

## **Factors that Affect Jordan's exports During the Period (2003-2012)**

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### **Abstract**

*This study aims to examine the major factors that affect export in Jordan during the period (2003-2012) by using statically analysis for the Jordanian domestic export for commodity and geographic distribution. Applying Pooled EGLS (Period SUR) for the period 2005-2011, the results show a consistency in Jordan's trade pattern over the period years, in addition we find the distance factor, and population and exchange rate were significant in affecting the exports of Jordan.*

**Keywords:** foreign trade, export, import, GDP, population, transaction cost, Gravity Model

### **Introduction**

Developments in the world of financial and economic crises have led to affect the variables and macroeconomic indicators, which shows the importance of the volume of exports in influencing development, hence this study was to determine the factors that affect the exports in Jordan.

### **Research Hypotheses**

The assumption of the research shows that there is a relationship between the size of Jordanian exports and gross domestic product of the state shared with Jordan in the trade, on the other hand a negative relationship between the size of Jordanian exports and the number of population in the state in common with Jordan in trade and the distance between the Jordan and the other State.

The first hypothesis: Assume that there is a positive relationship between the volume of Jordanian exports and gross domestic product of the state shared with Jordan in the trade.

The second hypothesis: Assume that there is of a negative relationship between the size of Jordanian exports and the number of population in the state in common with Jordan in the trade and the distance between the Jordan and the other State, and any other factors that affect the volume of exports.

### **Research Methodology**

The study relied on primary sources and bibliography of books and periodicals by looking at the subject of the study. The study has been following the descriptive statistical method and the econometrics method in order to achieve the objects of this study to find out the most important factors affecting the Jordanian exports.

### **Previous Studies**

The studies that have addressed the issue of the factors affecting the exports as follows:

The study of (Alnader and others, 2009) aims to measure the most important factors that affect the flow of tourism exports to Jordan for the period 1976-2004 using the gravity model and using data from 14 countries, it has been shown that there is a positive relationship between the size of GDP and exports Jordan tourist, as there is a positive relationship between tourism exports of Jordan, and the number of the population in those countries, so any increase in the income or the number of the population in those countries increases tourism exports, tourism in Jordan. The results of the model also show that there is an inverse relationship between a variable distance and the foreign exchange rate and the size of tourism exports of Jordan, and also an inverse relationship between political instability and economic and tourism exports of Jordan.

The study of ( Alhallaq and others ,2001) examine the major factors that affect Jordan's foreign trade using gravity mode for the period 19985-19951 , it has found that there is a negative relationship between Jordan exports and gross domestic product ,while there is appositive relationship between Jordan's exports and the Arabic countries .

Also the study of (Arnon, Spivak, Weinblatt 1996) measured the equations of gravity model for exports and imports for 16 countries, including Jordan, the study found that the volume of trade between these countries is influenced positively the size of the gross domestic product of each country and adversely affected with the distance and the level of economic inequality among nations.

The study of (Summary, 1989 ) aimed to a positive relationship between exports and imports to the United States with the state's income shared with them in trade and remittances from NATO to the States participating with them in trade and the number of American workers s in these states and the number of foreign workers in the United States.

The study of ( Geraci & Prewi, 1977) measures the volume of the trade for 18 countries of the Economic Cooperation and Development Organization , also the study found that the volume of exports between these countries is influenced positively the size of the gross domestic product of each country and the fact that the two countries are members of the organization , while the study found that the volume of exports is affected negatively with the cost of transport and tariff rate of the importing country.

### **The Concept of Foreign Trade, Exports and Imports**

Foreign trade role reflects on the local and international level as one of the key factors of international relations, and it represents a means of settlement of international payments resulting from international exchange , and being the most important sources to obtain currency through exports to the implementation of national development projects, States through foreign trade was able to get goods that cannot be produced in other countries .Also producing were also make countries able to choose between products that can produce or products at the lowest cost , which helped to specialization in production in the States .

Foreign trade knows as business process which is made between two parties are the exporter and importer in two different states for the purchase and sale of commodity agree on all the terms of sale which called contract of sale

Foreign trade Includes export side , which represents the demand for the national currency and an offer of foreign currency and import side , which is a presentation of the national currency and the demand for foreign currencies .

### **Indicators of Jordanian Exports Structure**

The importance of identifying the structure of exports of commodity and geographical that shows the evolution of the economy and the degree of its association with other countries. Where the commodity composition of exports reflect the nature of the structural composition of the national economy, so the more varied components of the commodity structure of exports and distributed the relative importance of a greater number of goods exported, it shows the evolution of production structure and decline the risk faced by the country's exports in getting the returns of foreign currency

#### **1 - The Ratio of Exports to GDP**

Exports to GDP Index shows the productive evolution for the state and the trend toward openness to the outside , where Table ( 1) explain the values of exports took on the increase since 2003 of (1,675,075) dinars and until (2012) for up to a value of (4.74957 )million dinars, or about three times . the values of exports for the period( 2003 – 2008) began to appreciate and then a gradual decline due to the global financial crisis and then export values rise again during the period ( 2010-2012 ) .

We also note that openness has been focused on the export of raw materials during the period (2003-2012) , where the values of total exports of raw materials are( 643 451 )dinars in (2003) to up to (2,357,942 )dinars in (2012),which means that the proportion of the total raw material exports to total exports has risen from (35%) in (2003) to a rate of almost (50% )in (2012), and so the Jordanian exports depend on the production and export of primary commodities.

Also Table (2) shows the degree of openness to the outside world taking tends to rise for other countries because of the growing proportion of exports to gross domestic product , and then began this ratio to decline due to the global financial crisis , then started the degree of openness to fluctuate between highs and lows in recent years

**Table No(1): Domestic Exports for the period (2003-2013)**

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
<b>Domestic Exports</b>	4749570	4805873	4216949	3579166	4431113	3183707	2929310	2570222	2306626	1675075
<b>Consumer Goods</b>	2250056	2098775	1975288	1737676	1889471	1846259	1797663	1584133	1406554	985805
Current Consumer Goods	2112533	1966695	1836648	1599376	1732146	1681692	1598481	1384828	1260522	884932
Durable Consumer Goods	137523	132080	138640	138300	157325	164567	199182	199305	146032	100873
<b>Crude Materials and Intermediate Goods</b>	2357942	2577855	2116916	1714593	2401576	1264555	1042804	920255	842396	643451
Crude Materials	904904	1039968	751619	588457	917989	388796	322545	319289	296204	240184
Construction Materials	76459	55186	48488	40841	54571	32036	26483	33003	44674	48508
Other Intermediate Goods	1376579	1482701	1316809	1085295	1429016	843723	693776	567963	501518	354759
<b>Capital Goods</b>	137204	127721	124431	126834	137892	72673	88393	65798	57676	45819
Parts and Accessories	16811	9250	11823	9324	12890	7307	7707	5518	6345	4300
Other Capital Goods	120393	118471	112608	117510	125002	65366	80686	60280	51331	41519
<b>Other Goods Not Classified Elsewhere</b>	4368	1522	314	63	2174	220	450	36	0	0

**Table No(2): The domestic exports , GDP and the percentage of exports to GDP for the period (2003-2012)**

Year	domestic exports	GDP/million	Exports/GDP
2003	1675075	7228.8	0.023172242
2004	2306626	8090.7	0.028509597
2005	2570222	8925.4	0.028798715
2006	2929310	10675.369	0.027439895
2007	3183708	12131.423	0.026243484
2008	4431113	15593.411	0.028416573
2009	3579166	16912.209	0.021163208
2010	4216949	18762.02	0.022475586
2011	4805873	20476.59	0.023470085
2012	4749570	21965.82	0.021622843

Source: Department of Statistics

## 2- The Degree of Concentration of Commodity

The degree of concentration of commodity expresses a high degree of concentration of commodity exports in the failure of the productive structure of the state due to lower commodity components for exports, Where we note from Table (3) the degree of concentration of commodity for Jordanian exports for the period( 2003 to 2012 )has ranged between( 22% -6% )where the concentration ratio of commodity( 22% )for clothing , (9% )for potash , (8%) for the medicinal products ,( 7%) for vegetables, and(6%) for each of the phosphate fertilizer , which reflects the evolution of the structure of Jordan productive and lower country risk in obtaining foreign currency due to the low concentration ratio commodity.

<b>Table No(3): Average for the degree of Exports by commodity (Concentration for the period (2003-2012</b>	
<b>EXPORTS BY COMMODITY</b>	<b>Average for the degree of commodity concentration</b>
<b>Average</b>	100
Food and Live Animals	12
<b>Live Animals</b>	1
Dairy Products and Eggs	1
Cereals and Cereal Preparations	0
Vegetables	7
Fruits and Nuts	1
Fodder	0
<b>1- Beverages and Tobacco</b>	2
Beverages	1
Tobacco & Manufactured Tobacco Substitutes	1
<b>2- Crude Materials</b>	0
<b>Except Fuels</b>	17
Phosphates	6
Potash	9
<b>3- Mineral Fuels, Lubricants and Related Materials</b>	0
<b>4- Animal and Vegetable Oils, Fats and Waxes</b>	1
Vegetable Fats or Oils and Their Fractions	0
Hydrogenated	1
<b>5- Chemicals</b>	24
Complex Fluorine Salts	0
Sulphuric Acid; Oleum	0
Carbonates	0
Phosphoric Acid	2
Dyeing, Tanning & Colouring Materials	1
Medical and Pharmacy Products	8
Polishing & Cleaning Preparations & Perfume Materials	1
Plastic & Articles Thereof	1
Fertilizers	6
<b>6- Manufactured Goods Classified by Material</b>	9
Paper and Cardboard	2
Textile Yarn, Fabrics, Made up Articles & Related Products	0
Cement	1
Worked Monumental or Building Stone	0
<b>7- Machinery and Transport Equipment</b>	5
Buses	0
<b>8- Miscellaneous Manufactured Articles</b>	28
Clothes	22
Footwear	0
Printed Matter	0
Plastic Products	1
<b>9- Commodities and Transactions not Classified Elsewhere</b>	1

Source : Department of Statistics.

### 3 - Geographical Distribution of Exports

Geographical distribution of exports explains the point of exports towards foreign markets, where the more concentrated exports in specific markets, the greater the dependency of the global economy.

Table No. (4) shows the geographic distribution of Jordanian exports for the period from (2003 to 2012), where we note that the largest concentration of Jordanian exports were towards the Arab countries and the average for the period 2003 to 2012 would amount to (38%) and the average for both NAFTA countries and North American countries is (19 %) each of them, and so we note that Jordanian exports are affected by conditions that affect these countries due to the focus of Jordanian exports in specific markets and thus the Jordanian economy increasingly subordinated to the economy of these countries.

Country	2012 <sup>(1)</sup>	2011	2010	2009	2008	2007	2006	2005	2004	2003	Average
<b>Total</b>	100	100	100	100	100	100	100	100	100	100	100
<b>Arab Countries</b>	49	47	50	52	42	44	43	43	41	41	38
<b>European Union Countries</b>	5	5	4	3	4	3	4	4	3	4	3
<b>Other European Countries</b>	1	1	2	1	1	0	0	0	1	0	1
<b>NAFTA Countries</b>	17	16	16	17	17	28	31	31	31	28	19
<b>South American Countries</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Non-Arab Asian Countries</b>	24	27	24	25	33	21	20	19	18	21	19
<b>Other Countries</b>	5	4	4	2	3	3	2	3	4	5	3

Source : Department of Statistics.

(1) : Preliminary

Note : The Data of Romania and Bulgaria were added to the European countries since 2003

### 4- The Degree of Economic Exposure to the Outside World

The degree of economic exposure to the outside world knows as a proportion of the total foreign trade component of the total exports and imports to gross domestic product (GDP).

The index of the degree of economic exposure shows the importance of foreign trade in the national economy, the higher the ratio of the degree of exposure the greater affected the national economy of the exporting State fluctuations that can expose to export markets.

We note from Table ( 5 ) that the degree of economic exposure increase the deficit in the trade balance, because exports larger than imports, and this indicator confirms the greater openness to the outside world, rising by a large margin for the period (2005-2007) which is before the global financial crisis and the impact directly in the trade balance, which reflects the differential between exports and imports of goods, and therefore the trade balance figures show a higher degree of economic exposure that exports are less than the relative increase of imports, and is affected by exposure at the rate or terms of trade, which reflects the relationship between the amount of what you buy units of the average exports State of the medial goods imported from the outside world.

Year	domestic exports	domestic exports	GDP/million	deficit	Economic exposure
2003	1675075	4072008	7228.8	-2396933	-0.33
2004	2306626	5799241	8090.7	-3492615	-0.43
2005	2570222	7438864	8925.4	-4868642	-0.55
2006	2929310	8187725	10675.369	-5258415	-0.49
2007	3183708	9722194	12131.423	-6538486	-0.54
2008	4431113	12060895	15593.411	-7629782	-0.49
2009	3579166	10107696	16912.209	-6528530	-0.39
2010	4216949	11050125	18762.02	-6833176	-0.36
2011	4805873	13440215	20476.59	-8634342	-0.42
2012	4749570	14733752	21965.52	-9984182	-0.45

.Source : Department of Statistics

## 6 - The Rate of Exchange of Values

Exchange rate is defined as the percentage of values for the change in the monetary value of exports to the monetary value of imports of any state ,also the ratio between the index of export prices to the index of import prices to the state.

It also reflects the exchange rate index for the influence of the prices of exports and imports on the trade of the country by measuring the relative rates of exchange between the country's exports and imports .

If this ratio is greater than 100% this considered a sign of improved trade and vice versa in the case of falling . We note from Table ( 6) that this ratio during the period( 2003 to 2013) is higher than 100% , which indicating improvement in the trade. In addition to the high percentage in developing countries do not accurately reflect the reality of the outcome of its trade , even if these standards reflected the positive results in their side due to its raw materials from the value-added which make it more useful for industrialized .

<b>Year</b>	<b>Price index for exports</b>	<b>Price index for imports</b>	<b>Exchange rate</b>
2003	1293.6	137.95	937.731
2004	1450.6	160.075	906.2
2005	1667.4	187.15	890.943
2006	1843.5	193.792	951.278
2007	2151.5	220.067	977.657
2008	3324.5	265.208	1253.544
2009	3080.9	233.433	1319.822
2010	2635.2	289.725	909.552
2011	2969.5	355.117	836.203
2012	3198.2	360.183	887.938

\*1994=base:SourceDepartment of Statistics.

### Econometrics Analysis

A sample data of 8 countries will be used to identify general trade pattern and trade trend line from 2005-2011. CHINA,EMIRATES,INDIA,IRAQ,ITALY,SAUDIARABIA,SPAIN,US

The augmented gravity model used in the current study is:

$$\ln(EX_{ij}) = \beta_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(D_{ij}) + \beta_4 \ln(POP_j) + \beta_5 R + \beta_6 EX(-1)$$

Where  $EX_{ij}$  are the total exports of Jordan  $i$  to country  $j$

$GDP_i$  is gross domestic product of Jordan  $i$ .

$GDP_j$  is gross domestic product of country  $j$ .

$D_{ij}$  is distance between Jordan  $i$  and country  $j$ .

$POP_j$  is total population of country  $j$ .

$R$  is the exchange rate against dollar

after use Pooled EGLS (Period SUR) we find:

$$\ln(EX_{ij}) = -0.8 + 0.07 \ln(GDP_i) + 0.02 \ln(GDP_j) - 0.14 \ln(D_{ij}) + 0.08 \ln(POP_j) - 0.03 R + 0.85 \ln(EX(-1)).$$

The actual data of GDP for the both countries in the same year, the distance between the two countries and the data of population, the exchange rate against dollar will be utilized to estimate the predicted trade. The results will give an indication of potential trade loss or trade gain for the period 2005-2011..

Table 7 shows the results. The coefficient of  $GDP_j$  is 0.02 shows that, when GDP increases by 1 percent, export increases by 0.02. The coefficient of  $POP_j$  is 0.08 shows that, when POP increases by 1 percent, export increases by 0.08. For the distance coefficient is about -0.14 specifying that when two countries distance is 1 percent higher, trade between these countries fall by 0.14 percent. The coefficient of distance reflects that in general transport amongst most countries are costly and perform as a considerable barrier. The coefficient of exchange rate is -0.03 shows that, when exchange rate against dollar increases by 1 percent, export decreases by 0.03%.

**Table No (7): Econometrics Results**

Dependent Variable: @LOG(EX?)  
 Method: Pooled EGLS (Period SUR)  
 Total pool (balanced) observations: 48  
 Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.819014	2.410364	-0.339789	0.7358
@LOG(GDP?)	0.021367	0.026865	0.795331	0.4310
@LOG(POP?)	0.082535	0.016678	4.948656	0.0000
@LOG(R?)	-0.029940	0.007567	-3.956776	0.0003
@LOG(D?)	-0.145223	0.052809	-2.749954	0.0088
@LOG(GDPJ)	0.073926	0.101316	0.729658	0.4697
@LOG(EX?(-1))	0.859636	0.016659	51.60171	0.0000
Weighted Statistics				
R-squared	0.995502	Mean dependent var	93.01526	
Adjusted R-squared	0.994844	S.D. dependent var	88.77224	
S.E. of regression	0.984530	Sum squared resid	39.74126	
F-statistic	1512.424	Durbin-Watson stat	2.236616	
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.914957	Mean dependent var	11.94582	
Sum squared resid	7.844458	Durbin-Watson stat	3.076824	

### Conclusion

This paper attempts to explain the behavior of exports between Jordan and its main trading partners. Using the gravity model approach, the empirical results show that all variables were consistent with the economic theory. The results show a consistency in Jordan's trade pattern over the period years, in addition we find the distance factor, and population and exchange rate were significant in affecting the exports of Jordan.

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