Estimating external demand functions for Egyptian exports of grapes In light of the current global economic variables

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Abstract: The research aim is to estimate the functions of foreign demand for Egyptian exports of grapes to the most important foreign markets, imported. These markets are the markets "the United Kingdom, the Netherlands, and Italy", considering that these markets are the main importing markets for Egyptian grapes, which absorbed about 69% of the amount of exports of Egyptian grapes during the period (2005-2009). The results showed that, an increase in export price of Egyptian grapes to the UK market by about 1% leads to a decrease in demand of about 2.412% of any commodity to be flexible in this high demand market. The cross demand elasticity's noted that the increase in the Egyptian grapes price as the main rival to Egypt market to the United Kingdom are (Spain, Germany, and the United States) is estimated at 1% lead to increased demand for Egyptian grapes about 1.521%, 1.140%, and 0.175%, respectively. These refer to the replacement relationship between grapes exported from these countries and the grapes exported from Egypt. The spending elasticity indicated that the power to increase the true total spending import of the United Kingdom on grapes by about 1%, leading to increased spending on Egyptian grapes about 0.792%, which indicates that the Egyptian grapes is a commodity necessary within the UK market. With regard to the Netherlands market, the elasticity of demand price on Egyptian grapes showed that, the increase in the price of grapes, about 1% leads to a decrease in demand of about 1.594%, which means that a product with elastic demand in this market. The cross demand of elasticity's noted to increase in the price of exported grapes, from these states as the main rival to Egypt which are Spain, Germany, and Greece, about 1% leads to an increase of demand on Egyptian grapes about 0.481%, 0.659%, and 0.572%, respectively. These referred to the replacement relationship between Egyptian grapes from one hand and the exported grapes from those countries on the other hand. The spending elasticity power shown that to increase the real total spending import of Dutch grapes about 1%, leading to increased spending on Egyptian grapes about 0.851%, which indicates that the Egyptian grapes is a commodity necessary within the Dutch market. While, noting that the results of estimating model (ADIS) with respect to price elasticity of demand on Egyptian grapes in the Italian market, that the increase in prices by about 1% leads to a decrease in demand of about 0.469%, which means that a product with inelastic demand of the Italian market. Nevertheless, noting that cross demand's elasticity that an increase in the price of grapes, from the States as the main rival to Egypt-Italian market which are (Spain, Germany, the Netherlands, and Israel) about 1% lead to changes in demand for Egyptian grapes about 3.193%, 1.490, - 0.244%, and 1.738% respectively. These indicate the replacement relationship of exported grapes from those countries in the one hand, and the exported grapes from Egypt in the other hand (excluding the Netherlands). This relationship is complementary, in the case of high export prices of Spain, Germany, Israel, and Egypt, respectively. It is clearly seen from the spending power of elasticity that, to increase the real Italian total import spending of grapes about 1%, leading to the increased expenditure on the import Italian Egyptian grapes by 0.814%, which indicates that the Egyptian grapes is a necessary commodity in the Italian market. The study recommended that, there is a need for attention to specifications of the required quality and conformity to international standards, and develop systems to ensure quality control. As well as, working on creating a strong export institutions and export high-efficiency, to study foreign markets and their needs in terms of quantity, quality and time of export. In addition to the study of world markets, competition for Egypt in the important markets, with the need to open new markets for exports of Egyptian grapes, and not rely mainly on a single market or a limited number of markets, as it turned out coefficiency of geographic concentration of the quantity of exports of Egyptian grapes, that there is a heavy concentration in the amount of exports of Egyptian grapes, which may displays these exports to the violent tremors if was one of these markets.

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Introduction:

Exports sector is the key sectors to finance programs and economic development plans. The development of Egyptian exports comes to the leading of issues of the state's interest, as it is one of the most important challenges facing economic policy makers in agriculture. The development of Egyptian agricultural exports linked to the extent of their ability to achieve competitive position of goods, which can have access to the international markets. Especially in the light of global rapid changes and the formation of the World Trade Organization (WTO), which allowed the opening of markets to foreign products and reduce the constraints imposed on it, whether quantitative or tariffs with the abolition of all types and forms of protection, and the quality of the commodity and the cost are allowing the entry into these markets. This has led the trend towards globalization and liberalization of international trade and the technological revolution and information to the race of states to competitiveness, growth and increasing the volume of exports through the production of items of outstanding quality, high specifications and low prices, the ability of countries and institutions to cope with these challenges on the internal management, production methods, and available resources, as well as, the overall investment climate. So that, the gains made by the States, due to the economical globalization, is not balanced, and commensurate with the gains of the ability of each country to the compatibility and integration with the new world order. Recent years have seen a sophisticated and clear in the course of Egypt's agricultural development, which is demonstrated by the features in the evolution of production productivity and areas of most agricultural crops, with the entry of new types and varieties in Egyptian Agriculture. In addition to, the adoption of producers to the patterns and methods of modern technological, goals to the transition of strategy from replacing the imports to the strategy of production for export.

Egypt's foreign trade characterized by continuing increase in the value of agricultural imports compared to exports, as the value of agricultural exports about 1443 million, representing 8.7% of the total value of Egyptian exports. While, the value of agricultural imports about 3509 million, representing 13.5% of total Egyptian imports. Thus, the deficit in agricultural trade balance is about 2066 million dollars with coverage reached 41.1% of total agricultural exports to the agricultural imports during the average period (2005-2009). To cover part of this deficit in agricultural trade balance is required the maximizing the returns of the most important Egyptian agricultural exports, particularly horticultural crops, including the fresh grapes, which represents an important place among the most important items of Egypt's exports of fresh fruit. Where, the average total production is about 1488 thousand tons, representing 2.1% of the amount of global production of grapes. While, the average amount of exports of about 38.45 thousand tons, representing 2.58% of the total amount of the Egyptian production of grapes, and the value of exports of Egyptian grapes about 59.19 million dollars, representing approximately 32.21% of the value of fresh fruit exports, which amounted to 189.64 million dollars for the same period the previous average.[10]

Research problem:

Grapes occupy an important place among the varieties of Egypt's exports of fresh fruit. Despite the fact that recent years have seen significant improvement in the production and export situation of grapes in Egypt, but the exported quantities of it are still below the desired level. The amount of Egypt's exports of grapes represented 2.58% of the total production quantity to the average period (2005-2009). Egyptian exports of this crop, is facing stiff competition from many countries in most major markets imported Egyptian grapes. These may lose Egypt to its foreign markets, and the opportunity for countries competes to win these markets, which lead to lower revenues from the export of Egyptian grapes. Thus, increase the negative impact on the trade balance of Egyptian agricultural and economic development, especially in the light of the circumstances and the current international economic variables.

Research objective:

The research objective is to estimate the function of foreign demand for Egyptian exports of grapes to the most important foreign markets, particularly "the United Kingdom, the Netherlands, and Italy," considering that these markets are the main importing markets for Egyptian grapes. Through the study of the current reality of those exports and knowing of the most competitive countries the entry of the Egyptian exports grapes to these markets.

Research method and data sources:

In order to achieve the research goal, the method which was used is a descriptive and quantitative analysis to address the development of Egyptian exports of grapes during the period (1990-2009). The geographical distribution in global imported markets during the average period (2005-

2009) was used as the application form optimal Almost Ideal Demand System (AIDS) for Egyptian grapes, with the introduction of restrictions when estimating the model, demand functions on grapes imported into the Egyptian market study. This has been obtaining the necessary data for the area, productivity and total production from the Central Department of Agricultural Economics, Ministry of Agriculture and Land Reclamation, while the obtained data on the form of the United Nations site on the Internet http://comtrad, un.org/db GRAPES Fresh (0806100000)

As well as the site of the Food and Agriculture Organization "FAO" http://www.FAo.org

The World Bank Web site, on the Internet * http://www.albankadawli.org, the site of the Central Agency for Public Mobilization and Statistics on the Interne Http://www.Capmas.gove.eg, and the site and the Egyptian Ministry of Economic Development on the Internet http://www.mop.gov.eg As well as some data on the dates of export of Egyptian grapes, grape source of competitive countries, and that the Office of the European Commission in Cairo in 2010.

Description of the pattern analysis:

Application of optimal model is different from the other traditional models by estimating the demand that it takes into account the differences in the sources of goods. Also, it includes special restrictions on demand functions of the sources of goods, and explains the changes in demand and demonstrates the extent of competition between different sources, and provides the requirements of the economic policy of the estimates of the degree of response of demand prices and spending on imports. As it is to get rid of the problems of bias in the compilation of the sources of import and the expenditure function in the model reflect the behavior and the pattern of imports, which separates between import sources. It can be identified as the most important factors affecting it, and analyze the competitive relationship between the sources of import. The model is based on the value of expenditure on the item of any share of the total expenditure on the item instead of the quantity of each commodity separately.

This model has been provided by Deaton, Mulbauer "[2], [15]. The model is a flexible model is easy to use, as it is more applicable in economic studies. it is assumed when applied in economic studies two propositions: first, the assembly-level item It does not discriminate in this case between goods, according to imported sources, an assumption is possible if commodity prices change by the same percentage. But it seems a difficult assumption in the exports of agricultural commodities for reasons including the differing quality of products and tariffs, varying modes of formulas of contracts, the different services, conservation and transport of these products. The second assumption is the complete separation of goods, according to sources, import and this is may be contrary to logic. Due to the importance of differentiating between sources of imports in the analysis of demand for imports, some economic studies suggested the use of this form that is where the distinction between the sources of imported goods without restriction completes separation. Assuming that the expenditure function with utility U, which assumes a verifying between the goods according to different sources, can be derived form as follows:

$$\text{Ln } [E(P, U)] = (1-U) \text{ Ln } [a(P)] \text{ U Ln } [b(P)] \quad \ldots\ldots(1)$$

$$\text{Ln } [a(P)] = \alpha_0 + \Sigma \alpha_k \text{ Ln } P_k + \tfrac{1}{2} \Sigma_k \Sigma_j \gamma_{kj} \text{ Ln } P_k \text{ Ln } P_j \quad \ldots\ldots(2)$$

$$\text{Ln } [b(P)] = \text{Ln } [a(P)] + \beta_0 \prod_k P_k^{\beta_k} \quad \ldots\ldots(3)$$

Bringing equations (2.3) in equation (1) spending function can be formulated as follows:

$$\text{Ln } [E(P,U)] = \alpha_0 + \Sigma \alpha_k \text{ Ln } P_k + \tfrac{1}{2} \Sigma_k \Sigma_j \gamma_{kj} \text{ Ln } P_k \text{ Ln } P_j + \beta_0 \text{ U} \prod_k P_k^{\beta_k} \quad \ldots(4)$$

By differentiated Ln [E (P, U)] for the price of Ln P_i, it can get a share of the imported commodity spending W_i are as follows:

$$\frac{\partial \text{Ln } [E(P,U)]}{\partial \text{Ln } P} = \frac{P_i q_i}{E(P,U)} = W_i \quad \ldots\ldots(5)$$

therefore can be re-formulation of equation (4) as follows:

$$W_i = \alpha_i + \Sigma_j \gamma_{ij} \text{ Ln } P_j + \beta_i \text{ U } \beta_0 \prod_k P_k^{\beta_k} \quad \ldots\ldots(6)$$

Solving equation (4) for the benefit of (U) and substituted in the equation (6) can be obtained on the following:

$$W_i = \alpha_i + \Sigma_j \gamma_{ij} \text{ Ln } P_j + \beta_i \text{ Ln } \left(\frac{E}{P_{index}} \right) \quad \ldots\ldots(7)$$

Where:

$$\text{Ln } (P_{index}) = \alpha_i + \Sigma_k \alpha_k \text{ Ln } P_k + \tfrac{1}{2} \Sigma_k \Sigma_j \gamma_{kj} \text{ Ln } P_k \text{ Ln } P_j \quad \ldots(8)$$

The P_{index} is a non-linear and faced difficulty in the estimation had therefore replaced the index by the Engineering Stones Price Index is as follows:

$$\text{Ln } (P_{spi}) = \Sigma_i W_i \text{ Ln } P_i \quad \ldots\ldots(9)$$

Since the W_i refers to the percentage of expenditure, as it represents the dependent variable in the equations, the use of this record may cause some immediate problems in the model equations, so delays are used as follows:

$$\text{Ln } (P_{spi}) = \Sigma_i W'_i \text{ Ln } P_i \quad \ldots\ldots(10)$$

Where:

$$W'_i = \tfrac{1}{2} (W_{it} + W_{it-1}) \quad \ldots\ldots(11)$$

Note that it can be considered P_{index} an approximation for record number P_{spi} in case of duplication of the

pace of Multicolinearity high prices and, hence, the equation becomes (7) as follows:

$$W_i = \alpha_i + \Sigma_j \gamma_{ij} \text{Ln } P_j + \beta_i \text{ Ln } \left(\frac{E}{P_{spi}} \right) \text{…….....(12)}$$

That is under special conditions, to the demand of equation (12), which is represented in:

- Terms of Additively $\Sigma_i \alpha_i = 1, \Sigma_i \gamma_{ij} = 0, \Sigma_i \beta_i = 0$
- Terms of Homogeneity $\Sigma_j \gamma_{ij} = 0$
- Terms of symmetry $\gamma_{ij} = \gamma_{ji}$ for $i \neq j$

The importance of these conditions is that, it makes the model consistent with the theory of demand, which guarantees the conditions added a condition that the total spending = 1 ($\Sigma_i \quad W_i = 1$). While, the conditions of homogeneity guarantees the homogeneity of demand countries, and the conditions of parity check condition Slutsky Condition.

where: $\alpha,\beta,\gamma\iota$ indicates to the parameters of the function, P_i is the price of the commodity from source i, a (?), B (?) are functions in the parameters of the function and price, m number of sources of export item, W_i share of the imported commodity from spending, Pi, qi are price and quantity of the item from the source i, respectively, E is total expenditure on the item from all sources, P_{index} the standard price index, and Pspi the standard record of Stone.

Calculates the price, spending power and cross elasticity's of demand as follows:

- Price and cross elasticity, take the matrix (m × m) $\varepsilon_{Own,Cross} = -\delta_{ij} + (\gamma_{ij} / W_i) - \beta_i (W_j / W_i)$

Self price elasticity (diagonal matrix)

Cross price elasticity (outside diameter) ($\delta_{ij} = 1$, where $i = j$)

($\delta_{ij} = 0$, where $i \neq j$)

- Flexible spending power $\varepsilon_{expend} = 1 + (\beta_i / W_i)$

To validate the results, it is measurement by the relationship between the spending elasticity's of the imported commodity-weighted share of expenditure as follows:

$\Sigma_i W_i \varepsilon_{expend} = 1$

The autocorrelation test has been identified using "Breusch Godfrey". For the problem of non-homogeneity test using the error limit Engel test, and a problem is detected non-normal distribution reduce the error by using the Jarque-Bera test, in the absence of the significance problem, there is no standard formula. To estimate the model parameters of the equation no. (12) Use the method of Zellner to solve, Seemingly Unrelated Regression (SUR).

Results and discussion

1. The development of the most important variables affecting Egypt's exports of grapes during the period (1990-2009):

1.1. the development of fruitful area and productive feddan and total production of grapes:

It is clear from the overall time trend equations of numbers (1.2, 3) table (1), that there is a general trend of increasing statistically significant at the level of probability of 0.01 in the fruitful area, and productive fadden ($4200m^2$). The total production of Egyptian grapes was about 4.93 thousand fadden, 0.29 tons/ fadden, 60.89 thousand tons, with annual rates increase amounted to about 3.56%, 3.29%, and 5.06% of the average fruitful area, fadden production and total production of grapes, which recahed about 138.42 thousand per fadden, 8.82 tons/fadden, 1203.45 thousand tones, respectively. This is reflecting the adjusted coefficient of determination average value R^{-2}, that the changes reflected in the time element is responsible for 98%, 93%, and 97% of the changes in the fruitful area and productive fadden and total production of Egyptian grapes respectively during the period (1990-2009).

1.2. The evolution of the quantity and value and price of Egyptian exports of grapes:

Studying the evolution of the quantity, value and price of exports of Egyptian grapes during the mentioned earlier period, the time trend equations numbers (4.5, 6) table (1) indicated that, these variables have been taken an increasing and statistically significant general trend at 0.01 level of about 5.25 thousand tons, 7.15 million dollars, 38.93 dollars / ton, with increasing annual rates of about 30.67%, 36.11%, and 5.45% of the average quantity and price value of Egypt's exports of grapes, which amounted to about 17.12 thousand tons, 19.8 million U.S. $ and 714.30 U.S. $ / ton respectively. The adjusted coefficient of determination R^{-2} reflects the value of that the changes reflected in the time element is responsible for 66%, 52%, and 47% of the changes in these variables, respectively.

1.3. the development of the quantity and value of world imports and the price of grapes:

The time trend equations numbers (7.8, 9) table (1) indicated to a significant and confirmed statistically increase at the level of probability of 0.01 in the quantity, value and the price of world imports of grapes was about 134.62 thousand tons 289.46 million U.S. $ and 38.85 U.S. $ / ton, with rates of annual increase amounted to 4.87%, 7.87%, 2.79% of the average quantity, value and the price of the world imports of grapes, which are estimated at 2762.84

thousand tones, 3675.87 to $ 1391.16 $/ton, respectively. The adjusted coefficient of determination R^{-2} reflects the value of that changes reflected in the time element is responsible for 97%, 92%, and 86% of the changes in the quantity and value of world imports and the price of grapes, respectively, during the period (1990-2009).

Table (1): equations of general time trend of the evolution of the most important variables affecting Egypt's exports of grapes during the period (1990-2009)

The dependent variable 'Y'	Number equation	The unit of measure	The constant term $\propto$	Regression coefficient $\hat{\beta}$	average	**Adj. R-Sq**	**T $\hat{\beta}$**	**F Test**	Annual change rate%	The level of significance
Area grape fruit	1	Thousand fedden	12.09	4.93	138.42	0.98	26.13	682.78	3.56	0.01
Food productivity	2	Tons/ acre	6.38	0.29	8.82	0.93	22.57	509.41	3.29	0.01
Total production	3	Thousand tons	732.54	60.89	1203.45	0.97	21.86	477.87	5.06	0.01
The amount of exports	4	Thousand tons	- 23.45	5.25	17.12	0.66	9.55	91.22	30.67	0.01
The value of exports	5	Million dollars	- 27.18	7.15	19.80	0.52	4.12	16.98	36.11	0.01
Export price	6	Dollar/ton	336.60	38.93	714.30	0.47	3.17	10.07	5.45	0.01
The amount of world imports	7	1000 ton	1745.19	134.62	2762.84	0.97	19.48	379.49	4.87	0.01
The value of world imports	8	Million dollars	1476.32	289.46	3675.87	0.92	10.56	111.53	7.87	0.01
World import price	9	Dollar/ton	1019.46	38.85	1391.16	0.86	7.34	53.89	2.79	0.01

Where:

A diJ R^{-2} =Adjust coefficient of determination.

$\hat{\beta}$ T= T value of the estimated regression coefficient.

F test calculated for the model.

Source:

1 - Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Central Department of Agricultural Economics, Agricultural Economics Bulletin, Nos. (1990-2009).

2. http://www.comtrad.un.org/db.

3. http://www.FAO.org.

4. http:// www.Capmas.gov.eg.

2. Geographical distribution and market share for exports of Egyptian grapes in the most important foreign markets during the period (2005-2009).

The study of foreign markets, imported Egyptian grapes, and the geographical distribution of these exports is important; in order to identify priorities and policy directions for the export of this crop in the future and work to improve its competitiveness in foreign markets.

2.1. The geographical distribution of Egyptian grapes exports:

Reviewing the geographical distribution of grapes Egypt's exports during the average period (2005-2009), it was found that, it is distributed to different markets of the world, which can be divided in terms of the relative importance of the quantity exported about fifteen countries, in addition to a range of other countries less relative importance. The average annual quantity and value of imports of these countries (the fifteen) are about 36.99 thousand tons 57.56 million dollars, representing approximately 96.22%, 97.24% of the average quantity and value of total exports of Egyptian grapes. Moreover, about 38.45 thousand tons 59.19 dollars respectively to the average of the same period, as is clear from Table (2). This made the UK market in the first place among the most important importer of grapes Egyptian quantity and value of exports amounted to 13.95 thousand tons 23.57 Million dollars, respectively, representing approximately 36.30%, 39.82% of the average quantity and value of Egypt's total exports of grapes for the same period. While the markets occupied of "the Netherlands, Italy, Belgium, Russia, and Germany," the second to sixth places the exports

amounted to 7.41, 5.12, 2.83, 1.94, and 1.56 thousand tons, representing approximately 19.28%, 13.34%, 7.37%, 5.06%, and 4.06 % of the average amount of total exports of the Egyptian grapes. That mean that these markets next to the British market accounted for around 85.41% of the average amount of exports of Egyptian grapes for the same period. While the value of imports of these markets of Egyptian grapes about 10.04, 9.68, 5.37, 2.69, and 2.76 million USD representing approximately 16.96%, 16.36%, 9.08%, 4.56%, and 4.67% of the average value of total exports of the Egyptian grape, which means that these countries together beside the United Kingdom account for about 91.45% of the average value of Egypt's exports of grapes during the same period. As indicated data in the same table that, about 10.81%, 5.79% of the average quantity and value of total exports of Egyptian grapes arrangement is in the imports of the markets of "United Arab Emirates, Kuwait, Sudan, Saudi Arabia, South Africa, Ireland, Austria, Singapore, and The United States, and about 3.78%, 2.76% of the total amount and value of exports of Egyptian grapes is in the imports of other markets.

Calculating the coefficient of "Jenny Hirschman" to the geographical concentration of quantity and value of Egypt's grapes exports were approximately 46.35 and 50.88 respectively, which confirms the focus of Egypt's grapes exports in a limited number of countries, accounting for markets, "the United Kingdom, the Netherlands and Italy," about 69% of the amount of these exports, which requires the need to work on opening new markets in one hand, and try to increase the quantities of grapes exported to other countries with low market share, particularly Arab nations on the other hand.

2.2. market share for exports of Egyptian grapes:

Studying the market share of the Egyptian importing grapes exports to the foreign markets, it was necessary, in order to identify the extent to which the entry by force of these exports to these markets and the possibility of increased export efforts to increase the market share of the Egyptian grapes to these markets. It is clear from Table (2) that, there are countries characterized by low ratio of market share with high price and its import from grapes such as "United Kingdom, the Netherlands, Belgium, Russia, Germany and Ireland,". Where, the total market share of these countries, respectively are, 5.47, 2.79, 3.03, 0.57, 0.47 and 3.41 respectively, which means that there is a possibility to increase exports Egyptian grapes to these markets, taking into account the conditions of export to these markets, and consumer taste, and suitable dates for the export of systems, the quality control of exports. Also, there are countries characterized by high proportion of market share and prices of export with high and low import capacity markets, such as Italy, South Africa. Where, the total market shares of these markets, 18.59, and 29.35 respectively, during the average period (2005-2009), which means the need to preserve the exported quantities to such markets. While, the markets of Austria, Singapore and the United States of America, are characterized with small market share and high prices of Egyptian grapes imports, which means the need to increase the exported quantities of grapes to these markets to take advantage of higher prices, especially since these markets with a large import capacity, particularly the United States, to be combined with the marketing studies to identify the consumption patterns of these markets. As shown by the data in the same table that, the markets of all Arab countries characterized by a low price import of Egyptian grape, due to a decline in transport costs due to the proximity with Egypt. Where, the market share for grapes exports to United Arab Emirates, Kuwait, Sudan, and Saudi Arabia reached to 3.58, 9.94, 2.19, and 1.49 respectively during of the study period. In general, we should focus on the markets of Arab countries, where the advantage of increasing the capacity of these countries from grapes imports, as it does not require complex conditions for export compared to the European Union and the United States markets, in addition to the consumer acceptance of the Arab to the varieties of Egyptian grapes.

3. Estimate the function of foreign demand for Egyptian grapes in the most importing foreign markets:

The markets "the United Kingdom, the Netherlands, and Italy," are the most major overseas markets importing Egyptian grapes, as it absorbed those three markets around 26.49 thousand tons, representing 69% of the total amount of Egyptian grapes exports during the average period (2005-2009), amounting to 38.45 thousand tons, with a total value of about 43.29 million dollars, representing approximately 73.14% of the total value of Egyptian grapes exports in the same period average, amounting to about 59.19 million dollars. The following is a presentation to estimate the function of foreign demand for Egyptian exports of grapes for these markets using the demand form optimal (AIDS):

Table (2): geographical distribution and market share for the most important importer countries of Egyptian grapes during the period (2005-2009).

Country	exported Quantity (ton)	%	Exported value (thousand dollar)	%	Exported price (dollar/ton)	The total amount imports of the State	% world imports	Market share
UK	13956	36.30	23572	39.82	7.13	255181	7.13	5.47
The Netherlands	7414	19.28	10039	16.96	7.40	264921	7.40	2.79
Italy	5127	13.34	9685	16.36	0.77	27584	0.77	18.59
Belgium	2832	7.37	5373	9.08	2.61	93417	2.61	3.03
Russia	1947	5.06	2697	4.56	9.48	339429	9.48	0.57
Germany	1561	4.06	2765	4.67	9.26	331619	9.26	0.47
United Arab Emirates	982	2.56	539	0.91	0.77	27440	0.77	3.58
Kuwait	720	1.87	490	0.83	0.20	7245	0.20	9.94
Sudan	687	1.79	475	0.80	0.87	31276	0.87	2.19
KSA	521	1.36	255	0.43	0.97	34874	0.97	1.49
South Africa	490	1.27	549	0.93	0.05	1669	0.05	29.35
Ireland	340	0.88	470	0.79	0.28	9957	0.28	3.41
Austria	250	0.65	398	0.67	1.58	56522	1.58	0.44
Singapore	93	0.24	117	0.20	0.39	13871	0.39	0.67
USA	75	0.19	134	0.23	13.24	473927	13.24	0.01
The rest of the world	1452	3.78	1634	2.76	45.00	1611560	45.00	0.09
Total World	38447	100	59192	100	100	3580492	100	1.07
Gini coefficient *	46.35		50.88		--	--	--	--

Sources : 1. http://www.comtrade.un.org/db.GRAPES Fresh, SITC. Rev. 2 code (0806100000).
2. http: //www.FAO.org

* Gini-Hirchman Coefficient is used in the calculation of the degree of geographical concentration of the state exports which takes the following mathematical formula:

$$C_j X = 100\sqrt{\sum [x_{ij} / x_i]^2}$$

Where: X_{ij} indicates to exports or imports of the State (i) of Item (X) to state (j), xi total exports or imports of the State (i) of Item (x), this factor reach to the maximum value, by (100) in the case of exported to one country only. While this rate is less, whenever exports of the commodity distributed on a large number of countries. "Michaely" see that the coefficient of geographic concentration is considered high if it is larger than (40), which means that the occurrence of any severe price fluctuations in the value and quantity of the consequent negative effects on the economies of the exporting country foreign trade.

3.1. UK market:

3.1.1. The most competitive countries for the exports of Egyptian grapes within the UK market:

The UK occupies the fifth place among importers of grapes in the world, after the United States of America, Russia, Germany and the Netherlands. Where the volume of UK grapes imports about 255.18 thousand tons, representing 7.13% of the average amount of grapes global imports about 3580.49 thousand tons during the average period (2005-2009). While, the volume of Egyptian grapes exports to the UK market about 13.95 thousand tons, representing approximately 36.30% of the average amount of Egyptian exports of grapes, and about 5.47% of the average quantity of imports of the United Kingdom of grapes during the same average period. Spain, Germany, and the United States of America are considered as the major competitive countries for the entry by force of the Egyptian grapes exports to the UK market. Where the percentage of imports to the United Kingdom of grapes from these countries is about 13.12%, 7.09%, 6.45%, respectively, during the average period (2005-2009), and is competitive of grapes exports from these countries for the exports of Egyptian grapes in the UK market "competition," where more than the time period for grapes export from these countries about half of the season of Egyptian grapes export to the UK market, which continues for a period of (6) months starting from May and ends in October, the same time period for American grape exports to market. While the Spanish and German grapes exports to the UK market continue over almost the months of the year. It should be noted that there are many countries competing of Egyptian grapes in the markets of the United Kingdom, but "the particial competition," a competition that you are in a period of time less than about or equal to half of the season export of Egyptian grapes to the market, or about

three months. Those States includes "Morocco, Greece, Chile, Peru, Argentina, and India," where the exports of those countries of grapes to the UK market at the beginning of January until the mid-June, with the exception of exports of Indian grapes, that begins with the months of March to July. Nevertheless, the quantity is being very small during the month of June and July which does not affect the exports of Egyptian grapes in this market. Despite the presence of Israeli grapes in the United Kingdom during markers the season of exporting Egyptian grapes to the same market, but the supplied quantities are very small to affect the Egyptian grapes this market. On the other hand, despite the fact that about 23% of UK imports of grapes come from south Africa, but it is not considered one of the competitive countries to the exports of Egyptian grapes in this market, and to different export seasons where there are grapes from South Africa in the UK market at the beginning of November until April, while the Egyptian grapes as the above mentioned before, from May to October in the UK market.

3.1.2. Estimating demand functions on Egyptian grapes within the UK market:

Table (3) illustrated the demand for Egyptian grapes market function to the UK using the form "AIDS", showing the absence of standard problems that can affect the efficiency of the model, which is the autocorrelation, heterogeneity, and non-normal distribution. This has been confirmed non-significant of "Wald" Test, concerning the add limitations, consistency, uniformity, and non negativity. As can be seen from the same table that, the grapes prices in this market for all countries that are the main rival to Egypt, (Spain, Germany and the United States of America). In addition to the total true expenditure of imports grapes of the UK explains about 75% of the changes that occur in the proportion spending on Egyptian grapes market to UK. While the rest of the changes due to factors other than the measured function, and according to the adjusted value of the coefficient of determination Adj. R^{-2}.

Table (3) the results estimates of model "AIDS" to the demand for Egyptian grapes in the UK market during the period (1990-2009).

Country		α	LnP1	LnP2	Lnp3	LnP4	Ln(E/p) spi	Adj. R-sq	S.E of Reg	Auto	Hetro	Non-Norm
Egypt	Coffi	1.701	-0.140	0.082	0.107	-0.011	-0.054	0.749	0.011			
	T.Stat.	5.021	-6.120	3.970	7.55	-0.1325	-4.218			1.236	1.181	0.077
	Prob.	0.000	0.000	0.000	0.000	0.708	0.000			0.119	0.135	0.859
Spain	Coeffic.	0.975	0.071	0.145	-0.110	-0.114	-0.029	0.815	0.017			
	T.Stat.	2.513	2.194	3.508	-2.760	-3.909	-1.421			0.151	0.241	0.297
	Prob.	0.007	0.010	0.000	0.005	0.000	0.117			1.080	1.306	1.169
Germany	Coeffic.	1.136	-0.140	-0.027	0.072	0.145	-0.076	0.718	0.121			
	T.Stat.	3.111	-4.900	-1.113	2.451	2.724	-2.515			0.087	1.171	1.009
	Prob.	0.000	0.000	0.097	0.007	0.000	0.002			0.731	0.540	0.742
United states	Coeffic.	-2.101	0.370	-0.181	-0.116	0.020	0.147	0.681	0.124			
	T.Stat.	-5.317	6.490	-5.420	-5.111	0.748	7.489			0.191	1.163	1.093
	Prob.	0.000	0.000	0.000	0.000	0.462	0.000			1.454	0.661	1.137

Lnp1 - LnP4: the logarithm of export prices in dollars per ton of grapes, for "Egypt, Spain, Germany, the United States" respectively in the British market during the period (1990-2009).

Ln (E / P) spi: logarithm of total expenditure on the British import grapes, in thousands of dollars during the period (1990-2009).

Adj.R-Sq: adjusted coefficient of determination, S.E of Reg standard error of regression.

Auto: LaGrange multiplier for the self-correlation.

Hetro: LaGrange multiplier for instability of the variance.

Non-Norm: LaGrange multiplier for the non-normal distribution reduces of limit of the error.

Source: http: // www. Comtrade. Un.org/db. GRAPES Fresh, SITC. Rev. 2 Code (0806100000).

It is clear from Table (4) that the price elasticity of demand on Egyptian grapes within the UK market, indicating that the increase in prices by 1% which leads to a decrease in demand by 2.412%, which means that it is a product with elastic demand in this market. While recalling cross demand elasticity's that an increase in the grapes price, exported from the competitive countries to Egypt which are (Spain, Germany, and the United States) is estimated at 1% leads to increased demand for Egyptian grapes about 1.521%, 1.14%, and 0.175%, respectively, which refers to the replacement relationship between the exported grapes from these countries on the one hand, and between the Egyptian

grapes on the other hand. As can be seen that the spending power of elasticity to increases the total actual expenditure of the UK on grapes by about 1%, leading to increased spending on the Egyptian grapes by 0.792%, which may indicate that the Egyptian grapes is a necessary commodity in the UK market.

3.2. The Dutch market:

3.2.1. The most competitive countries for the exports of Egyptian grapes within the Dutch market:

The Netherlands is the fourth importer of grapes in the world, where the volume of import from grapes about 264.92 thousand tons, representing 7.40% of the average amount of global imports of grapes to the average period (2005-2009). The volume of Egyptian exports of grapes to the Dutch market is about 7.41 thousand tons, representing 19.28% of the average amount of Egypt's exported grapes, and about 2.79% of the average amount of imports grapes the Netherlands during the same average period.

Table (4): elasticity model of "AIDS" for the UK market on the grape.

Country	Price, cross elasticity				Expenditure elasticity
	Egypt	Spain	Germany	United States	
Egypt	-2.412	1.521	1.140	0.175	0.792
Spain	0.188	-0.857	-0.207	-0.279	0.907
Germany	-1.317	-0.109	-0.281	1.196	0.895
United States	0.751	-0.661	-0.490	-1.138	0.362

Source: table no.(3) in the current study.

Spain, Germany, and Greece are the major competitives for the entry of the Egyptian grapes exports to the Dutch market, where the percentage of grapes imports from these countries about 16.53%, 11.82%, and 8.71%, respectively, during the average period (2005-2009). The grapes exports from these competitive countries for the exports of Egyptian grapes within the Dutch market are "total competition" where the season continues, to export grapes from Spain and Germany to this market almost all year. However exports of Greek grapes to Dutch market from June until December while, the Egyptian grape in the beginning of May until September. While, the Chile, Morocco, Peru, Argentina, Mexico, and India, are competing to exports of Egyptian grapes within the Dutch market as "a partial competition ", where the grapes imported from those States to the Netherlands start from January until June. Also the American and Belgian grapes imported throughout the season of exporting the Egyptian grapes, but its quantity was very small to affect the exports of the Egyptian grapes, and it can not be replaced in full replacement in this market. As well as the Italian grapes are in the Dutch market but the majority of exports grapes Italian be Krmeson verity Red which preferred by Dutch consumer relatively. Despite the fact that 13.72% of the imports of the Dutch market for the grapes come from South Africa, but the grapes of South Africa is not to compete with the grapes of Egypt, where export grapes of South Africa to the Dutch market at the beginning of November to March, while exports of the Egyptian grapes are from the beginning of May to the end of September, and notes that all competitive countries to the exports of Egyptian grapes especially total competitive, are the countries in the European Union, which refers to the intensive competition faced by the exports of Egyptian grapes in the market Dutch.

3.2.2. Estimation of demand functions on Egyptian grapes within the Dutch market:

Table (5) illustrated the demand function of the Egyptian grapes within the Dutch market, using the model of "AIDS", showing that there is no standard problems can affect the efficiency of the model which is the autocorrelation, non-homogeneity, and non-normal distribution. This has been confirmed of non-significance test "Wald" which concerning with restrictions addendum, harmony, uniformity, and non-negativity. As can be seen from the same table that the prices of grapes in this market (for main competitive countries to Egypt, which are Spain, Germany, and Greece). In addition to the real total import Dutch expenditure of Grapes explains 85% of the changes that occur in the proportion of spending on the Egyptian grapes in Dutch market, while the rest of the changes due to factors other than the measured function, and according to the adjusted value of the coefficient of determination Adj. R^{-2}.

Table (5): Results of model estimates of "AIDS" to the demand for Egyptian grapes in the Dutch market during the period (1990-20009)

Country		α	LnP1	LnP2	Lnp3	LnP4	Ln(E/p) spi	Adj. R-sq	S.E of Reg	Auto	Hetro	Non-Norm
Egypt	Coeffi	1.671	0.019	0.104	0.072	0.017	-0.893	0.851	0.031			
	t.Stat.	7.114	0.651	0.137	1.293	0.579	-24.166			0.416	0.315	0.499
	Prob.	0.000	0.010	0.859	0.011	0.119	0.000			0.731	0.495	0.791
Spain	Coeffic.	-0.197	-0.107	0.121	0.175	-0.480	0.098	0.651	0.082			
	t.Stat.	-0.416	-0.351	1.119	0.018	-0.174	4.918			0.176	0.071	0. 695
	Prob.	0.172	0.050	0.001	0.000	0.001	0.000			0.714	0.796	0.841
Germany	Coeffic.	-0.445	0.078	-0.171	-0.041	0.019	0.130	0.721	0.015			
	t.Stat.	-0.381	0.691	-0.490	-0.710	0.785	0.184			0.690	0.489	0.312
	Prob.	0.899	0.909	0.907	0.801	0.040	0.471			0.655	0.740	0.410
Greece	Coeffic.	-0.795	0.127	-0.512	-0.017	-0.012	0.009	0.708	0.011			
	Tt.Stat.	-0.816	0.091	-0.189	-0.413	-1.514	1.193			0.871	0.067	0.291
	Prob.	0.093	0.009	0.077	0.050	0.002	0.009			0.319	0.702	0.012

Lnp1-Lnp4: the logarithm of export prices in dollars per ton of grapes, for each "Egypt, Spain, Germany, Greece", respectively, to the Dutch market during the period (1990-2009).
Ln (E / P) spi: logarithm of total expenditure on the Dutch import of grapes in thousand dollars during the period (1990-2009).
Adj.R-Sq: adjusted coefficient of determination, S. Eof Reg standard error of regression
Auto: LaGrange multiplier for the self-link.
Hetro: LaGrange multiplier for instability Altabanin
Non-Norm: LaGrange multiplier for the non-normal distribution reduce the limit of error.
Source: http://www. Comtrade. Un.org/db. GRAPES Fresh, SITC. Rev. 2 code (0806100000).

It is clear from Table (6) that the price elasticity of demand on the grape in the Dutch market, indicating that the increase in prices by about 1% leads to a decrease in demand by 1.594%, which means that this product with elastic demand in this market. While cross demand elasticity indicated that an increase in the price of grapes, imported from the main competitive States to Egypt (Spain, Germany, and Greece) by 1% lead to increased demand for Egyptian grapes by 0.481%, 0.659%, and 0.572%, respectively. Which are referring to a replacement relationship of the Egyptian grapes on one hand and grapes from those States on the other hand. It also describes the elasticity to increase the real total spending Dutch import grapes by 1%, leading to increased spending on the Egyptian grapes by 0.581%, which indicates that the Egyptian grapes is a necessary commodity in the Dutch market.

3.3. The Italian market:

3.3.1. The most important competitive countries of the exports of the Egyptian grapes in the Italian market

Despite the decrease in import capacity to Italy from grapes, amounting to 27.58 thousand tons representing 0.77% of the average total amount of world imports of grapes during the period (2005-2009), but the Egyptian exports of grapes to the market amounted to about 5.12 thousand tons, representing 13.34% of Egypt's total exports of grapes, and about 18.59% of the total imports of the Italian grapes during the same mentioned average period of the Italian grapes, which indicates the importance of exports of the Egyptian grapes in this market.

Table (6): Elasticities of model "AIDS" from the Dutch market on the grapes.

Country	Price, cross elasticity				Expenditure elasticity
	Egypt	Spain	Germany	Greece	
Egypt	-1.594	0.481	0.659	0.572	0.581
Spain	-1.737	-0.651	0.331	-0.548	1.170
Germany	0.417	-0.801	-0.903	0.862	1.336
Greece	0.508	-0.315	-0.761	-0.437	1.404

Source: Table No (5): in study.

Studying the most competitive markets for the exports of Egyptian grapes in the Italian market; it was found that the exports of grapes from "Spain, Germany, the Netherlands, and Israel" are

competitive countries to Egyptian grape "in a complete competition" within this market. Where, imports of the Italian market from these countries represent about 12.38%, 11.25%, 10.96%, and 8.05%, respectively during the period (2005-2009). With regard to the seasonal export of grapes from these markets to the Italian market, it became clear that the Spanish, German, and Dutch grapes hardly exist in this market throughout the year. While, the Israeli Grapes is exist in the same exported Egyptian grapes in the Italian market at the beginning of May until the first week of October. On the other hand, there are countries compete Egyptian Italian grapes market as a partial competition, include those countries include "Morocco, Chile, and India," as determined that the exports of grapes from these countries to the Italian market in the period from January to June. Despite that about 6% of imports of the Italian market of the grapes come from South Africa "but it is not considered a competitor to the exports of the Egyptian grapes, owing to different seasons of export, where the grape of South Africa in the Italian market is in the beginning of December and ends in April. The study noted that most competitive countries for the Egyptian grapes "total competition" within the Italian market of the European Union countries except Israel, which puts the Egyptian exports of grapes in a severe competition with the exports of those countries within the Italian market.

Table (7) the results of model estimates of "AIDS" to the demand for Egyptian grapes in the Italian market during the period (1990-2009).

Country		α	LnP1	LnP2	Lnp3	LnP4	LnP5	Ln(E/p) spi	Adj. R-sq	S.E of Reg	Auto	Hetro	Non-Norm
Egypt	Coeffi	3.714	-0.113	-0.185	-0.451	-0.317	0.971	-0.426	0.770	0.041			
	t.Stat.	2.521	-0.510	-2.457	-6.521	-7.489	9.418	-3.709			1.615	1.017	0.918
	Prob.	0.005	0.819	0.000	0.000	0.000	0.000	0.000			0.121	0.580	0.673
Spain	Coeffic.	5.730	-4.01	-0.725	1.109	4.931	0.777	-4.715	0.759	0.127			
	t.Stat.	4.731	-4.111	-0.070	0.089	5.423	0.655	-4.891			1.251	0.321	0.109
	Prob.	0.000	0.000	0.950	0.928	0.000	0.705	0.000			0.320	0.052	0.739
Germany	Coeffic.	-5.601	0.171	0.079	0.323	-0.139	-0.311	0.521	0.691	0.181			
	t.Stat.	-7.215	2.320	1.987	4.173	-3.601	-3.125	4.188			0.081	0.177	0.055
	Prob.	0.000	0.005	0.017	0.000	0.000	0.000	0.000			0.891	0.946	0.254
Nether Lands	Coeffic.	0.704	0.016	0.270	0.745	-0.171	-0.918	-0.034	0.912	0.127			
	t.Stat.	0.641	0.081	5.718	9.715	-1.181	-9.750	-0.398			0.491	0.512	0.271
	Prob.	0.500	0.742	0.000	0.000	0.209	0.000	0.723			0.449	0.170	0.214
Israel	Coeffic.	-3.707	0.250	-0.147	-0.591	0.181	0.319	0.248	0.231	0.045			
	t.Stat.	-3.651	3.459	-3.412	-8.801	2.940	3.045	2.791			0.536	0.218	1.450
	Prob.	0.000	0.000	0.000	0.000	0.000	0.000	0.000			0.027	0.619	0.781

Lnp1-Lnp5: the logarithm of export prices in dollars per ton of grapes, for each "Egypt, Spain, Germany, the Netherlands, and Israel," respectively to the Italian market during the period (1990-2009).

Ln (E / P) spi: logarithm of total expenditure on the import grapes in Italy, in thousands of dollars during the period (1990-2009)

Adj.R-Sq: adjusted coefficient of determination,

S.E of Reg standard error of regression.

Auto: LaGrange multiplier for the self-correlation.

Hetro: LaGrange multiplier for instability of variance

Non-Norm: LaGrange multiplier for the non-normal distribution reduce the limit of error

Source: http://www.Comtrade. Un.org/db. GRAPES Fresh, SITC. Rev. 2 code (0806100000).

Table (8): elasticity's of model "AIDS" for the Italian market on the grape

contry	Price, cross elasticity					Expenditure elasticity
	Egypt	Spain	Germany	Netherlands	Israel	
Egypt	-0.469	3.193	0.622	-0.244	1.738	0.814
Spain	-1.817	-0.415	-0.197	1.685	2.219	0.717
Germany	0.245	-1.599	1.110	-1.047	-5.407	0.572
Netherlands	0.247	-1.612	-5.460	-2.410	0.778	1.224
Israel	1.948	2.415	0.622	0.136	-2.458	0.409

Source table no. (7) in the current study

3.3.2. Estimation of demand functions on the Egyptian grapes in the Italian market:

Table (7) showed the demand function for Egyptian grapes in the Italian market, using the model of "AIDS" by showing that there is no standard problem, can affect the efficiency of the model are "self Linking, heterogeneity, and non-normal distribution". This has been confirmed not to be significance by the test "Wald" which concern with the adding restrictions, homogeneity, uniformity, and non-negativity. As can be seen from the same table that the prices of grapes in this market for the main competitive countries to Egypt, which are (Spain, Germany, the Netherlands, and Israel), in addition to the real total import expenditure on grapes in Italy, explains about 77% of the changes that occur in the proportion of spending on the Egyptian grapes to the Italian market. While the rest of the changes are due to factors other than the measured function, and according to the adjusted value of the coefficient of determination Adj. R^{-2}.

It is clear from Table (8) that the elasticity price of demand on the Egyptian grapes in the Italian market, indicating that the increase in its prices by 1% leads to a decrease in its demand by 0.469%, which means that a product with inelastic demand in this market. While, cross elasticity demand indicated that an increase in the price of grapes, from the main competitive countries to Egypt (Spain, Germany, the Netherlands, and Israel) by 1% lead to changes in demand for the Egyptian grapes by 3.193%, 1.490% - 0.244%, and 1.783% respectively. This refers to the replacement relationship of exported grapes from those countries on the one hand, and the grapes exported from Egypt on the other hand (excluding the Netherlands), where the relationship is complementary, in the case of high export prices of Spain, Germany, Israel and Egypt, respectively. As can be seen that the spending power of elasticity to increase the real total Italian spending import of grapes by 1% lead to increased expenditure on Egyptian grapes import by 0.814%, which may indicate that the Egyptian grapes is a necessary commodity in the Italian market.

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