglas production.

$$\text{Log}(X_t) = \text{Log}(VX_t) + \text{Log}(OX_t) \quad (5)$$

When we merge equation 3 and 5, we obtain the following equation which presents our final model for our estimation.

$$\text{Log}\,(Y_t) = \alpha_0 + \alpha_1 \text{Log}\,(VX_t) + \alpha_2 \text{Log}\,(OX_t) + \alpha_3 \text{Log}\,(I_t) + \varepsilon_t \qquad (6)$$

In equation (6); {Y, VX, OX and I} present respectively economic growth, vegetable export, export in the other sector and investment. The returns to scale are associated with vegetable export, other export and investment which are shown by α_1, α_2 and α_3 respectively.

To analyze the impact of vegetables exports on economic growth of Tunisia this study utilized the time series data based on 46 annual observations for the time period of 1970–2015. The brief description of variables is given as under in Table 3.

Table 2 - Description of variables

No	Variable	Description	Source
1	Y	Gross domestic product (constant TND)	The Tunisian central bank
2	VX	Vegetables exports (constant TND)	The Tunisian central bank
3	OX	Other exports (constant TND)	The Tunisian central bank
4	I	Investment (constant TND)	The Tunisian central bank

4. Empirical analysis

4.1. Correlation test

To establish how forceful the nexus is between two variables, we can use the Pearson correlation coefficient value. (i) If the coefficient value is in the negative range, then that indicates the relationship between the variables is negatively correlated, or as one value increases, the other decreases. (ii) If the coefficient value is in the positive range, then that indicates the relationship between the variables is positively correlated, or both values increase or decrease together.

Table 3 – Correlation test

	Y	I	OX	VX
Y	1	0.9935	0.9932	0.9350
I	0.9935	1	0.9896	0.9164
OX	0.9932	0.9896	1	0.9459
VX	0.9350	0.9164	0.9459	1

The results of the correlation test give us that all the variables studied are positively correlated, that is meant an increase in investment, exports of vegetables and the other exports directly lead to an increase in the gross domestic product and the reverse when Is a decrease.

4.2. Tests for unit roots: ADF and PP

Consistent with the appearance of the curves [Log (Y), Log (I), Log (OX), Log (VX)], we observe according to their general directions at the same time and the same movement, which place their stationary in level. For this reason, we are obliged to test the stationary of the variables used in our model, in order to check whether or not the stature of a unit root is the same, using the augmented Dickey Fuller test (ADF) and the Phillipps-Perrons (PP).

Table 4 – Tests for unit roots

Variable	ADF		PP		Order of Integration
	Test Statistic	Probability	Test Statistic	Probability	
Log(Y)	6.567755***	0.0000	6.567755***	0.0000	I(1)
Log (I)	4.296551***	0.0074	4.296551**	0.0074	I(1)
Log(VX)	7.234173***	0.0000	7.234417***	0.0000	I(1)
Log(OX)	8.023627***	0.0000	9.211330***	0.0000	I(1)

*** and ** denote significances at 1% and 5% levels respectively

From Table 4, it can be seen that for all variables the statistics of the ADF test and the PP test are lower than the criterion statistics of the different thresholds than after a prior differentiation, so they are integrated with orders I(1), then we can conclude that there may be a cointegration relation.

4.3. Cointegration analysis

To check the cointegration between the variables studied, it is necessary to pass through two stages. First of all, it is necessary to specify the number of optimal delay which must be suitable for our model. Then we will use the Johanson Test to specify the number of cointegration relationships between variables.

4.3.1. VAR lag order selection criteria

The choice of the number of the delay has a very important role in the design of a VAR model. Most VAR models are estimated to involve symmetric lags, he same lag length is exercised for all variables in all equations of the model. This lag length is frequently picked using an explicit statistical criterion such as the HQ, FPE, AIC or SIC.

Table 5 – VAR Lag Order Selection Criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	-41.76244	NA	0.000104	2.179164	2.344656	2.239823
1	179.0853	389.1127*	6.05e-09*	-7.57549*	-6.74802*	-7.27219*
2	194.2983	23.90612	6.43e-09	-7.538014	-6.048583	-6.992079
3	202.7577	11.68206	9.75e-09	-7.178939	-5.027539	-6.390366
4	214.5190	14.00156	1.33e-08	-6.977097	-4.163727	-5.945886

The results of Table 5 show us that the number of lags has been equal to 1 since the criteria FPE, AIC, SC and HQ select that the number of lags is equal to 1.

4.3.2. Johanson test

This method is profitable because it makes it possible to give the number of co-integration relationships that remain between our long-term variables. The sequence of the Johanson test involves discovering the number of cointegration relations. For this purpose, the maximum likelihood method is used and the results are explained in Table 6.

Table 6 – Johanson test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Probability
None *	0.610017	77.38846	47.85613	0.0000
At most 1 *	0.415665	35.95579	29.79707	0.0086
At most 2	0.226093	12.31541	15.49471	0.1424
At most 3	0.023316	1.038038	3.841466	0.3083
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				

To specify the number of cointegration relations, we must examine the following hypothesis. (i) If the statistic of the trace is greater than the value criticized then one rejects H0 therefore there exists at least one cointegration relation. (ii) If the trace statistic is less than the critiqued value, then H0 is accepted so there is no cointegration relationship. There are 2 cointegration relationships, so the error-correction model can be retained.

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4.4. Estimation results

4.4.1. Long run equation

The results of the estimation by the maximum likelihood method denote the following cointegration relation. The long-term equilibrium relation is presented as follows:

$$\text{Log (Y)} = -0.761 \text{ Log (I)} + 1.388 \text{ Log (OX)} + 0.007 \text{Log (VX)} \quad (7)$$

(0.13437) (0.11154) (0.02611)

Note: the values in parentheses represent the Student test.

The equation of the long-run relationship shows that vegetables exports have a positive effect on economic growth. To justify the robustness of the last result and to prove and affirm that this long-term relationship is fair or not, we must test the significance of these variables. For this reason, we will apply the Vector Error Correction Model (VECM).

4.4.2. Estimation of vector error correction model (VECM)

After estimating the long-run equilibrium relationship, we estimate the equation in the following form as an error correction model. The results of the estimate give the following relation:

D(Log(Y))=C(1)*(Log(Y(-1))+0.761*Log(I(-1))-1.388*Log(OX(-1))-0.007*Log(VX(-1))-4.246)+C(2)*D(Log(Y(-1)))+C(3)*D(Log(I(-1)))+C(4)*D(Log(OX(-1)))+C(5)*D(Log(VX(-1)))+C(6) *(8)*

The following table shows the results of estimating the equation. If the coefficient of the variable C (1) is negative and possesses a significant probability. This means that all variables in the long-term relationship are significant in explaining the dependent variables.

Table 7 – Estimation of VECM

	Coefficient	Std. Error	t-Statistic	Probability
C(1)	-0.171179	0.053550	-3.196642	0.0028
C(2)	0.128490	0.228894	0.561353	0.5779
C(3)	-0.026846	0.090465	-0.296749	0.7683
C(4)	-0.108720	0.064361	-1.689224	0.0994
C(5)	-0.047811	0.021835	-2.189665	0.0348
C(6)	0.112694	0.021124	5.334941	0.0000

In our case, the correction error term is significant and has a negative coefficient. These prove that in the long run, 1% increase in Exports of Vegetables leads to an increase of 0.007% of GDP.

4.4.3. Wald test (short run)

The objective of the WALD test is to determine that if there is a short-term relationship between the variables used.

Table 8 – Wald test

Test Statistic	Value	Df	Probability
t-statistic	-2.189665	38	0.0348
F-statistic	4.794633	(1, 38)	0.0348
Chi-square	4.794633	1	0.0285

The results in the table 8 show that the variable Log (VX) has an effect on the variable log (GDP) in the short term.

4.5. Checking the quality of estimation

4.5.1. Diagnostics tests

To verify the quality of our estimated model and the robustness of our estimation, we use a set of tests called diagnostic tests.

Table 9 – Diagnostics Tests

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.125651	Prob. F(1,37)	0.7250
Obs*R-squared	0.148917	Prob. Chi-Square(1)	0.6996
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.685628	Prob. F(8,35)	0.7011
Obs*R-squared	5.961239	Prob. Chi-Square(8)	0.6516
Scaled explained SS	10.29916	Prob. Chi-Square(8)	0.2447
F-statistic		4.062509	
Prob(F-statistic)		0.004728	
Durbin-Watson stat		1.986787	

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Diagnostic tests indicate that the overall specification adopted is satisfactory. The tests performed to detect the presence of Breusch-Pagan-Godfrey in the estimated equation did not reveal any problem of heteroskedasticity at the 5% threshold. The Durbin Watson is acceptable, because, it is between 1, 6 and 2, 4 (1, 986787). Otherwise the probability of Fisher is less than 5%, which indicates that our model is well treated.

4.5.2. VAR stability

To verify the quality of our estimated model and the robustness of our estimation, we use a set of tests called diagnostic tests.

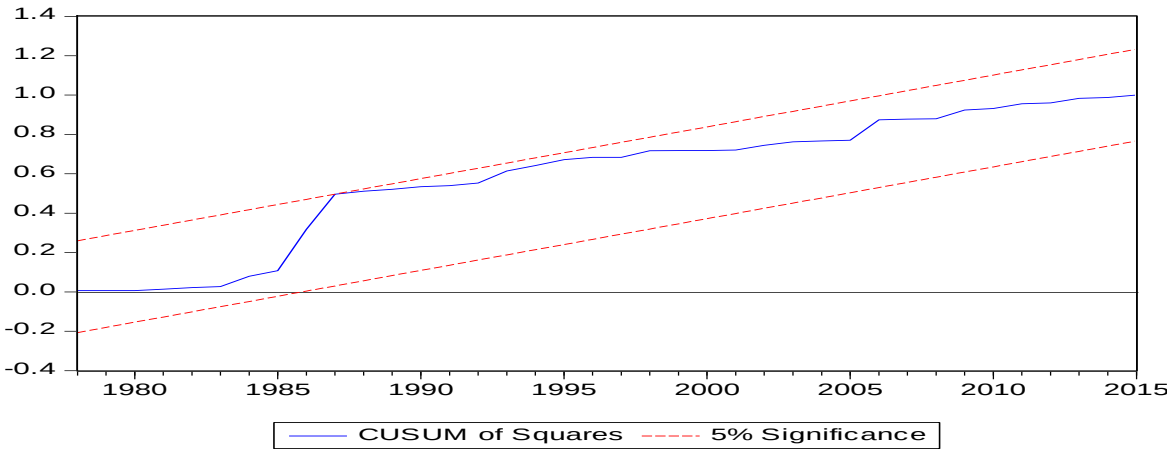

Figure 1 – Cusum of Squares

The test results of the stability VAR (CUSUM of Square Test) shows that the Modulus of all roots is less than unity and lie within the unit circle. Accordingly we can conclude that our model the estimated VAR is stable or stationary.

5. Conclusion

In this article, we examined the impact of vegetable exports for Tunisian economic growth using time series data from 1970 to 2015. To achieve our objective, we first apply correlation analysis. Second, we use cointegration analysis and the error correction model to detect the effects of vegetable exports on short-term and long-term economic growth. Empirical results show that vegetable exports and economic growth are positively correlated with economic growth. On the other hand, the cointegration analysis of the error-correction model shows that all variables are cointegrated and that vegetable exports have a positive effect on economic growth in the long run and the short run. These findings explain economically that vegetable exports are presented as a

stable and robust source of economic growth in Tunisia. And, this can be explained by multiple reasons. In the short term, the structure of Tunisian vegetables helps her to take advantage of being a source of economic growth because it is characterized by the investment in various vegetables (tomatoes, potatoes, onions, garlic, pepper...), these diversification are characterized by a very fast productivity (they only take a period between 3 and 6 months to give their profits). In the long run, increasing in the number of warehouses and cold rooms has facilitated the sale of vegetables outside their season with higher prices. Despite the fact that their contribution to gross domestic product is too low for the Tunisian case because they share agricultural exports in 2015 is 8% and 0.376% of total exports (that is why empirical results show that in the long run a 1% increase in vegetable exports leads to a 0.007% increase in economic growth).

The importance of the vegetable sector continues to increase in relation to the strong increase in global demand recorded in recent decades. This situation offers a real development opportunity for Tunisia, through the adoption of an appropriate policy in the field of management of exploitation and enhancement of protected crops. Despite these promising prospects, a number of constraints hinder the development of this sector. The development and implementation of a coherent national strategy is necessary to ensure a harmonious and sustainable development of the sector.

References

Alam F, Myovella G (2016). Causality between Agricultural Exports and GDP and its Implications for Tanzanian Economy. *Journal of Economics Finance and Accounting.* 3(1): 1-18.

Alhowais A, Al-shihri F (2010). Economic trends of Saudi urban system (1992-2010). *Journal of Engineering Sciences, Assiut University, Faculty of Engineering.* 42(1): 216-225.

Ardeni P G, Freebairn J (2002). *The Macroeconomics of Agriculture.* In: Handbook of Agricultural Economics, edition 1, volume 2, chapter 28, 1455-1485.

Auty R. (1993). *Sustaining Development in Mineral Economies: The Resource Curse Thesis*. Routledge, New York, NY.

Bakari S (2017). The Long Run and Short Run Impacts of Exports on Economic Growth: Evidence from Gabon. *The Economic Research Guardian.* 7(1): 40-57.

Bakari S, Mabrouki M (2017). Impact of Exports and Imports on Economic Growth: New Evidence from Panama. *Journal of Smart Economic Growth.* 2(1): 67-79.

Balassa, B. (1978). Exports and Growth: Further Evidence. *Journal of Development Economics*. 5: 181-189.

Bjorvatn K, Farzanegan M, Schneider F (2012). Resource Curse Power balance: evidence from oil-rich countries. *World Development*. 40(2): 1308-1316.

Busse M, Gröning S (2013). The resource curse revisited: governance and natural resources. *Public Choice*, 154(1): 1-20.

Dawson P J (2005). Agricultural Exports and Economic Growth in Less Developed Countries. *Agricultural Economics*. 33: 145-152.

Dickey D, Fuller W (1979). Distribution of Estimators of Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*. 74: 427-31.

Dickey D, Fuller W (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica*. 49: 1057-1072.

Edwards S (1998). Openness, Productivity and Growth: What Do We Really Know? *Economic Journal*, 108 (447): 383-398.

Ekanayake E M (1999). Exports and Economic Growth in Asian Developing Countries: Co-Integration and Error Correction Models. *Journal of Economic Development*. 24(2); 43-56.

Gaber H A (2015). External Trade and Economic Growth Relationship under Trouble: Time Series Evidence from Palestine. *Journal of Economics and International Finance (SJEIF)*. 1(2): 010-016.

Gbaiye O G, Ogundipe A , Osabuohien E, Olugbire O O, Adeniran O A, Bolaji-Olutunji K A, Awodele O D, Aduradola O (2013). Agricultural Exports and Economic Growth in Nigeria (1980 – 2010). *Journal of Economics and Sustainable Development.* 4(16): 1-4.

Gokmenoglu K K, Sehnaz Z, Taspinar N (2015). The Export-Led Growth: A Case Study of Costa Rica .*Procedia Economics and Finance*. 25: 471-477.

Granger, C W J (1969). Investigating Causal Relations by Econometric and Cross-Spectral Method. *Econometrica*. 37(3): 424-438.

Granger, C W J (1988). Some Recent Developments in a Concept of Causality. *Journal of Econometrics*. 39: 199-211.

Granger C W J, Newbold P (1974). Spurious Regression in Econometrics. *Journal of Econometrics*. 2: 111-120.

Grossman E M., Helpman E (1989). Quality Ladders and product Cycles. *NBER Working Paper* no. 3201 National Bureau of Economic Research, Inc.

Helleiner G K (1986). *Outward Orientation, Import Instability and African Economic Growth: An Empirical Investigation,* In: Theory and Reality in Development Essays in Honour of Paul Steeton Ed. S. Lall and F. Stewart, Macmillan, London.

Herzer D, Felicitas N L (2006). What does Export Diversification do for Growth? An Econometric Analysis. *Applied Economics*. 38(15): 1825-1838.

Hesse H (2008). Export Diversification and Economic Growth. *Working Paper* 21, Commission on Growth and Development.

Hirschman A O (1958). The Strategy of Economic Development in Developing Countries, *Yale University Press*, New Haven, Connecticut, USA.

Ijirshar V U (2015). The Empirical Analysis of Agricultural Exports and Economic Growth in Nigeria. *Journal of Development and Agricultural Economics*. 7(3): 113-122.

Johansen S (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*. 12: 231-254.

Johansen S, Juselius K (1990). Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for Money. *Oxford Bulletin of Economic and Statistics*. 52: 169-210.

Johnston B F, Mellor J W (1961). The Role of Agriculture in Economic Development. *American Economic Review*. 51: 566-593.

Jorgenson D G (1961). The development of a dual economy. *Economic Journal*. 71: 309-334.

Karp L S, Perloff J M (2002). *A Synthesis of Agricultural Trade Economics*. In: Handbook of Agricultural Economics, edition 1, volume 2, chapter 37, Elsevier, pages 1945-1998.

Kayed R, Hassan M (2011). Saudi Arabia's economic development: entrepreneurship as a strategy, *International Journal of Islamic and Middle Eastern Finance and Management*. 4(1): 52-73.

Levin A, Raut L K (1997). Complementarities between Exports and Human Capital in Economic Growth: Evidence from the Semi-Industrialized Countries. *Economic Development and Cultural Change,* 46: 155-174.

Lewis W A (1954). Economic development with unlimited supplies of labour. *Manchester School of Economics*. 20: 139-91.

Lopez R (2002). *The Economics of Agriculture in Developing Countries: The Role of the Environment*. In: Handbook of Agricultural Economics, edition 1, volume 2, chapter 22, Elsevier, pages 1213-1247.

Malizia E Ke S (1993). The influence of economic diversity on employment and stability. *Journal of Regional Science*. 3(2): 221-235.

Mahmood K, Munir S (2017). Agricultural exports and economic growth in Pakistan: an econometric reassessment. *Quality & Quantity*. https://doi.org/10.1007/s11135-017-0534-3.

Michaely M (1977). Exports and Growth: An Empirical Investigation. *Journal of Development Economics*. 4: 49-53.

Mobarak A, Karshenasan A (2012). The impact of institutional quality relation between resource abundance and economic growth. *Iranian Economic Review*. 17(2): 95-110.

Ojo E J, Awe I T, Ogunjobi J O (2014). Agricultural Export and Economic Growth in Nigeria: A Multivariate Johansen Cointegration Analysis. *International Journal of Arts and Commerce*. 3(3): 89-98.

Oluwatoyese O P, Applanaidu S D, Abdulrazak N (2016). Agricultural Export, Oil Export and Economic Growth in Nigeria: Multivariate Co-integration Approach. *International Journal of Environnemental & Agriculture Research*. 2(2): 64-72.

Onafowora O A, Owoye O (1998). Can Trade Liberalization Stimulate Economic Growth in Africa? *World Development*. 26(3): 497-506.

Papageorgiou C, Spatafora N (2012): Economic Diversification in LICs: Stylized Facts and Macroeconomic Implications. *IMF Discussion Notes* 12/13, International Monetary Fund.

Pegkas P, Tsamadias C (2016). How Important are Foreign and Domestic Investments, Exports and Human Capital for Greece's Economic Growth?. *Economic Issues*. 21(1): 23-45.

Phillip P C B, Perron P (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*. 75(2): 335-46.

Rahman M, Mustafa M (1998). Dynamics of Real Exports and Real Economic Growth in 13 Selected Asian Countries. *Journal of Economic Development*. 22(2): 81-95.

Rosenstein-Rodan P N (1943). Problems of industrialization of Eastern and South-Eastern Europe. *Economic Journal*. 53: 202-11.

Saviotti P, Frenken K (2008). Export Variety and the Economic Performance of Countries. *Journal of Evolutionary Economics*. 18(2): 201-218.

Savvides A (1995). Economic Growth in Africa, World Development, 23 (3).

Schiff M, Valdes A (2002). *Agriculture and the Macroeconomy, with Emphasis on Developing Countries*. In: Handbook of Agricultural Economics, edition 1, volume 2, chapter 27, Elsevier, pages 1421-1454.

Scitovsky T (1954). Two concepts of external economies. *Journal of Political Economy*. 62: 143-51.

Serra D (2006). Empirical Determinants Of Corruption: a sensitivity analysis. *Public Choice*. 126: 225-256.

Shah S W A, Abrar ul had M, Farooq R M A (2015). Agricultural Export and Economic Growth: A case of Study of Pakistan. *Public Policy and Administration Research*. 5(8): 88-96.

Tapsin G (2015). The Relationship between Foreign Trade and Economic Growth in Turkey. *International Review of Research in Emerging Markets and the Global Economy (IRREM) An Online International Research Journal.* (1)3: 417-429.

Tyler W (1981). Growth and Export Expansion in Less Developed Countries: Some Empirical Evidence. *Journal of Development Economics*. 9: 121-130.

Umar A (2016). The Analysis of Investment, Labor, Exports, Exchange Rate's Effect toward the Indonesian Economic Growth. *Asian Journal of Social Sciences and Management Studies*. 3(4): 248-255.

Wagner J E, Deller S C (1998). Measuring the Effects of Economic Diversity on Growth and Stability. *Land Economics*. 74: 541-556.