

## دراسة اقتصادية لصادرات البرتقال المصري الى أهم الاسواق العالمية المستوردة منها

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بيانات البحث	المستخلص
استلام 2024/1/8 قبول 2024/2/20	تحتل مصر المركز الثالث بين الدول المصدرة في العالم ، و تتمثل مشكلة البحث في انه لوحظ في الأعوام الاخيرة خلال الفترة (2021-2017) تراجعاً نسبياً في كمية الصادرات منه مما يستدعي دراسة اقتصادية لصادرات مصر من البرتقال في الاسواق الخارجية، أهم النتائج المستخلصة ما يلي : 1- اهم الاسواق التي تستورد البرتقال المصري خلال فترة الدراسة هي روسيا، السعودية، هولندا، الصين، الامارات العربية المتحدة ( علي الترتيب وفقاً لكمية الصادرات ) بنسبة بلغت حوالي 55.7% من اجمالي كمية صادرات البرتقال المصري . 2- بدراسة مؤشرات التجارة الخارجية في أهم الدول المستوردة للبرتقال المصري (روسيا، السعودية، هولندا، الصين) تبين أن جنوب أفريقيا هي أكثر الدول منافسة لمصر، حيث أنها تتمتع بميزة تنافسية سعرية مع مصر و تأتي في المرتبة الاولى في كل من السوقين الهولندي و الصيني، بينما تتمتع مصر بميزة تنافسية سعرية في كل من السوقين السعودي، و الروسي الا ان النصيب السوقي لتركيا في السوق الروسي كان اكبر من مصر، و قد يرجع ذلك لاسباب غير سعرية . 3- أهم المتغيرات التي تؤثر علي كمية واردات الاسواق الخارجية من البرتقال المصري تمثلت في سعر التصدير المصري، و عدد السكان الدول المستوردة، و المسافة بين مصر واهم الدول المستوردة منها للبرتقال، و اجمالي الناتج القومي في تلك الدول. 4- قدرت مرونة الطلب السعرية بنحو 4.13% و التي تشير الى ان البرتقال المصري يعتبر سلعة مرنة في التصدير. مما يوضح أن تغير سعر التصدير له تأثيراً كبيراً علي واردت تلك الأسواق من البرتقال المصري، مما يستدعي الاهتمام بالسياسات السعرية التي تتخذها مصر بشأن صادراتها، للاحتفاظ وتحسين مركزها التنافسي في تلك الأسواق، او لاكتساب أسواقاً جديدة.

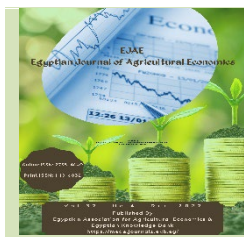
### الكلمات المفتاحية:

البرتقال المصري،  
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## An economic study for oranges exports to the most important foreign markets imported from Egypt.

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### ABSTRACT

The issue of water resources is considered the main actor in government policies related to the agricultural sector, given that the agricultural sector is considered one of the most productive sectors that use water in Egypt, as the percentage of water used in the agricultural sector reached about 81% of water uses. The problem of the study crystallizes in the lack of noticeable effects of government policies related to rationalization of irrigation water in agriculture, especially in light of the challenges that Egypt faces related to the decrease in the volume of water resources.

The study aims to know the general features of government policies related to water resources and their impact on the current situation of the agricultural trade balance in light of government decisions related to commercial and production policies related to rationalizing the use of irrigation water.

The study relied on descriptive and quantitative analysis methods, to measure the phenomena and variables related to the problem and used well-known statistical analysis tools such as the Vector Autoregressive Model, which is abbreviated to var, and these tools were indicated in their respective places.

By reviewing the general features to estimate the response of the agricultural trade balance in Egypt to the structural changes occurring in the most important government policies related to water resources, it becomes clear that the time period of these policies for their impact does not exceed one year in the near term, which indicates the importance of the state working to reconsider government policies Related to water resources and its impact on the agricultural trade balance in Egypt.

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### Introduction:

Fruit is considered one of the food and vital groups in human food, and the sustainable strategy for agricultural development in Egypt 2030 comes to increase Egyptian exports to foreign markets, and to identify external demand functions for the most important fruit crops.

Oranges are considered one of the most important varieties of cultivated fruit, which are exported, which needs to an economic study of Egypt's exports of oranges to foreign markets to conclude the most important factors affecting the demand of foreign markets from Egyptian oranges.

### **Search problem:**

The research problem is that although Egypt is the third in the ranking in terms of the amount of oranges exports, as it exports about 1238.17 thousand tons as an average for the period (2017-2021) to foreign markets, about 16.82% of the world's total exports of oranges. However, it has been observed in recent years a relative decline in the quantities exported of Egyptian oranges to the global markets, which is necessarily reflected on Egypt's export position in the global oranges market, on the one hand, and on the other hand, this may have a negative impact on the net trade balance of the Egyptian balance of payments, which requires studying foreign trade for Egyptian exports of oranges, in the most important foreign markets importing it. to find out the most important parameters explaining the form of external demand for Egyptian oranges to show and interpret the results.

### **Research Objective:**

-The research aims to study the economic exports of Egyptian oranges to the most important imported global markets and that is through:

1. Studying the relative importance of the most important oranges exporting countries in the world in terms of exported quantity, to determine Egypt's position among those countries.
2. Studying the time trend of Egypt's exports of oranges During the period of study.
3. Study of the relative importance of imports of foreign markets of Egyptian oranges in terms of imported quantity.
4. Statistical estimation for the gravity model to study Factors affecting the flow of Egypt's imports of oranges, to the most important importing countries, And present the most important conclusions and its interpretation
5. Statistical Estimation of Price Elasticity of Demand for Egyptian Oranges in Foreign Markets and showing Conclusions and its interpretation.
6. studying the competitive advantage insist of Egyptian exports of oranges, in most important markets compared to it is competitive

### **Research method and data sources:**

The study relied on the use of descriptive and quantitative statistical analysis methods to describe various economic variables, which are commensurate with the study data, based on the use of panel data as a combined database (Cross Sections, Time Series) and published and unpublished secondary data, which were obtained

from the World Bank during the period 2019-2021, in addition to the data published in trade statistics. The study also relied on descriptive statistical analysis methods to characterize the various economic variables under study, in addition to using the Gravity Model using Panel Data during the period 2019-2021.

### **Results:**

#### **First: The relative importance of the most important countries exporting oranges in the world in terms of the quantity exported:**

By studying the relative weight of the most important oranges-exporting countries in the world, the data of Table (1) indicate that Spain ranks first as the most important exporter of oranges in the world in terms of the quantity exported by an average of 1.621 million tons, or about 22.02% of the total amount of world exports of oranges during the period (2017-2021), followed by South Africa in second by an average of 1238.32 thousand tons, by about 16.82%, followed by Egypt with an average of 1238.17 thousand tons, or 16.82%, then United States of America comes in fourth in terms of the amount of oranges exports in the world with an average of 510.14 thousand tons, or 6.93%. The same table also indicates that Turkey, Greece, Netherlands occupied the fifth, sixth and seventh respectively in terms of quantity with an average of about 323.83, 299.50, and 298.74 thousand tons, respectively, representing about 4.40%, 4.07%, and 4.06% of the average amount of oranges exports for the period studied.

**Table (1) The relative importance of the most important countries exporting oranges in the world in terms of the quantity exported during the period (2017-2021):**

Country	(Quantity: thousand tons)						
	2017	2018	2019	2020	2021	Average	%
Spain	1617.98	1527.69	1756.86	1638.92	1565.85	1621.46	22.02
South Africa	1170.81	1278.94	1186.43	1259.67	1295.73	1238.32	16.82
Egypt	1363.02	1604.27	1794.23	691.28	738.06	1238.17	16.82
United States	589.73	505.04	484.34	501.08	470.49	510.14	6.93
Turkey	390.29	449.87	238.85	283.98	256.15	323.83	4.40
Greece	268.85	313.68	264.31	321.86	328.80	299.50	4.07
Netherlands	287.27	315.32	288.21	310.02	292.87	298.74	4.06
Other	1796.63	1850.69	1778.76	1907.70	1832.85	1833.32	24.93
<b>Total</b>	<b>7484.59</b>	<b>7845.49</b>	<b>7791.97</b>	<b>6914.52</b>	<b>6780.80</b>	<b>7363.47</b>	<b>100</b>

Source: Collected and calculated from [the www.trademap.org website](http://www.trademap.org)

## **Second: The time trend of Egypt's exports of oranges**

### **I. The time trend of the quantity of Egyptian exports of oranges**

Table (2) shows that the amount of exports of Egyptian oranges ranged between a minimum of about 271.6 thousand tons in 2007, and a maximum of about 1794.2 thousand tons in 2019, with an increase rate of about 5% for the average period (2007-2021) by about 1014.85 thousand tons. The table also showed a decrease in the quantities exported during the years 2020 and 2021 compared to previous years.

Equation No. (1) Table (3) also indicates an increase in the amount of oranges exports from Egypt by a significant annual amount of about 21.3 thousand tons during the period (2007-2021), and the results indicate that about 29% of the changes in the amount of oranges exports are due to variables reflected by the time factor. The significance of the model as a whole has been proven, showing that the linear form is appropriate for the nature of the statistical data used.

### **II. The time trend of the export price of Egyptian oranges**

Table (2) indicates that the export price of Egyptian oranges ranges between a minimum of about \$ 364 per ton in 2007, and a maximum of about \$ 968 per ton in 2021, with an increase rate of about 1% from the average period (2007-2021) by about \$ 539.86 per ton.

Equation No. (2) Table (3) also indicates that the significance of the estimated features was not proven, nor was the significance of the model as a whole proven in any of the different mathematical images, which means that the export price of Egyptian oranges is around its arithmetic mean, that is, the export price of Egyptian oranges is relatively stable during the period (2007-2021).

### **C- The time trend of the value of Egyptian exports of oranges**

Table (2) also showed that the value of Egyptian oranges exports ranges between a minimum of about \$ 99 million in 2007, and a maximum of about \$ 714.4 million in 2021, with an increase rate of about 7% for the average period (2007-2021) by about 507.14 million tons.

Equation (3) Table (3) also indicates an increase in the value of oranges exports in Egypt by an annual significant amount of about \$ 27 million, and the results indicate that about 67% of the changes in the value of oranges exports are due to variables reflected by the time factor. The significance of the model as a whole has been proven, showing that the linear form is appropriate to the nature of the statistical data used.

**Table (2) Egypt's exports of oranges in terms of quantity, value and price during the period (2007-2021):**

Year	Qty thousand tons	Value Million dollar	Price dollars per ton
2007	271.6	99.0	364
2008	653.7	381.7	584
2009	821.8	494.7	602
2010	819.8	484.2	591
2011	1042.3	538.2	516
2012	607.7	456.4	751
2013	1108.9	493.1	445
2014	1128.8	442.3	392
2015	1238.5	479.4	387
2016	1338.8	503.8	376
2017	1363.0	548.1	402
2018	1604.3	666.7	416
2019	1794.2	656.6	366
2020	691.3	648.6	938
2021	738.1	714.4	968
<b>Average</b>	1014.85	507.14	539.86
<b>Minimum</b>	271.6	99.0	364
<b>Maximum</b>	1794.2	714.4	968

**source :** collected and calculated from a site [www.trademap.org](http://www.trademap.org)

**Table (3) Time trends of Egypt's exports of oranges in terms of quantity , value and price during the period (2007-2021):**

Y		Equation	F	R2
Qty	1	$Y1 = 613.5 + 21.3xi$ (3.16) ** (2.35) *	<b>5.5*</b>	<b>0.29</b>
Price	2	$Y2 = 444.9 + 11.86xi$ (4) ** (0.98)	<b>0.92</b>	<b>0.06</b>
Value	3	$Y3 = 291.13 + 27xi$ (6.1) ** (5.149)**	<b>26.5**</b>	<b>0.67</b>

**Source:** Calculated from Table (2) data.

**where:** Y1: the amount of exports of Egyptian oranges in thousand tons, Y2: the value of Egyptian oranges exports in million dollars, Y3: the export price of Egyptian oranges in dollars per ton, Xi: the time variable where i : years(1,2,..... 15), F: significant model, R2: coefficient of determination, \*\*significant level of regression coefficients at 0.01, \*significant level of regression coefficients at 0.05.

previous results show, the amount of Egypt's exports of oranges increased during the study period, until there was a decrease in them in the years (2021, 2020), and an increase in their value during the study period, which illustrates the importance of paying attention to studying the factors affecting them.

### **Third: The relative importance of foreign markets importing Egyptian oranges in terms of the quantity imported from it:**

It is show from Table (4) that Russia occupies the first in terms of the amount of imports of Egyptian oranges, with an average of about 222.9 thousand tons, or about 18% of the average total amount of imports from Egypt during the same period, which is about 1238.2 thousand tons.

Saudi Arabia, Netherlands and China also come in second, third and fourth by an average of about 192.8, 106.6, 104.2 thousand tons respectively and represent about 15.6%, 8.6%, 8.4% of the average total import amount of Egyptian oranges during the same period, while the UAE, Bangladesh and United Kingdom occupied the fifth, sixth and seventh by an average of about 62.7, 56.8, 51.6 thousand tons respectively, which is about 5.1%, 4.6%, 4.2%, of the total average import quantity. Of the Egyptian oranges during the same period, India, Ukraine, Malaysia and Oman come in eighth, ninth, tenth and eleventh by an average of about 48, 38.6, 28.8, 25.1 thousand tons respectively and represent about 3.9%, 3.1%, 2.3%, 2.0%.

**Table (4) The most important markets importing Egyptian oranges according to the quantity imported during the period (2017-2021)**

(quantity: thousand tons)							
Country	2017	2018	2019	2020	2021	Average	%
Russia	219.9	273.0	406.1	127.7	87.9	222.9	18.0
Saudi Arabia	219.5	307.2	248.9	104.8	83.8	192.8	15.6
Netherlands	128.3	153.1	128.5	71.0	52.0	106.6	8.6
China	103.2	99.8	213.4	67.6	37.0	104.2	8.4
U. A.Emirates	78.4	86.8	80.5	38.4	29.3	62.7	5.1
Bangladesh	65.5	59.6	78.4	36.5	44.2	56.8	4.6
U. K.	63.6	76.4	76.2	23.7	18.3	51.6	4.2
India	34.4	80.0	55.1	16.1	54.3	48.0	3.9
Ukraine	34.7	55.7	62.0	25.0	15.4	38.6	3.1
Malaysia	34.1	39.3	38.4	17.4	14.6	28.8	2.3
Oman	23.6	34.9	34.6	16.3	15.9	25.1	2.0
Other	357.9	338.4	372.2	147.0	285.4	300.2	24.2
<b>Total</b>	<b>1363.0</b>	<b>1604.3</b>	<b>1794.2</b>	<b>691.3</b>	<b>738.1</b>	<b>1238.2</b>	<b>100.0</b>

source :collected and calculated from a site [www.trademap.org](http://www.trademap.org) .

we can conclude the previous results that, it is show that the most important foreign markets importing Egyptian oranges, are Russia, Saudi Arabia, Netherlands, China, Emirates, Bangladesh, United Kingdom, India, Ukraine, Malaysia, and Oman, and will be limited to five markets of the aforementioned (Russia, Saudi Arabia, Netherlands, China, and Emirates) to focus on them in the statistical estimation of the gravity model, which comes from the percentage of their contribution from Egypt's exports of oranges They have about 55.7% of Egypt's total exports of oranges to the most important markets imported from them.

#### **Fourth: The most important indicators of foreign trade for oranges**

##### **A- Indicators of price competitiveness and market share of the Russian market:**

The Russian market ranks first for the most important markets importing Egyptian oranges, Table (5) shows the market share of the most important countries exporting oranges in this market during the period (2012-2021), it is found that Turkey ranks first, followed by Egypt in second place, then Morocco, then South Africa, by studying the competitive price advantage of Egyptian oranges with those competing countries in the Russian market (Table No. (6)) It turns out that Egypt had a competitive price advantage with Turkey until 2017, and that Turkey's market share was greater than Egypt, explains that Turkey has another competitive advantage that is not priced in the Russian market, which may be due to distance, quality, contracts, or any other non-price factors, but Egypt began to lose this competitive price advantage with Turkey since 2018, and there has been a significant increase in market share For Turkey in the Russian market with the improvement of Turkey's price competitive advantage , by studying the price competitiveness with Morocco, South Africa, it was found that Egypt enjoyed a competitive price advantage during the same previous period and the market share of Morocco decreased, it increased by a small percentage for South Africa in 2020, 2021 with the improvement of its price competitive advantage in these two years by a small percentage as well, previous results shows it turns out that the Russian market is affected by the price of orange exports in addition to non-price factors For Turkey .



**Table (5): The competitive price of Egyptian oranges in the Russian market with the most important competing countries during the periods (2012-2021):**

Years	Turkey	Morocco	South Africa
2012	90.174	93.228	91.201
2013	92.690	102.258	96.942
2014	114.341	94.099	92.827
2015	98.834	74.098	70.041
2016	85.211	67.447	61.988
2017	89.899	70.876	64.029
2018	102.752	86.934	68.085
2019	97.361	84.910	66.801
2020	105.263	91.720	71.785
2021	103.846	88.302	70.060
<b>Average</b>	<b>98.037</b>	<b>85.387</b>	<b>75.376</b>

Relative price =  $(Pe / PC) * 100$  .

Where PE ; the export price of Egyptian oranges

PC ; the export price of competing countries to Egypt

Source: Collected and calculated from the data available on the following website

[www.trademap.org](http://www.trademap.org).

**Table (6): Market share of the most important countries exporting oranges to the Russian market during the period (2012-2021)**

States	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Turkey	23.53	24.63	31.46	33.33	31.09	38.16	34.38	33.04	44.36	45.46
Egypt	12.78	14.11	13.00	15.63	18.76	16.00	16.31	17.05	16.13	16.79
Morocco	15.53	14.57	15.32	13.45	14.31	14.65	14.13	14.33	10.17	10.52
SouthAfrica	10.45	11.56	11.07	10.18	7.38	9.31	9.32	8.64	10.01	10.75
Total	100	100	100	100	100	100	100	100	100	100

Market Share =  $(XiCi / Mcwi) * 100$ .

Where MCWI ; the amount of state exports to the Russian market of oranges

XICI ; the total amount of the country's imports of oranges.

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

The study showed that Turkey has that the largest market share in Russia, although Egypt has a competitive price advantage in the Russian market, it may be due to non-price factors (such as distance, contracts, quality or timing of export) suitable for the Russian market. Egypt competitive price advantage South Africa and Morocco. Egypt ranked second position in terms of market share in Russian market with a competitive price advantage with each of them (price has an impact except with Turkey).

## B- Price competitiveness indicators and market share of the Saudi market:

The Saudi market comes in second place for the most important importing markets for Egyptian oranges. The two tables show the market share (7),(8) and the competitive price advantage of Egyptian oranges with the most important countries exporting oranges to the Saudi market, from it was found that Egypt ranks first in terms of market share, then South Africa, then Turkey. It was also found that Egypt enjoys a competitive price advantage with South Africa during the study period. While it enjoys a competitive price advantage with Turkey until 2016, despite that, Turkey's market share is decreasing, this may be due to non-price reasons, it was also shown to increase at large rates in Egypt's exports of oranges to the Saudi market at a greater rate than the increase in South African exports with improving the price competitive advantage. That is, the price has a competitive advantage in the Saudi market (in addition to a competitive advantage for other factors such as distance and language, as shown by the attractiveness model)

**Table (7): The competitive price of Egyptian oranges in the Saudi market with the most important competing countries during the periods (2012-2021):**

Years	South Africa	Turkey
2012	98.819	72.86
2013	89.945	69.39
2014	80.640	78.78
2015	76.167	82.64
2016	68.452	86.63
2017	70.350	103.29
2018	77.339	123.89
2019	78.626	117.58
2020	79.770	125.79
2021	86.003	102.88
<b>Average</b>	<b>80.611</b>	<b>96.37</b>

Relative price =  $(Pe / PC) * 100$  .

Where PE ; the export price of Egyptian oranges

PC ; the export price of competing countries to Egypt

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

**Table (8): Market Share of the Most Important Orange Exporting Countries to the Saudi Market during the Period (2012-2021)**

States	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Egypt	46.12	46.36	47.39	48.31	46.31	44.47	48.64	47.97	50.35	53.63
South Africa	24.55	25.76	23.76	24.41	22.81	23.24	21.96	25.05	22.99	26.99
Turkey	9.20	10.91	11.20	11.96	15.27	15.17	15.16	9.60	4.21	2.97
Total	100	100	100	100	100	100	100	100	100	100

Market Share =  $(X_i C_i / M_{cwi}) * 100$

Where MCWI; the amount of the country's exports to the Saudi market of oranges

XICI; the total amount of the country's imports of oranges.

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

Egypt ranked the first position in Saudi Arabia market in terms of market share, this is due to its competitive advantage in this market with its competitors (South Africa, Turkey).

### C- Indicators of price competitiveness and market share of the Netherlands market:

The Netherlands market comes in third place among the most important importing markets for Egyptian oranges, by studying the market shares of the most important countries exporting oranges to it, and the price competitive advantage between Egyptian oranges and these countries (tables numerical (9), (10)) show that South Africa came in first rank in terms of market share, then Spain, then Egypt in third rank, while Morocco came in fourth. And by studying The competitive price advantage between Egypt's exports of oranges and those countries, shows that South Africa enjoys a competitive price advantage for Egypt during the study period, with a relative improvement since 2016, accompanied by an increase at a greater rate for Egypt since that year, which is an indicator of the impact of the price factor, in addition to non-price factors that may be the reason for increasing the market share of South Africa, in the Netherlands market. Although Egypt enjoys a competitive price advantage for Spain's exports of oranges to the Netherlands market, Spain had a larger market share in the Netherlands, this may be due to competitive reasons other than price such as proximity or their presence in the European market, and Spain's market share has decreased at large rates during the study period, with an increase for Egypt at the end of the studying period from its beginning, coinciding with the improvement of the competitive advantage in favor of Egypt. , which is an indicator of the influence of the price factor.

Egypt also enjoyed a competitive price advantage, and larger market shares in the Netherlands market in favor of Morocco, Morocco's shares decreased while Egypt's shares increased.

**Table (9): The competitive price of Egyptian oranges in the Netherlands market with the most important competing countries during the periods (2012-2021):**

Years	South Africa	Spain	Morocco
2012	134.97	81.25	87.18
2013	152.79	86.44	82.89
2014	133.90	81.94	82.62
2015	128.49	84.35	85.46
2016	111.29	77.43	89.74
2017	118.08	79.64	108.21
2018	116.77	74.23	88.89
2019	120.73	82.07	100.83
2020	129.39	89.07	76.77
2021	113.99	71.67	88.66
<b>Average</b>	126.04	80.81	89.13

Relative price = (Pe / PC) \* 100 .

Where PE ; the export price of Egyptian oranges

PC ; the export price of competing countries to Egypt

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

**Table (10): Market Share of the most important countries exporting oranges to the Netherlands market during the period (2012-2021)**

States	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
South Africa	24.88	28.76	25.97	26.08	24.95	27.45	26.58	27.79	32.48	34.69
Spain	23.27	22.25	23.41	22.28	19.17	18.68	15.85	18.06	15.36	14.25
Egypt	4.64	5.09	5.65	6.99	10.27	11.00	12.19	10.61	12.42	13.91
Morocco	6.07	4.35	6.51	8.11	7.01	8.24	7.60	7.33	4.22	4.86
<b>Total</b>	100	100	100	100	100	100	100	100	100	100

Market Share = (XiCi / Mcwi) \*100.

MCWI ; the amount of the country's exports to the Netherlands market of oranges.

XICI ; the total amount of the country's imports of oranges.

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

The results showed that South Africa ranked the first position in Netherlands market in terms of its market share, it has a competitive price advantage compared to Egypt, although Egypt has competitive price advantage compared to Spain, Spain ranked second position, it may be due to non-price factors such as distance, contracts, quality or appropriate export timing for the Netherland market.

#### H- Indicators of price competitiveness and market share of the Chinese market:

The Chinese market ranked fourth among the most important importers of Egyptian oranges, it was found from the two tables numerical (11), (12) that South Africa

ranks first in terms of China's market shares of oranges, since 2014, and it was found that South Africa enjoys a competitive advantage with Egypt, which adopts the impact of the price factor in the most important markets for importing Egyptian oranges (in addition to factors that may be non-priced such as distance and This is consistent with the results of the gravity model in that the price elasticity of orange exports was greater than the correct one.

**Table (11): The competitive price of Egyptian oranges in the Chinese market with the most important competing countries during the periods (2012-2021):**

Years	South Africa	United States of America
2012	187.049	171.06
2013	185.693	175.54
2014	177.239	164.67
2015	178.812	144.30
2016	146.774	115.31
2017	123.210	99.63
2018	129.330	87.98
2019	175.665	96.15
2020	157.079	103.33
2021	156.535	89.58
<b>Average</b>	161.739	124.76

Relative price =  $(P_e/PC) * 100$ .

Where PE ; the export price of Egyptian oranges

PC ; the export price of competing countries to Egypt

Source: Collected and calculated from the data available on the following website [www.trademap.org](http://www.trademap.org).

**Table (12): Market Share of the Most Important Orange Exporting Countries to the Chinese Market during the Period (2012-2021)**

States	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
South Africa	22.01	36.59	56.66	44.27	35.53	33.49	36.22	26.66	35.28	40.48
Egypt	0.97	3.47	5.71	13.80	14.81	28.10	24.07	44.28	37.78	34.66
U.S. of America	69.56	48.50	17.92	21.77	29.60	18.72	15.53	6.76	11.12	12.65
<b>Total</b>	100	100	100	100	100	100	100	100	100	100

Market Share =  $(X_i C_i / M_{cwi}) * 100$ .

MCWI; the amount of the country's exports to the Chinese market of oranges

XICI ; the total amount of the country's imports of oranges.

The study showed that south Africa ranked first position in terms of market share in Chinese market, as it has a competitive price advantage.

### **fifthly: Statistical estimation of foreign market demand for Egyptian oranges using gravity model**

#### **- Gravity Model methodology**

The Gravity model is one of the most important models used in the analysis of international trade, and was presented by the scientist Izzard in 1954, and the idea of the gravitational model for international trade was based on Newton's law of gravity, which is known for short as the law of universal gravitation, a physical law that states that "there is a force of attraction between any two objects in the universe, this force is directly proportional to the product of their masses, and inversely proportional to the square of the distance between them. The Gravity model (what is known as trade flows between two countries, whether exports or imports) was used to study the flow of foreign trade of oranges between Egypt and the most important importing countries during the period 2019-2021 using the Panel Data method, and it is considered one of the most successful and latest models used to measure trade flows within the region.

General formula for the Gravity model:

$$F_{ij} = \frac{G \times M_i \times M_j}{D_{ij}}$$

Where:

$F_{ij}$  : Expresses trade flows, whether exports or imports in dollars from the importing exporting country

G: Fixed

$M_i$ : Domestic Product of the exporting country.

$M_j$  : Domestic Product of the importing country.

$D_{ij}$ : The distance of the nautical mile between the exporting and importing country, and the distance is also an indicator of the cost of trade.

This equation can be transformed into linear form for the purposes of economic analysis into exponential form, and in the case of dummy variables to know the effect of language on Egypt's exports of Egyptian oranges.

$$\ln(Y) = \alpha_0 + B_1 \ln X_1 + B_2 \ln X_2 + B_3 \ln X_3 + B_4 \ln X_4 + B_5 \ln X_5 + B_6 \ln X_6 + B_7 \ln X_7 + B_8 \ln X_8 + B_9 \ln X_9 + B_{10} \ln X_{10} + B_{11} \ln X_{11} + B_{12} \ln X_{12} + B_{13} \ln X_{13} + B_{14} \ln X_{14} + B_{15} \ln X_{15} + B_{16} \ln X_{16} + B_{17} \ln X_{17} + B_{18} D_1 + B_{19} D_2$$

**Where:**

- **$\ln Y$** : Expresses the imported quantities of Egyptian oranges in the most important foreign markets imported from them during the period 2019-2021.

- **LnX1**: Expresses the export price of Egyptian oranges in dollars per ton during the period 2019-2021.
- **LnX2**: It expresses the price ratio between the export price of Egyptian oranges to the UAE and the most important importing markets during the period 2019-2021.
- **LnX3**: It expresses the price ratio between the export price of Egyptian oranges to the Netherlands and the most important importing markets during the period 2019-2021.
- **LnX4**: It expresses the price ratio between the export price of Egyptian oranges to China and the most important importing markets during the period 2019-2021.
- **LnX5**: It expresses the price ratio between the export price of Egyptian oranges to Saudi Arabia and the most important importing markets during the period 2019-2021.
- **LnX6**: It expresses the price ratio between the export price of Egyptian oranges to Russia and the most important importing markets during the period 2019-2021.
- **LnX7**: It expresses the price ratio between the export price of South Africa of oranges to the most important importing countries during the period 2019-2021.
- **LnX8**: Expresses the price ratio between the export price of the United States of America of oranges to the most important importing countries during the period 2019-2021.
- **LnX9**: Expresses the price ratio between the export price of Spain of oranges to the most important importing countries during the period 2019-2021.
- **LnX10**: Expresses the price ratio between the export price of Morocco of oranges to the most important importing countries during the period 2019-2021.
- **LnX11**: Expresses the per capita GDP of Egypt in thousand dollars / per capita GDP of countries importing Egyptian oranges in thousand dollars during the period 2019-2021.
- **LnX12**: Expresses the per capita GDP of Egypt in thousand dollars during the period 2019-2021.
- **LnX13**: GDP per capita of Egyptian orange-importing countries in thousand dollars during the period 2019-2021.
- **LnX14**: Population in million inhabitants in importing countries during the period 2019-2021.

- **LnX<sub>15</sub>**: Per capita percentage of Egypt's gross national income relative to importing countries during the period 2019-2021.
- **LnX<sub>16</sub>**: Exchange rate of the dollar during the period 2019-2021.
- **LnX<sub>17</sub>**: Distance between Egypt and the importing countries of Egyptian oranges during the period 2019-2021.
- **B18D<sub>1</sub>**: Expresses the formal variables of the language, where it takes 1 in the case that the country speaks Arabic and takes the value 0 in the case it speaks any language other than Arabic during the period 2019-2021.
- **B19D<sub>2</sub>**: expresses the formal variables of the Corona pandemic, where it takes 1 in the event that the country has Corona and takes the value 0 in the case otherwise during the period 2019-2021.

These previous explanatory variables, which were introduced in many attempts to choose the most important independent variables interpreted to determine the most important factors that determine the concentration of Egypt's exports of oranges in the most important foreign markets that import Egyptian oranges, which were previously identified (Russia, Saudi Arabia, Netherlands, China, and UAE). The following are the results of the statistical estimation of the gravity model, explaining the most important variables explaining the most important determinants of external demand for Egyptian oranges.

**Table (13): The results of the statistical estimation of the Gravity model**

Gravity model		2
<b>lnY=42.18-4.138lnX1+1.58lnX11+0.15lnX14 -</b>		
<b>1.07lnX17-0.84D1</b>		
<b>(11.7)**</b>	<b>(-6.11)**</b>	<b>32.44**</b>
<b>(11.7)**(2.06)*</b>		<b>.94</b>
<b>(-7.19)**(-4.83)**</b>		

**Source:** Calculated and collected from [www.trademap.com](http://www.trademap.com)

And from the World Bank website.

**Where:** Y1: Expresses the imported quantities of Egyptian oranges in the most important foreign markets imported from them during the period 2019-2021., LnX1: Expresses the export price of Egyptian oranges in dollars per ton during the period 2019-2021., LnX11: Expresses the per capita share of the Egyptian GDP in thousand dollars / per capita GDP of countries importing Egyptian oranges in thousand dollars during the period 2019-2021. , LnX14: Population in million people in importing countries during the period 2019-2021, LnX17: distance between Egypt and countries importing Egyptian oranges during the period 2019-2021, D1: expresses the dummy variables of the language, where it takes 1 in the event that the country speaks Arabic, and takes the value 0 in the case it speaks any language other than Arabic



during the period 2019-2021, F: Significant model, R2: coefficient of determination, \*\*significant level of regression coefficients at 0.01, \*significant level of regression coefficients at 0.05.

By studying the relationship between the imported quantities of Egyptian oranges in the most important foreign markets from which they are imported, and the most important independent variables explaining the foreign markets during the period (2019-2021).

Table (13) indicates that there is an inverse relationship between the export price of Egyptian oranges (dollars per ton) (as an independent variable) and the imported quantities of Egyptian oranges in the most important foreign markets imported from them (in thousand tons) (as a dependent variable), as by increasing the export price by 1%, the imported quantities of Egyptian oranges in the most important foreign markets imported from them decrease by 4.13%. This means that the price elasticity of the Egyptian oranges demand for the most important foreign markets importing it is estimated at 4.13%, and this indicates that the Egyptian oranges is considered elastic commodity in export, which shows that the increasing export price of Egyptian oranges in the studied imported markets, which are (Russia, Saudi Arabia, Netherlands, China, United Arab Emirates) at a certain limit may lead to the import of these markets for oranges from another competitive export market other than the Egyptian export market, Which calls for attention to the price policies taken by Egypt regarding the export of oranges and the study of the competitive price advantage with competing markets, so that it can retain the aforementioned markets, in addition to acquiring new foreign markets that suit the Egyptian export prices.

And that there is a statistically significant positive relationship between the imported quantities of Egyptian oranges in the most important foreign markets imported from them (as a dependent variable), and the ratio between the per capita of the Egyptian GDP in thousand dollars / per capita GDP of the importing countries of Egyptian oranges in thousand dollars (as independent variables) where the increase in the percentage by 1% increases the amount of Egyptian oranges exports by 1.58%.

It was also found that there is a significant positive relationship between the number of population in the importing countries (as an independent variable) and the imported quantities of Egyptian oranges in the most important foreign markets imported from them (in thousand tons) (as a dependent variable), meaning that the more the population in the importing countries increases by 1%, the amount of exports of Egyptian oranges increases by 0.15%.

There is also an inverse relationship between the distance (in kilometers) (as an independent variable) and the imported quantities of Egyptian oranges in the most important foreign markets imported from them (in thousand tons) (as an independent variable), as the greater the distance by 1% between the importing countries and Egypt, the less the amount of Egyptian oranges exports to them by 1.07%. The significance of the model as a whole has been proven. the double logarithmic form is suitable. For data used in statistical analysis.

By studying the relationship between the imported quantities of Egyptian oranges in the most important importing countries and the dummy variable that expresses the language. It was found that the Arabic language has a statistically significant negative impact on Egypt's exports of oranges in the most important importing countries, where its exports of oranges decreased to reach about 41.34 thousand tons during the period under study. Which shows the importance of dealing in foreign trade in foreign languages other than Arabic, the most important of which is English previous results shows, it is show that these variables mentioned previously are one of the most important variables affecting the amount of Egyptian oranges exports to these countries, and they explain about 94% of the changes in Egypt's exports of oranges to them, while 6% are due to variables that were not taken into account.

### **Recommendations:**

1. The research recommends paying attention to the pricing policies for Egypt's exports of oranges, given that the Egyptian oranges are elastic commodity in terms of export.
2. necessary to study the competitive price advantage with competing markets, so that it can retain the foreign markets that insist on it, and also to gain new markets.
3. necessary of studying the non price competitive advantages (quality, time of exports , agreements, and so on ) of competitors
4. Attention to the study of competitive advantage (price, quality and timing of export) in the Arab markets, especially as it shows the positive relationship between the quantity of exports and the factors of distance and language, in order to increase exports to those countries, and gain new Arab markets and improve the competitive situation in them.

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