



# PMA WORKING PAPER

## **The Effect of Exogenous Factors on the Performance of External Sector in Palestine: A VECM Approach.**

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March, 2014

**PMA Working Paper**

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**Abstract**

This research investigates the impacts of domestic demand, GDP growth rate in Palestine, GDP growth rate in Israel, and number of closure days on the exports performance of Palestine over the period 2000Q1-2013Q3 using vector error correction model (VECM) under time series framework. The empirical results indicate a long-run equilibrium relationship among the variables. Additionally, a significant short-run positive relationship between the growth rate in Israel and the Palestinian's exports and a significant negative short-run relationship between the number of closure days and the performance of exports. The study concludes that Palestinian government should manage trade policies with Israel effectively and negotiate the opening of cross-borders and ports with neighboring countries.

JEL Classification Numbers: C32, E17, E62

Keywords: Econometric modeling, Economic Policies, Economic Growth, External sector, Vector error correction model.

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<sup>1</sup> *The author would like to thank Mr. Mohammad Atallah, Mr. Mohammad Aref, and Mr. Shaker Sarsour for their helpful comments.*

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**Suggested Citation:**

**Palestine Monetary Authority (PMA), 2014.** *The Effective Exogenous Factors on the Performance of External Sector in Palestine: A VECM Approach.*

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## 1. INTRODUCTION

Economies are linked through trade, flows of money, and investment. Trade linkages are through exports and imports of goods and services, while investment linkages are through foreign direct investment, and portfolio investment. In 2008, world trade value reached \$32.3 trillion, but after the financial crisis, in 2009, it declined by 22.8% to \$24.9 trillion. This illustrates the interdependencies between economies and the spillover effects of financial crisis on various economies. These facts motivate an investigation of the factors that affect the external sector of Palestine.

This research attempts to detect the short and long-run effects on Palestine's external variables such as gross domestic product in Israel (GDPI), number of closure days (NCD), and real effective exchange rate (REER). In addition an examination is made of the effect of internal variables, such as gross domestic product in Palestine (GDPPS), and domestic demand (private and public consumption and investment).

In fact, exports lead to various economic gains. Firstly, they generate income to finance imports that are necessary for consumption and production. Secondly, they generate employment opportunities in addition to stimulating investment in the domestic economy, thus contributing significantly to economic growth. Therefore, adopting export-led growth policy has attracted attention of policy-makers especially in developing economies and industrialized Asian countries.

However, the Palestinian economy suffers from weak performance of exports due to various factors, most importantly Israeli obstacles to trade and the lack of policies to increase competitiveness in external markets. Therefore, studying the factors that affect the performance of Palestinian's exports in the short and long-run is considered an important step in formulating policies to enhance Palestine's export performance.

The remainder of this paper proceeds as follows: Section 2 provides a literature review; Section 3 presents theoretical framework; Section 4 states the empirical results and methodology of the study; and finally, Section 5 concludes and gives some policy recommendations.

## **2. LITERATURE REVIEW**

There are few research papers that studied exports performance in Palestine. A recent study by Dombrecht, and Sarsour (2011) analyzed the factors that explained the variability of exports from 1994-2011 using Bickerdike-Robinson-Metzler model (elasticity model). The explanatory variables in the model are weighted average of the prices of competitors, weighted average of real GDP growth and number of closure days for trade. The study concluded that there is a long-run equilibrium relationship between international variables (such as prices and income) and domestic exports and imports.

El-Jafari and Al-Ardah (2002) examined the impact of Palestinian trade policies and fiscal stance on trade and budget deficit using an econometric model comprising 12 equations. The study found a significant impact of external factors on the performance of exports. These factors include on the positive side GDP growth in Israel, and on the negative side trade barriers (non-tariff), such as closure days imposed by Israel on Palestinian trade, and the real exchange rate.

Abdel-Razeq, El-Jafari, Makhool, Mousa, Al-Ardah, and Atyani (2001) studied the effects of Israeli siege on the Palestinian economy. In particular, they estimated the cost of Israel closures on household consumption, private investment, government expenditures, and net exports. Using economic models to estimate the effects of Israeli closures, they concluded that there are a significant negative effect of Israeli siege on the Palestinian economy, evidenced by a significant loss in consumption, investment and net exports.

Also, many researchers on foreign economies investigated the long-run relationship between exogenous variables and exports with a view to formulate policies that aim to enhance the level of exports. Adhikary (2012) studied the impact of foreign direct investment, trade openness, domestic demand, and exchange rate on the export performance of Bangladesh over the period of 1980-2009 using the vector error correction model under a time series framework. He concluded that there is a short as well as long-run relationship between foreign direct investment and exports.

Sjarif, Kotani, and Lin (2011) investigated the causal relationship between fisheries, exports and economic growth in Indonesia by applying cointegration and error-correction model over the period 1969-2005. They concluded that there is a long-run relationship beside bi-directional causality between exports and economic growth in Indonesia's fishery sector.

Manni and Afzal (2012) assess impact of trade liberalization on Bangladesh economy over the period from 1980 to 2010, using ordinary least square method. The results indicate that GDP growth is positively affected by liberalization. But inflation is not affected by liberalization. Also, liberalization policy improves the exports of the country and in turn leads to higher economic growth.

Babalola, Dogon-Daji, and Saka (2012) examined the relationship between exports, foreign direct investment, and economic growth in Nigera over the period 1960-2009 using the vector error correction model (VECM). They conclude that foreign direct investment, capital formation, degree of openness, import and terms of trade played a significant role in economic growth.

Chimobi, and Uchi (2010) studied the relationship between exports, domestic demand, and economic growth in Nigeria using Granger Causality analysis over the period 1970-2005. They concluded that there is no long-run equilibrium relationship between the variables. However, there is a bilateral causality

between exports and household consumption, and that exports stimulate domestic demand.

Similarly, Sahoo, (2006) investigated the relationship between foreign direct investment, world income growth, infrastructure index, domestic demand, export, real effective exchange rate and GDP growth using annual data from (1975-2003), in Bangladesh, India, Pakistan, Sri Lanka, and Nepal, by applying Panel-Fixed effect method. They concluded that foreign direct investment positively influences exports.

Thurayia (2004) examined the relationship between exports and economic growth in Sudan, and Saudi Arabia, by using vector error correction model; the results indicate a presence of a long-run relationship between exports and growth.

### **3. THEORETICAL FRAMEWORK**

In the light of economic theory, the main determinants of exports are the income and relative prices of trade partners. So an increase in the level of income of trade partner countries will lead to increase in exports (foreign demand). Also, the devaluation of the level of relative prices will increase exports. Real effective exchange rate is used as an index for relative prices.

Moreover, the export sector plays an important role in economic growth. An increase in exports will lead to an increase in the domestic demand and in turn increases output. This is supported by classical economic theories, which suggest that international trade enhances economic growth and provides the economy with foreign currencies.

Additionally, export-led growth is supported in the literature of neoclassical economists, who argued that free market and openness will lead to growth. Similarly, endogenous growth theories put emphasis on the benefits resulting



from exports trade that leads to increasing returns to scale and diffusion of technology into the economy. Also, Keynesian economists consider the external sector as one determinant of national income and that exports will lead to increasing national income thorough the multiplier effect rather than the initial value of export.

In the same context, export-led growth hypothesis has been examined by many researchers. For instance, Elbydi (2010) examined the hypothesis that imposing restrictions on imports and promoting policies that support the exports sector could improve comparative advantage and growth.

From another viewpoint, after the financial crisis, interest increased in emerging markets and developing economies like China in adopting domestic demand-led growth policy instead of export-led growth policy. Some studies argue that there is a relationship between export-led growth hypothesis and financial crisis. In particular, they argue that an increase in exports by all countries in view of export-led growth hypothesis could lead to a decrease in export prices and in turn cause a decrease in exports and eventually in economic growth.

### **3.1 DATA AND METHODOLOGY**

This research attempts to trace the long-run equilibrium relationship between real exports, real gross domestic product in Palestine, real domestic product in Israel, real effective exchange rate, number of closure day, and credit to private sector as a proxy of domestic demand over the period 2000Q1-2013Q3 using vector error correction model.

One of the major indicators that reflects a country's external competitiveness is the real effective exchange rate. Palestine currently has no domestic currency and instead three foreign currencies are used for daily transactions, saving, borrowing, pricing, and accounting purposes. These three currencies are NIS, USD, and JD. Thus, Palestine is deprived of using monetary and exchange rate policies, which are needed to stabilize

the economy such as inflation, unemployment, current account, and not to mention external competitiveness. It is worth mentioning that because CPI in Palestine is calculated in NIS, it is used as an anchor currency in calculating the real effective exchange rate (REER).

Domestic demand (private consumption, government expenditures and investment) is proxied by credit to private sector because of the absence of quarterly real data on consumption and investment during the research period. The correlation and granger causality test confirmed a relationship between domestic demand and credit to private sector. As the correlation coefficient between the two variables on annual data is 0.967, the granger causality test indicates that domestic demand granger causes the credit to private sector.

A vector auto-regression (VAR) is a system of equations in which each variable is explained by its own-lagged values and by the historical and current values of exogenous variables. This approach helps to capture and explain the dynamic interrelationship between the time series using the method of least squares and then extract the error correction term that indicates whether there is a long-run equilibrium between the variables or not. In this approach, the impulse response function has been utilized to measure the effect of specified shocks. The contribution of each variable in explaining the variance in exports is measured by variance decomposition analysis.

In addition, VAR is used for estimating a system of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. A vector error correction model (VECM) is a restricted VAR that is used to measure the relationship between cointegrating time series by restricting the long-run behavior of the endogenous variables to converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The error correction term measures the speed of adjustment towards long-run equilibrium.

The VEC Model estimated in this study is:

$$\begin{aligned} \Delta LREXP_t = & \alpha + \gamma e_{t-1} + \sum_{i=1}^n a_i \Delta LREXP_{t-i} + \sum_{i=1}^n b_i \Delta LREER_{t-i} + \\ & \sum_{i=1}^n c_i \Delta LRGDPI_{t-i} + \sum_{i=1}^n d_i \Delta LRGDPPS_{t-i} + \sum_{i=1}^n f_i \Delta LCPS_{t-i} + \\ & \sum_{i=1}^n g_i \Delta LNCD_{t-i} \end{aligned}$$

where  $\Delta LREXP_t$  is the difference in the log of real export,  $\Delta LREER$  is the difference in the log of real effective exchange rate,  $\Delta LRGDPI$  is the difference in the log of real GDP in Israel,  $\Delta LRGDPPS$  is the difference in the log of real GDP in Palestine,  $\Delta LCPS$  is the difference in the log of credit to private sector, and  $\Delta LNCD$  is the difference in the log of number of closure days. The source of data on closure days is United Nations Special Coordinator Office (UNSCO); it is calculated by adding all days when a crossing is fully or partially closed, excluding weekends and holidays.

The empirical estimation of the model proceeds as follows. First, to assure normality distribution of the variable, a Jarque-Bera test is applied. Next, the stationarity of variables is tested using Augmented Dickey-fuller (ADF) and Phillips-Perron test (PP). Granger causality test is used to test the causality between the variables and Johansen-Juselius procedure is used to trace the co-integration relationship between the variables. Maximum eigenvalue and the trace test are also used to detect a co-integrating vector between the variables.

Finally, impulse response is used to measure the impact of external shocks on exports and variance decomposition analysis is used to measure the decomposition of the variance among the exogenous variables.

#### **4. EMPIRICAL RESULTS**

This section presents descriptive and inferential analyses for the variables under study. The Jarque-Bera test, kurtosis statistics, and skewness statistics are used to check the normality distribution for the variables. The normality assumption is necessary condition to get unbiased estimates for the coefficients. Also, the stationarity of variables is checked by Augmented Dickey-Fuller (ADF) test and Philips-Perron test. The cointegration relationship is examined by employing Engle-Granger cointegration test and Johansen-Juselius test. Finally, the error

correction model is estimated to examine the short run relationship dynamics and long run equilibrium between variables under study.

## 4.1 DESCRIPTIVE ANALYSIS

### 4.1.1. Descriptive Statistics

Table 1 presents descriptive statistics of the variables. The Jarque-Bera test<sup>2</sup> for normality indicates that real exports, real GDP in Palestine, real GDP in Israel, real effective exchange rate, and number of closure days follow a normal distribution at 5% level of significance, but credit to private sector (CPS) doesn't follow a normal distribution. Also, the numeric of Kurtosis for each variable is found below 3 which indicates the normality distribution. The numeric for skewness of each variable is positive, except for NCD that has a negative skewness.

**Table (1): Descriptive Statistics**

	REXP	RGDPI	RGDPPT	REER	NCD	CPS
Mean	107.525	179915.7	1213.9	103.3	132	1385.8
Median	104.578	184219.2	1132.9	102.3	131	1157.9
Maximum	164.223	243759.	1775.0	111.7	250	2983.4
Minimum	63.147	128263.1	776.0	93.8	10	729.9
Std. Dev.	27.808	39530.19	283.2	6.106	82.5	670.3
Skewness	0.164	0.087	0.545	0.001	-0.006	1.07
Kurtosis	1.834	1.437	2.198	1.414	1.524	2.8
Jarque-Bera	3.362	5.664	4.194	5.762	4.992	10.7
Probability	0.186	0.059	0.123	0.056	0.082	0.005
Observations	55	55	55	55	55	55

### 4.1.2 Stationarity Results

The Phillips-Perron test (PP) is employed to examine the stationarity of the variables. The results indicate that all the level series are non-stationary at 5%

<sup>2</sup> Jarque-Bera test: Ho: The series follows a Normal distribution.  
Ha: The series does not follow a normal distribution

level of significance, except for NCD, which shows no unit root test at the level. At first difference, we reject the null hypothesis of unit root test, and conclude that all variables are stationary at first difference. Thus, the variables have the same behavior integrated of order one,  $I(1)$ . To check robustness of the results the Augmented Dickey-Fuller (ADF) is also employed and the results agree with Phillips-Perron test (PP).

**Table (2): PP Unit root test for stationarity**

	Level	First Difference
REXP	(0.065)	(0.001)*
RGDPPT	(0.25)	(0.001)*
RGDPI	(0.55)	(0.001)*
CPS	(0.97)	(0.008)*
NCD	(0.00)	(0.001)*
REER	(0.27)	(0.001)*

\*indicates significance at 5% level.

## 4.2 INFERENTIAL ANALYSIS

This section investigates the short-run dynamics and long-run equilibrium between the variables under the study using cointegration and error correction model following Engle and Granger (1987).

### 4.2.1 Engle-Granger Causality Test

Integration test examines the long-run equilibrium relationship between the variables under study. The optimum lag length is selected using FPE criterion, which indicates the optimum lag is 1. Table 3 presents the results of Engle-Granger test which confirms bi-directional causality between (*RGDPPS, CPS*), (*RGDPI and RGDPPS*), and unidirectional causality between (*REXP, CPS*), (*REER, REXP*), (*REER, RGDPPS*), (*RGDPI, REXP*), (*RGDPS, REXP*).

**Table (3): Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
REXP does not Granger Cause CPS	54	1.07035	0.3057
CPS does not Granger Cause REXP		10.0082	0.0026
RGDPPS does not Granger Cause CPS	54	9.06306	0.004
CPS does not Granger Cause RGDPPS		4.2051	0.045
REXP does not Granger Cause REER	54	0.18776	0.6666
REER does not Granger Cause REXP		10.1901	0.0024
RGDPPT does not Granger Cause REER	54	1.01622	0.3182
REER does not Granger Cause RGDPPS		7.98435	0.0067
REXP does not Granger Cause RGDPI	54	0.2944	0.5898
RGDPI does not Granger Cause REXP		12.3982	0.0009
RGDPPS does not Granger Cause RGDPI	54	3.17606	0.0807
RGDPI does not Granger Cause RGDPPS		4.47128	0.0394
RGDPPS does not Granger Cause REXP	54	5.78003	0.0199
REXP does not Granger Cause RGDPPS		0.27488	0.6023

Sample: 2000Q1-2013Q3, lag: 1.

#### 4.2.2 Johansen cointegration test

Table 4 indicates the presence of cointegration relationship between the variable, which support the existence of a long-run relationship between the variables. Trace test indicates that there are 2 cointegrating equations at 5% level, while Maximum Eigenvalue test indicates that there is 1 cointegrating equation at 5% level. The analysis proceeds to estimate 1 cointegrating equation between the variables.

**Table (4): Johansen cointegration rank test**

	Eigen-value	Trace statistics	5% critical value	P-value
Trace Test	0.477	118.566	117.708	0.044*
Max-eigenvalue test	0.726	68.806	50.599	0.003*

\*indicates significance at the 5% level.

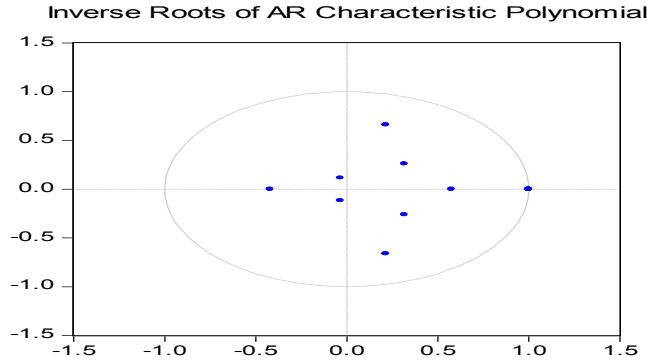
#### 4.2.3 Vector Error-correction Model

VECM model is estimated to examine the short-run dynamic relationship between the variables and long-run equilibrium; the appropriate lag-length (lag1) is selected through FPE criterion. The statistical significance of the error correction term which represents the long run-effect between the variables, while the changes of the lagged independent variable represent the short-run causal effect. Table 5 indicates that the coefficient of error-correction term has a negative significant sign, which indicates that there is a movement back to the equilibrium relationship, and there is a long-run equilibrium relationship among the variables, and the speed of adjustment of any disequilibrium towards long run equilibrium state is 6.5%. In addition, the growth rate in gross domestic product of Israel is found to have a significant short-term positive impact on Palestinian exports; that is expected because Israel is the main trade partner of Palestine. Credit to private sector is found to have positive short-run relationship but not statistically significant at 5% level. In addition, the number of closure days variable is found to have a significant short-run negative impact on Palestinian exports.

Similarly, the growth of domestic product in Palestine was found to have a significant long-term positive impact on exports, while real effective exchange rate, and the number of closure days has a significant long-run negative impact on exports. These results are expected in the light of theory; any depreciation of effective exchange rate will increase the level of exports in the long-term and the same is true for number of closure days.

To test the stability of vector error correction model, the inverse roots of AR characteristic polynomial is employed. The result suggests that the ECM model is stable since all the roots inside the circle.

**Figure (1): Stability test.**



**Vector Error Correction Model:**

$$\Delta \text{LREXP}_t = \alpha + \gamma e_{t-1} + \sum_{i=1}^n a_i \Delta \text{LREXP}_{t-i} + \sum_{i=1}^n b_i \Delta \text{LREER}_{t-i} + \sum_{i=1}^n c_i \Delta \text{LRGDPI}_{t-i} + \sum_{i=1}^n d_i \Delta \text{LRGDPPS}_{t-i} + \sum_{i=1}^n e_i \Delta \text{LCPS}_{t-i} + \sum_{i=1}^n f_i \Delta \text{LNCD}_{t-i}$$

**Table (5): Estimates of error correction model**

Variables	Coefficients	t-statistics
Constant ( $\alpha$ )	(29.60)	(-1.624)
Error-correction ( $\gamma$ )	(-0.065)	(-2.350)*
$\Delta \text{LREXP}_{t-1}$	(-0.209)	(-1.481)
$\Delta \text{LREER}_{t-1}$	(1.683)	(1.230)
$\Delta \text{LRGDPI}_{t-1}$	(1.605)	(2.520)*
$\Delta \text{LRGDPPS}_{t-1}$	(0.333)	(1.510)
$\Delta \text{LCPS}_{t-1}$	(0.230)	(0.626)
$\Delta \text{LNCD}_{t-1}$	(-0.072)	(-2.422)*

$t_{46,0.05} = 2.0129$ ,  $f_{0.05,52,46} = 1.48$ . \* denotes significance at 5% level.

**4.2.4 Impulse Response and Variance Decomposition**

Impulse response indicates how one-time positive shock of one standard deviation to real gross domestic product in Palestine, gross domestic in Israel, real effective exchange rate, and credit to private sector endures on the export



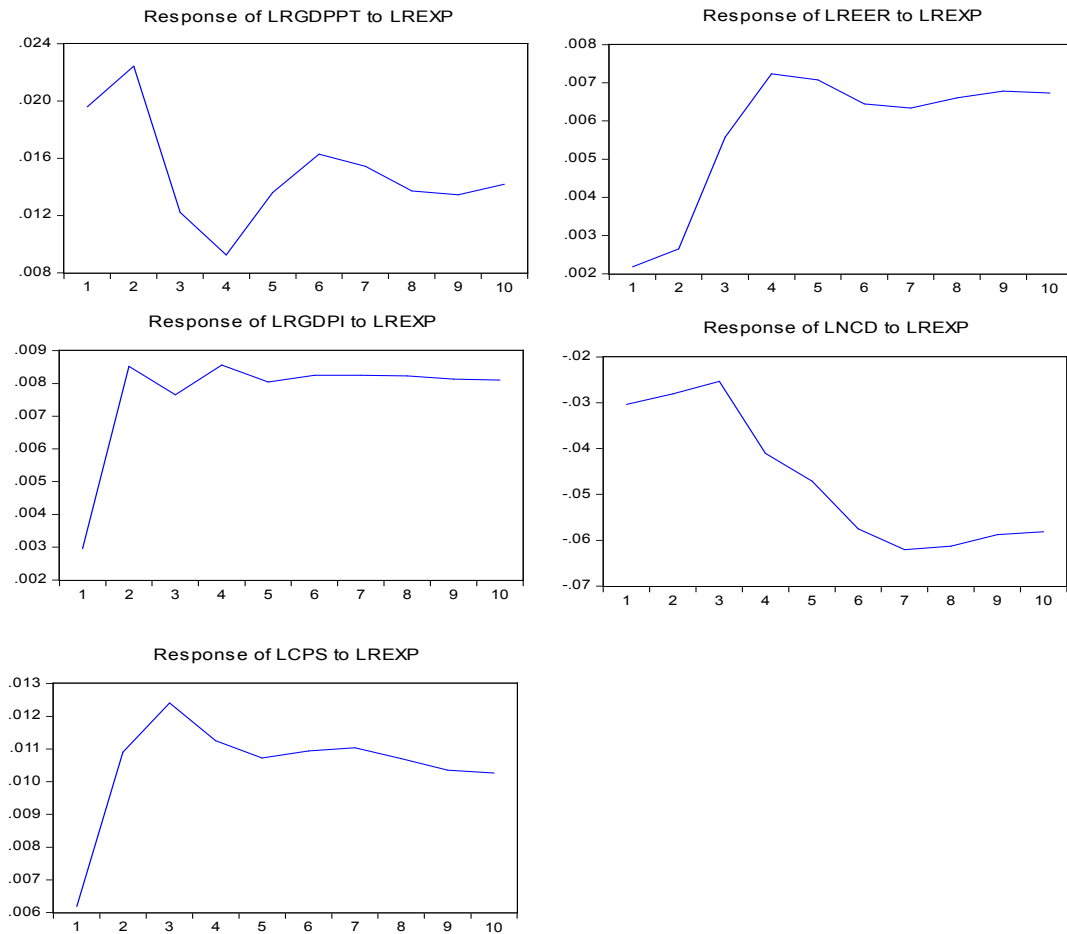
performance of Palestine. Also, the variance decomposition analysis is used to measure the decomposition of the variance among the exogenous variables. From Table 6, the variance of exports in the second period decomposed into its own variance (87.5%), LRGDPPT (1.9%), LRGDPI (4.3%), LREER (4.28%), LCPS (1.1%), and LNCD (2.65%); these contributions in the variance of exports increased in period 10. To sum up, the volatility of exports mainly depends on its own variation followed by real effective exchange rate and gross domestic product in Israel. Impulse response on the other hand indicates how one-time positive shock of one standard deviation to real gross domestic product in Palestine, gross domestic product in Israel, real effective exchange rate, credit to private sector and number of closure days endures in the export performance of Palestine.

Impulse response revealed a positive influence of gross domestic product in Palestine, gross domestic product in Israel, and credit to private sector on exports, while real effective exchange rate has a positive but diminishing influence. On the contrary, number of closure days has negative diminishing influence on exports.

**Table (6): variance decomposition analysis of LREXP.**

Period	S.E.	LREXP	LRGDPPT	LRGDPI	LREER	LCPS	LNCD
1	0.11	100.00	0.00	0.00	0.00	0.00	0.00
2	0.15	87.51	0.19	4.27	4.28	1.10	2.65
3	0.18	83.97	0.38	4.34	7.74	1.73	1.84
4	0.21	81.14	0.73	5.49	8.18	1.86	2.60
5	0.23	79.94	0.93	6.17	7.49	1.92	3.55
6	0.25	79.47	0.96	6.55	7.13	2.16	3.73
7	0.27	79.05	0.94	6.63	7.20	2.51	3.67
8	0.29	78.53	0.94	6.68	7.37	2.80	3.69
9	0.31	78.07	0.95	6.76	7.41	3.00	3.80
10	0.33	77.75	0.97	6.86	7.37	3.14	3.91

**Figure (2): Impulse response results**



## 5. CONCLUSION

This research examines the effect of real effective exchange rate (REER), gross domestic product in Palestine (GDPPS), gross domestic product in Israel(GDPI), credit to private sector (CPS) and the number of closure days (NCD) on the export performance of Palestine over the period of 2000Q1-2013Q3 using vector error correction model. The results of Phillips-Perron test indicate the stationarity of variables at first difference. Also, the Johansen cointegration test indicates the presence of cointegration relationship among the variables. In addition, the negative parameter of the error correction term confirmed the long-run equilibrium relationship between the variables.

Moreover, there is a significant positive short-term relationship between the growth rate of GDP in Israel and growth rate of exports and a negative short-term relationship between the number of closure days and the export performance in Palestine. VEC model confirmed a significant long run equilibrium relationship between real effective exchange rate, growth rate in PS, growth rate in Israel, number of closure days, credit to private sector and exports.

In addition, the impulse response function revealed a positive influence of growth rate in Palestine and Israel, and credit to private sector on exports, but number of closure days has a negative diminishing influence over time on exports. With regard to the stability of VEC model, it is confirmed by the inverse roots of AR characteristic polynomial test.

To sum up, in the light of these results the policy recommendations of this research suggest that the Palestinian's government should take into consideration the interrelationship between the variables under study and exports in formulating trade policies to increase the level of exports. Besides, the Palestinian government should manage the trade policies with Israel effectively and negotiate the opening of cross-border and ports with neighboring countries. This research provides a basis for the future research in formulating export-led growth policies in Palestine.

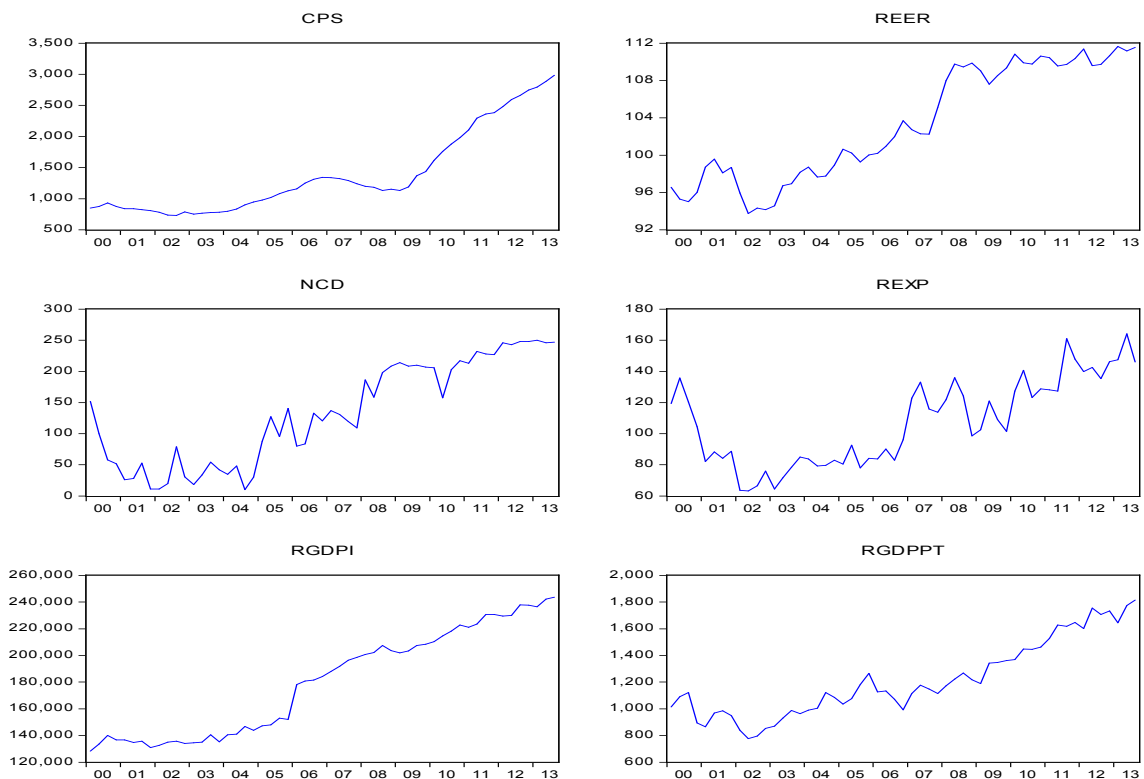
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## APPENDIX

**Figure: Variables Trend**



**~Table (4): Unrestricted Cointegration Rank Test (Trace)**

Hypothesized	Eigenvalue	Trace Statistic	Critical Value	Prob.**
None *	0.726985	187.3726	150.5585	0.0001
At most 1 *	0.477252	118.5665	117.7082	0.0441
At most 2	0.410255	84.18771	88.8038	0.1028
At most 3	0.332089	56.20024	63.8761	0.1867
At most 4	0.290158	34.80941	42.91525	0.253
At most 5	0.241024	16.64564	25.87211	0.4418
At most 6	0.037561	2.029058	12.51798	0.9669

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

**~Table (4): Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**

Hypothesized	Max-Eigen	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.726985	68.80608	50.59985	0.0003
At most 1	0.477252	34.37879	44.4972	0.4021
At most 2	0.410255	27.98747	38.33101	0.4562
At most 3	0.332089	21.39083	32.11832	0.5412
At most 4	0.290158	18.16377	25.82321	0.3648
At most 5	0.241024	14.61658	19.38704	0.2153
At most 6	0.037561	2.029058	12.51798	0.9669

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level.

**~Table (5): Estimates of ECM Model.**

Variable	Coefficient	Std. Error	t-statistics
C	(29.60)	(0.018)	(-1.624)
$e_{t-1}$	(-0.065)	(0.027)	(-2.35)*
$\Delta$ LR EXP (-1)	(-0.209)	(0.141)	(-1.481)
$\Delta$ LR GDPPT (-1)	(0.333)	(0.289)	(1.151)
$\Delta$ LR GDPI (-1)	(1.680)	(0.636)	(2.520)*
$\Delta$ LCPS (-1)	(0.231)	(0.368)	(0.626)
$\Delta$ LNCD (-1)	(-0.072)	(0.029)	(-2.42)*
$\Delta$ LR EER (-1)	(1.68)	(1.368)	(1.230)
R-squared	(0.312)		
Adjusted R-squared	(0.205)		
S.E. of regression	(0.108)		
Log likelihood	(46.860)		
Mean dependent var	(0.001)		
S.D. dependent var	(0.122)		
Akaike AIC	(-1.466)		
Sshwarz SC	(-1.169)		
F-statistics	(2.919)*		

$t_{46,0.05} = 2.0129$ ,  $f_{0.05,52,46} = 1.48$ . \* denotes significance at 5% level.

