An economic study of the competitiveness of tomato crops in Egypt

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Abstract

Agricultural exports play a significant role in achieving national economic goals and are a major source of foreign exchange for the country. Therefore, there is growing interest in creating a better export climate that enables these exports to expand their reach into foreign markets, which can be achieved by increasing its competitiveness,which requires studying its competitive indicators to determine how to increase its share in foreign markets. The study shows that Egyptian tomato exports fluctuated between highs and lows during the study period, with the minimum exported quantity reaching approximately 1,745 tons in 2000, and the maximum was approximately 748,013 tons in 2013, reaching approximately 51,872 tons by the end of the period in 2022. The study also showed that the comparative advantage index for the tomato crop during the period (2010-2022) exceeded the correct average in all study years except for 2010 and 2011, which may be attributed to the challenges facing the Egyptian economy during that period. However, overall, the data confirm the existence of a comparative advantage for tomato exports to foreign markets. The average apparent comparative advantage index for tomato crops during the study period was approximately 1.6, indicating that this export crop is an important one that competes strongly in global markets, provided that export markets for this crop are maintained by meeting the required global market specifications and opening new markets to accommodate our exports in accordance with export standards.

Keywords: Tomato Crop, Clear relative advantage Agricultural Exports, Eygpt.

Introduction:

Foreign trade is a major component of the GDP of most countries worldwide. Therefore, it has become essential for all countries to measure their competitiveness across various production sectors in general, and the agricultural sector in particular. This enables them to reallocate resources based on the competitiveness of each sector, enabling them to increase their export revenues to foreign marketsAs pointed out by **(Youssef, 2004)**.   Egypt has the potential to expand tomato production and export, but its export capacity is limited. The annual growth rate of Egyptian tomato exports between 2019 and 2022 was approximately 59%. Furthermore, Egypt's foreign markets, especially European markets, are limited, as Egypt faces strong competition in the global market from other tomato-exporting countries. The average apparent comparative advantage index for tomatoes during the study period was approximately 1.6, indicating that this export crop is an important one that competes strongly in global markets. Therefore, the concept of competitiveness is linked to the need to increase production and improve product quality. Competitiveness also depends on the efficiency

of export operations and market preservation, in addition to the possibility of opening new markets for Egyptian tomatoes.

Problem:

The research problem revolves around two main axes: fluctuations and declines in export quantities in some years, and a decline in market share in some markets. Egyptian tomato exports have declined in some years due to global price fluctuations. The period from 2011 to 2022 witnessed an annual decline in production of 3.2%, affecting the quantities available for export. This situation is exacerbated by the intense competition facing Egyptian tomato exports from global export markets and the weak competitiveness of Egyptian tomato exports in some markets, such as the United Arab Emirates and Russia. These markets lag behind in market share compared to markets such as Saudi Arabia, which were more stable in receiving Egyptian tomato exports. Morocco also dropped from the list of the largest importing markets for Egyptian tomatoes after imposing a 30% anti-dumping duty, leading to a significant decline in exports to the country. This requires studying its competitive indicators to identify ways to increase its share in foreign markets and open new markets for Egyptian tomato exports.

Objectives:

The research primarily aims to study the competitiveness of Egyptian tomato exports and identify the most significant constraints that limit their export capacity. It also aims to develop practical proposals to maximize Egyptian exports of the crop and penetrate more foreign markets. This research focuses on several objectives, including:

1. Studying the current status of Egyptian tomato foreign trade.

2. Identifying the most important export and import markets for Egyptian tomato crops.

3. Measuring the most important marketing efficiency indicators for Egyptian tomato crops during the period (2000-2022).

Research method and data sources:

The research relied on descriptive and quantitative statistical analysis to describe and analyze the research variables. Competitiveness indicators were also used to measure the competitive position of tomato exports in major global markets, including the comparative advantage index, market penetration rate, and price competitiveness index.

The research also relied primarily on published and unpublished secondary data issued by relevant authorities, such as the Central Agency for Public Mobilization and Statistics, the Ministry of Agriculture and Land Reclamation, and the Food and Agriculture Organization of the United Nations (FAO).

Data published online, such as https://www.trademap.org/Index.aspx, were also used, in addition to the results of other studies and research related to the research topic. The research also relied on descriptive and quantitative statistical analysis of the most important economic competitiveness indicators to measure the competitive position of the crop in global markets, such as the comparative advantage index, market penetration rate, and price competitiveness index.

Results and Discussion:

First: The Development of the Quantity, Value, and Price of Egyptian Tomato Exports during the Period (2000-2022):

The data in Table (1) indicate that the quantity of Egyptian tomato exports during the period (2000-2022) ranged from a minimum of 1,745 tons in 2000 to a maximum of approximately 748,013 tons in 2013. The volume of exports then gradually increased, reaching approximately 51,872 tons by the end of the period in 2022. The general trend equation in Table (2) shows that the annual increase in the quantity of tomato exports amounted to approximately 3,648.46 tons, equivalent to

approximately 6.3% of the annual average for that period, which amounted to approximately 57,870 tons. However, the statistical significance of this increase has not been proven, while the data in Table No. (1) itself indicate that the value of tomato exports during the same period ranged between a minimum of $454,000 in 2000, and a maximum of approximately $72,869,000 in 2015, with the most recent period reaching approximately $58,675,000 in 2022, the second equation for the general trend shown in Table No. (2) shows that the statistically significant annual increase in the value of the exported tomato crop amounted to approximately $3,163.27 thousand, representing approximately 11.5% of the annual average during that period of approximately $27,619,000, and that the coefficient of determination amounted to approximately 0.666, meaning that 66.6% of the changes in the value of tomato exports are due to time factors. As shown by the data of the same Table No. (1), the price of tomato exports during the study period ranged between a minimum of $81 per ton in 2013 and a maximum of about $1,590 in 2015-2020, and reached about $1,131 per ton by the end of the period in 2022. The third equation for the general trend in Table No. (2) indicates that the statistically significant annual increase in the price of tomato exports amounted to about $58,568, representing about 7.39% of the annual average during that period, which amounted to about $792, and that the coefficient of determination amounted to about 0.564, meaning that 56.4% of the changes that occur in the price of Egyptian tomato exports are due to time factors.

Table No. (1): Quantity, value, and price of Egyptian tomato exports during the period−2000) (2022.

Years	Value (thousands of dollars)	Quantity (tons)	Price (dollars per ton)
2000	454	1745	260
2001	1117	4510	248
2002	941	3760	250
2003	819	3224	254
2004	1643	7188	229
2005	3753	18470	203
2006	1541	6732	229
2007	4077	19891	205
2008	4565	3172	1439
2009	19887	23867	833
2010	6712	5700	1178
2011	19097	62248	307
2012	28735	23549	1220
2013	60532	74801	809
2014	70936	61800	1148
2015	72869	58714	1241
2016	65999	62617	1054
2017	31726	20964	1513
2018	48863	41791	1169
2019	47000	37410	1256
2020	40241	25312	1590
2021	45056	38456	1172
2022	58675	51872	1131
Average	27619	57870	792

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Database.

Table (2): Equations of the general trend of the quantity, value and export price of the tomato crop during the period.(2022−2000)

index	equation	F	R²
Quantity	Y = 7279180.26 + 3648.46 x (0.756)	(0.572)	0,027
Value	Y = 6333720.424 + 3163.272 x**(6.472)	**(41.89)	0.666
price	Y = 116988.875 + 58.568 x**(5.216)	**(27.20)	0,564

calculated and compiled the data from table number (1)

Second: Geographical Distribution of the World's Major Tomato Exporters During the Period (2000-2022):

Data in Table (3) indicate that the annual average value of global tomato exports amounted to approximately US$8,794.01 million during the period (2000-2022). The average value of total exports to the world's nine largest countries amounted to approximately US$5,832.19 million, representing approximately 66.32% of the average total value of global tomato exports during that period. Mexico ranked first among the world's tomato exporting countries during that period, with an average value of its exports amounting to approximately US$1,488.55 million, representing approximately 16.93% of the average total value of global exports. The Netherlands came in second place, with an average value of approximately US$1,451.66 million, equivalent to approximately 16.51% of the average global exports during that period. Spain, Morocco, and France ranked third, fourth, and fifth, respectively, with average exports of approximately US$932.36 million, US$445.08 million, and US$364.31 million, respectively, representing approximately 10.6%, 5.06%, and 4.14% of the total average value of global tomato exports during that period. The table also notes the differences in export prices between countries. While Canada exported a ton of tomatoes worth US$1,925.72 per ton, Mexico topped the list of exporting countries in terms of total export value, at US$1,124.92 per ton. Meanwhile, the Netherlands, France, and Belgium exported at US$1,603.80, US$1,642.96, and US$1,242.24 per ton, respectively.

It's worth noting that tomato exports have witnessed significant changes in the ranking of exporting countries over the past two decades. Mexico maintained its position as the world's largest exporter until 2021, but has lost the lead to China in recent years. Meanwhile, Iran and Morocco have seen significant growth in their exports, placing them among the world's largest exporters. Meanwhile, Spain and the Netherlands have faced increasing competition from other countries, leading to a relative decline in their rankings. This is due to several reasons, perhaps the most important of which is the disparity in export prices.

Table (3): Geographical distribution of the most important tomato-exporting countries worldwide during the period.(2022-2000)

Statement	Export quantity in thousand tons	%	Export value in million dollars	%	Average export price dollars per ton
Mexico	132.33	18.11	1488.55	16.93	1124.92
Netherlands	90.51	12.39	1451.66	16.51	1603.80
Spain	78.65	10.76	932.36	10.60	1185.41
Morocco	41.28	5.65	445.08	5.06	1078.14
France	22.17	3.03	364.31	4.14	1642.96
Turkey	43.92	6.01	335.91	3.82	764.87
Canada	18.65	2.55	359.11	4.08	1925.72
Belgium	22.49	3.08	279.39	3.18	1242.24
China	18.36	2.51	175.83	2.00	957.62

Total	468.37	64.10	5832.19	66.32	
Remaining World Total	262.32		2961.82		
World Total	730.68		8794.01		

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Database, various editions.

Compiled and calculated from the FAO, FAOSTAT websites.

UN Trade Map https://www.trademap.org/Index.aspx

Third: Geographical Distribution of the World's Major Tomato Importers during the Period (2000-2022):

Data in Table (4) indicate that the average total value of global tomato imports amounted to approximately US$8,756.61 million during the period (2000-2022). The average value of the world's nine largest countries' total imports amounted to approximately US$5,741.72 million, representing approximately 66.57% of the average total value of global tomato imports during that period. The United States ranked first among the world's tomato importing countries during that period, with an average value of its imports amounting to approximately US$1,993.43 million, representing approximately 22.76% of the average total value of global imports. Germany came in second place with an average value of approximately US$1,323.42 million, equivalent to approximately 15.11% of the average global imports during that period. The United Kingdom, Russia, and Italy ranked third, fourth, and fifth, respectively, with average imports of approximately USD 664.60 million, USD 602.57 million, and USD 366.18 million, respectively, representing approximately 7.59%, 6.88%, and 4.18% of the total average value of global tomato imports during that period, also shows differences in import prices between countries. While Austria imported tomatoes worth $3,051.62 per ton, the United States, which ranked first in terms of total import value, imported them at $1,348.16 per ton. Italy, Sweden, and Romania imported at prices of $2,898.61, $2,625.79, and $2,226.20 per ton, respectively. This explains the variation in the ranking of importing countries over the study period. At the beginning of the millennium, Germany, the United Kingdom, and Japan were the largest importers of tomatoes, relying on imports to meet growing domestic demand. Over the years, other countries, such as the United States, Russia, and Italy, have entered the list of largest importers, benefiting from price changes, shifts in domestic production, and increased consumption.

Table (3): Geographical distribution of the most important tomato-exporting countries worldwide during the period.(2022−2000)

Statement	Import quantity in thousand tons	%	Import value in million dollars	%	Average Import price dollars per ton
America	147.86	20.02	1993.43	22.76	1348.16
Germany	71.18	9.64	1323.42	15.11	1859.26
Britain	40.15	5.43	664.60	7.59	1655.45
Russia	55.75	7.55	602.57	6.88	1080.94
Italy	12.63	1.71	366.18	4.18	2898.61
Sweden	9.46	1.28	248.43	2.84	2625.79
Poland	13.43	1.82	193.73	2.21	1442.76
Austria	5.96	0.81	181.91	2.08	3051.62
Romania	7.52	1.02	167.46	1.91	2226.20

Total	363.94	49.27	5741.72	66.57	
Remaining World Total	374.76		3014.90		
World Total	738.69		8756.61		

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Database, various editions.
Compiled and calculated from the FAO, FAOSTAT websites.
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Fourth: Geographical Distribution of the Most Important Global Egyptian Tomato Export Markets During the Period (2018-2022):

A study of the geographical distribution of Egyptian exports of fresh and chilled tomatoes reveals that the Saudi market accounted for approximately 37.91% of total exports, as shown in Table (5), which shows the main importers of Egyptian tomatoes. Russia came in second place with a relative importance of approximately 11.49%, and Libya came in third with a share of approximately 9.64% of total Egyptian tomato exports during that period. In contrast, Oman recorded the highest average value per ton during the same period, importing a ton worth approximately $1,768 per ton, followed by Saudi Arabia at $1,646 per ton. Syria recorded the

lowest export price, at approximately $1,487 per ton during the period (2018-2022).

Table No. (5): Geographical distribution of the most important Egyptian tomato export markets worldwide during the period (2018-2022).

Countries	Export value in thousand dollars	%	Average Export price per ton
Saudi Arabia	15277.20	37.91	1646
Russia	4628.6	11.49	1635
Libya	3884.4	9.64	1620
Syria	2895	7.18	1487
UAE	2860	7.10	1532
Iraq	936.6	2.32	1492
Bahrain	797	1.98	1562
Kuwait	766.4	1.90	1581
Oman	560.6	1.39	1768
Total	40299.00	37.91	

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Database, various editions.
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Fifth: The most important indicators measuring the competitiveness of Egyptian tomato exports.

In this section, we discuss the most important economic indicators measuring the competitiveness of crops in global markets, including the apparent comparative advantage index, the penetration rate, and the price competitiveness index.

A- **Estimating the apparent comparative advantage coefficient for tomato exports during the period (2010-2022).**

The apparent comparative advantage indicators highlight potential opportunities for trade expansion and provide an approximate picture of future exports of the commodity under study. This is achieved by comparing a country's share of total global exports of a particular crop with its share of total global agricultural exports as explained by **(El-Khashen, 2020)** in his study.

When the value of this indicator exceeds one, this indicates that the country has a comparative advantage for that crop. If the value of the indicator falls below one, this indicates that the country is experiencing a relative decline in its comparative advantage. (**Qadous,   2022**) explained in his study that this indicator can be calculated using the following equation:

$(RCA) J = (Xje) / (Xae) + (Xjw) / (Xwa)$

Where:

(RCA) : Revealed comparative advantage of crop (j).

Xje : Total value of country (e)'s exports of crop (j).

Xae : Total value of country (e)'s agricultural exports to the world.

Xjw : Total value of world exports of crop (j).

Xaw : Total value of global agricultural exports.

The data in Table (6) indicate that the comparative advantage index for the tomato crop during the period (2010-2022) exceeded one in all study years except for 2010 and 2011. This may be attributed to the economic challenges that the Egyptian economy experienced during that period, but in general, the data confirm the existence of a comparative advantage for tomato exports to foreign markets. The average apparent comparative advantage index for the tomato crop during the study period was approximately 1.6, which means that this export crop is an important crop that competes strongly in global markets, provided that export markets for this crop are maintained by meeting the required specifications for the global market and opening new markets to accommodate our exports in accordance with export standards

Table No. (6): Estimation of the apparent comparative advantage coefficient for tomato exports during the period (2010-2022).

years	Value of Egyptian tomato exports	Value of Egyptian agricultural exports	Value of global tomato exports	Value of global agricultural exports	clear comparative advantage
2010	6.71	2890.42	8251.65	1065452.00	0.30
2011	19.10	4932.26	8501.64	1295511.00	0.59
2012	28.74	3899.65	8181.58	1310385.00	1.18
2013	60.53	47142.80	8803.01	1365264.00	1.99
2014	70.94	4406.45	9241.96	1421714.00	2.48
2015	72.87	4380.64	5332.34	1247933.00	3.89
2016	66.00	4540.29	8584.83	1289938.00	2.18
2017	31.73	4921.54	9038.85	1411728.00	1.01
2018	48.86	5013.68	9476.15	1456989.00	1.50
2019	47.00	5450.91	9074.30	1447967.00	1.38
2020	40.24	5120.37	9872.16	1493478.00	1.19
2021	45.06	6256.54	10528.93	1754676.00	1.20
2022	58.67	6321.55	8409.30	1724801.00	1.90
Average	45.88	8098.24	8715.13	1406602.77	1.60

Source: Central Agency for Public Mobilization and Statistics, Foreign Trade Database, various editions.

Compiled and calculated from the FAO, FAOSTAT websites.

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B- Estimating the market penetration rate of the Egyptian tomato crop during the period (2008-2022).

The market penetration rate is one of the most widely used competitiveness measures, and it is the ratio between a country's imports of any commodity and its apparent consumption.

The market penetration rate is measured using the following equation As pointed out by **(Abdel Majeed et al. 2023):**

MPRij=Mij/(Qij+Mij-Xij)

Where:

MPRIj: Market penetration rate of good j in the country.

Mij: Country's imports of good j.

Qij: Country's production of good j.

Xij: Country's exports of good j.

The value of this index ranges between zero and one. The higher the value resulting from this equation, the broader and easier the market is to enter, given its heavy reliance on imports to meet local demand. Estimating the penetration coefficient of Egyptian tomatoes into the studied markets during the period (2008-2022), the results of Table (7) indicate fluctuations in the penetration coefficient of the Saudi market, with its lowest level reaching approximately 0.17 in 2008 and 2009 and its highest level reaching 0.44 in 2019. The average penetration coefficient of Egyptian tomatoes into the Saudi market was approximately 0.29, indicating a greater opportunity to penetrate the Saudi market and its ability to absorb a larger quantity of Egyptian tomato exports.

Table (7): Estimate of the penetration factor of Egyptian tomato crops into the Saudi market during the period (2008-2022).   Quantity in tons.

years	Saudi tomato exports	Saudi Arabia's global tomato imports	Saudi Arabia's tomato production	Egypt's tomato exports to Saudi Arabia	Penetration coefficient
2008	3224	103498	522115	1919	0.17
2009	1375	113272	542558	3401	0.17
2010	4802	124789	492144	1605	0.20
2011	3986	135291	520103	3518	0.21
2012	4110	159347	549612	1526	0.23
2013	5837	165589	544346	35616	0.24
2014	5891	168818	280329	19799	0.38
2015	16862	185648	288662	63210	0.41
2016	17081	179500	305402	67187	0.38
2017	23625	182752	306539	33343	0.39
2018	9734	212960	312343	43673	0.41
2019	2343	197894	259349	10554	0.44
2020	3152	228024	598774	37918	0.28
2021	5278	176027	620866	46537	0.22
2022	7254	247205	658154	39203	0.28
Average	7636.93	172041.02	453419.73	27267.27	0.29

Source: Compiled and calculated from the FAO, FAOSTAT websites.
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While the results of Table No. (8) showed an increase in the penetration coefficient of the British market and its relative stability, as its minimum limit reached about 0.87 in 2018 and 2021 and its maximum limit reached 0.84 in 2012, the average penetration coefficient of

Egyptian tomatoes into the British market reached about 0.81, which indicates the existence of a greater opportunity to penetrate the British market and absorb a larger quantity of Egyptian tomato exports.

Table (8): Estimate of the penetration factor of Egyptian tomato crops into the British market during the period (2008-2022).   Quantity in tons

years	British tomato exports	British's global tomato imports	British's tomato production	Egypt's tomato exports to British	Penetration coefficient
2008	5011	419045	88690	1311	0.83
2009	6714	396675	86800	854	0.83
2010	4613	386509	89320	1217	0.82
2011	5591	414381	89800	752	0.83
2012	6185	409238	83000	129	0.84
2013	3713	422971	91100	228	0.83
2014	3022	395513	98500	351	0.81
2015	3748	375619	97200	255	0.80
2016	3636	380444	96556	662	0.80
2017	4245	374633	90627	242	0.81
2018	3941	319390	93591	247	0.78
2019	3412	370680	94550	442	0.80
2020	2521	399788	97541	200	0.81
2021	2846	313070	90861	83	0.78
2022	3107	372842	95222	344	0.80
Average	4154	383386	92224	488	0.81

Source: Compiled and calculated from the FAO, FAOSTAT websites.

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The UAE market penetration coefficient also showed fluctuations, albeit relatively high. Data in Table (9) indicated that the lowest penetration coefficient was approximately 0.63 in 2009, while the highest was 0.93 in 2008. The average penetration coefficient of Egyptian tomatoes in the UAE market was approximately 0.79, indicating a greater opportunity to penetrate the British market and absorb a larger quantity of Egyptian tomato exports. Hence, it is necessary to study the reasons for this fluctuation and decline in some years, and to develop some export policies that address this fluctuation and decline.

Table (9): Estimate of the penetration factor of the Egyptian tomato crop to the UAE market during the period (2008-2022).   Quantity in tons.

years	UAE tomato exports	UAE's global tomato imports	UAE's tomato production	Egypt's tomato exports to UAE	Penetration coefficient
2008	5269	103498	12740	456	0.93
2009	2070	113272	68298	162	0.63
2010	2070	124789	47411	1410	0.73
2011	1981	135291	58668	1417	0.70
2012	3340	159347	35470	1812	0.83
2013	4996	165589	33130	1730	0.85
2014	5062	168818	41886	3187	0.82
2015	5105	185648	46550	7520	0.82
2016	5377	179500	43791	11706	0.82
2017	906	152752	41752	4397	0.79
2018	1234	166126	42772	4762	0.80

2019	1570	165214	45215	1587	0.79
2020	1330	158987	35124	1175	0.82
2021	1281	164482	42214	2701	0.80
2022	1425	163325	46255	1540	0.78
Average	2868	153776	42752	3037.5	0.79

Source: Compiled and calculated from the FAO, FAOSTAT websites.

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The data in Table No. (10) indicated that the German market absorbs a larger quantity of Egyptian tomato exports and that there is a great opportunity to penetrate the German market more than the current situation, as the penetration coefficient ranged between 0.89 and 0.96 during the study period, and the average penetration coefficient was 0.92, which requires searching for ways to enhance the competitiveness of Egyptian tomatoes and removing any obstacles that may lead to a decrease in this rate to facilitate the opening of new markets and increase penetration of these current markets in the future.

Table (10): Estimate of the penetration factor of Egyptian tomato crops into the German market during the period (2008-2022).   Quantity in tons.

years	German tomato exports	German's global tomato imports	German's tomato production	Egypt's tomato exports to German	Penetration coefficient
2008	37960	654966	65096	43	0.96
2009	30221	657023	66620	174	0.95
2010	29528	681217	73285	641	0.94
2011	20963	706671	76718	1017	0.93
2012	24318	710811	61188	46	0.95
2013	23568	739361	69258	2	0.94
2014	19776	737388	84496	1	0.92
2015	21093	752389	80916	3	0.93
2016	18093	738548	85287	27	0.92
2017	18814	733923	96561	5	0.90
2018	21791	740846	103270	1	0.90
2019	18024	712824	106690	34	0.89
2020	18138	739193	102120	1	0.90
2021	29281	749187	101770	1	0.91
2022	23818	647792	102180	2	0.89
Average	23692.64	713476.31	85030.35	133.2	0.92

Source: Compiled and calculated from the FAO, FAOSTAT websites.

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C- **Price Competitiveness Index for Egyptian Tomato Crops during the period (2000-2022).**

The Price Competitiveness Index is one of the most important factors influencing the competitive position of Egyptian exports of any commodity. This index is calculated by estimating the relative position between the prices of Egypt's most important competitors in the global market and the price of Egyptian exports. This is done by calculating the ratio between the weighted average prices of the crop under study in Egypt in the most important competing countries in the global market to be studied and the export price of the crop in each of those countries as indicated by **(Abdelfattah and Amin,2021)**.

If the value of this index exceeds one, this indicates that Egypt's export price enjoys a competitive advantage in exporting this commodity. If it is less than one, this indicates a high price competitive advantage for this crop in foreign markets. It can be calculated using the following equation as explained by **(El-Farran, et al. 2014):**

$$PA_j = \frac{P_C}{p_e}$$

PA_j: The ratio of the weighted average of the prices of the most important competing countries in the global market to the export price of the crop in Egypt.

P_C : Weighted average of crop export prices in the main competing countries .

p_e :   Weighted average of crop export prices in Egypt .

First: The Price Competitiveness Index for Egyptian Tomatoes in the Saudi Market during the Period (2000-2022).

Syria, Turkey, and Morocco were selected as Egypt's most important competitors in tomato exports to the Saudi market. Table (11) shows that the Price Competitiveness Index values for Egyptian tomatoes compared to Syrian tomato prices were less than one in most of the time series, with the exception of the first four years and 2006. Similarly, for Turkish tomato prices, all values were less than one, indicating that Egyptian tomatoes do not enjoy a competitive advantage over their Syrian and Turkish counterparts. This may be attributed to the higher export prices of Egyptian tomatoes than those of Syrian and Turkish tomatoes to the Saudi market during that period. The average Price Competitiveness Index was approximately 0.63 and 0.39, respectively, indicating intense competition between the comparative advantage of Egyptian tomatoes and their Syrian and Turkish counterparts. It was also observed that the Price Competitiveness Index for Egyptian tomatoes compared to Moroccan tomato prices was less than one for more than half of the time series. The average price competitiveness index was approximately 1.30, indicating that the export price of Egyptian tomatoes in Saudi Arabia has a competitive advantage compared to the export price of Moroccan tomatoes

Table (11): Price competitiveness index for the Egyptian tomato crop for the Saudi market during the period (2000-2022).

The state	Years	Egypt price	Morocco price	Price ratio	Türkiye price	Price ratio	Syria price	Price ratio
Saudi Arabia	2000	177.86	157.22	0.88	115.06	0.65	235.20	1.32
	2001	175.73	175.23	1.00	124.25	0.71	268.57	1.53
	2002	173.59	160.12	0.92	163.44	0.94	301.93	1.74
	2003	169.37	245.01	1.45	152.63	0.90	253.99	1.50
	2004	173.49	329.90	1.90	141.82	0.82	131.28	0.76
	2005	165.1	414.79	2.51	133.14	0.81	120.72	0.73
	2006	142.97	499.68	3.50	124.3	0.87	195.65	1.37
	2007	1100.42	584.57	0.53	107.67	0.10	280.65	0.26
	2008	1044.99	669.46	0.64	127.54	0.12	255.69	0.24
	2009	927.02	746.89	0.81	126.93	0.14	324.6	0.35
	2010	477.83	854.17	1.79	158.74	0.33	403.53	0.84
	2011	1220.17	916.67	0.75	148.69	0.12	340.68	0.28
	2012	409.31	1245.16	3.04	177.75	0.43	344.97	0.84
	2013	579.34	1483.61	2.56	251.29	0.43	249.26	0.43
	2014	1251.42	1307.5	1.04	285.44	0.23	284.63	0.23
	2015	1201.1	1011.39	0.84	221.47	0.18	402.55	0.34

2016	1323.71	1065.05	0.80	253.26	0.19	404.78	0.31
2017	1280.59	1159.73	0.91	188.14	0.15	447.85	0.35
2018	1336.65	1235.73	0.92	264.02	0.20	348.69	0.26
2019	1496.08	1076.02	0.72	231.73	0.15	333.49	0.22
2020	1673.09	975.43	0.58	233.1	0.14	342.97	0.20
2021	1561.56	1264.78	0.81	244.25	0.16	421.18	0.27
2022	2061.28	1862.65	0.90	358.25	0.17	334.6	0.16
Average	874.90	845.25	1.30	188.39	0.39	305.54	0.63

Source: Compiled and calculated from the FAO, FAOSTAT websites.

UN Trade Map https://www.trademap.org/Index.aspx

Second: The Price Competitiveness Index for Egyptian Tomatoes in the British Market during the period (2000-2022).

The Dutch, Moroccan, and Spanish markets are considered the most important markets competing with Egypt in tomato exports to the British market. Table (12) shows that the Price Competitiveness Index values for Egyptian tomatoes relative to Dutch tomato prices are greater than one in most time series except for 2010, 2013, and 2014, indicating that Egyptian tomatoes enjoy a high competitive advantage over their Dutch competitors in the British market. This may be due to the lower export price of Egyptian tomatoes compared to Dutch tomato prices to the British market during that period. The average Price Competitiveness Index was approximately 2.16 during that period. It also showed that the Price Competitiveness Index for Egyptian tomatoes relative to Moroccan tomato prices is less than one for half of the time series. The average price competitiveness index was approximately 1.08, indicating that the export price of Egyptian tomatoes enjoys a competitive advantage in the UK compared to the export price of Moroccan tomatoes. Meanwhile, the price competitiveness index for Egyptian tomatoes relative to Spanish tomato prices was greater than one in most time series except for five years: 2010, 2013, 2014, 2015, and 2017. This indicates that Egyptian tomatoes enjoy a comparative advantage over their Spanish competitors in the UK market. This is due to the lower export price of Egyptian tomatoes compared to Spanish tomatoes. The average price competitiveness index was approximately 1.77 over this period .

Table(12): Price competitiveness index for the Egyptian tomato crop for the British market during the period (2000-2022) .

The state	Years	Egypt price	Morocco price	Price ratio	Netherlands price	Price ratio	Spain price	Price ratio
Britain	2000	278.78	554.43	1.99	1096.301	3.93	1110.44	3.98
	2001	684.51	657.76	0.96	1237.253	1.81	1180.42	1.72
	2002	235.02	461.09	1.96	1378.205	5.86	1160.4	4.94
	2003	463.1	664.42	1.43	1483.02	3.20	1115.98	2.41
	2004	234.51	867.75	3.70	1712.52	7.30	1169.16	4.99
	2005	443.58	506.56	1.14	1804.65	4.07	1075.94	2.43
	2006	851.61	494.32	0.58	1922.15	2.26	1295.33	1.52
	2007	993.35	523.31	0.53	1904.69	1.92	1303.38	1.31
	2008	1101.77	569.52	0.52	1151.03	1.04	1262.32	1.15
	2009	1044.75	544.49	0.52	1802.21	1.73	1334.31	1.28
	2010	2083.87	831.37	0.40	1463.16	0.70	1260.06	0.60
	2011	646.28	793.97	1.23	1610.23	2.49	1238.73	1.92
	2012	1220.59	829.69	0.68	1656.59	1.36	1218.62	1.00
	2013	1679.82	936.93	0.56	1515.6	0.90	1304.92	0.78

	2014	1906.59	1292.1	0.68	1473.89	0.77	1124.38	0.59
	2015	1252.05	1205.31	0.96	1669.73	1.33	1103.37	0.88
	2016	1201.15	1211.83	1.01	1690.5	1.41	1305.19	1.09
	2017	1323.94	1305.23	0.99	1614.63	1.22	1283.6	0.97
	2018	1280	1381.63	1.08	1625.77	1.27	1277.52	1.00
	2019	1335.14	1451.68	1.09	1888.01	1.41	1408.69	1.06
	2020	1493.24	1530.47	1.02	1843.1	1.23	2089.44	1.40
	2021	1680.67	1431.48	0.85	2052.86	1.22	4213.61	2.51
	2022	1566.04	1540.5	0.98	2092.84	1.34	2055.13	1.31
	Average	1086.97	938.51	1.08	1638.65	2.16	1430.04	1.77

Source: Compiled and calculated from the FAO, FAOSTAT websites.

UN Trade Map https://www.trademap.org/Index.aspx

Third: The index of the small Egyptian-Emirati mosquito crop during the period (2000-2022).

As for the Emirati market, in the view of the Jordanian market as a whole and the market since the year and the Indian of the largest diversity for Egypt in the export index to it, the data of Table No. (13) must reach that the values of the Egyptian tomato price index relative to the Jordanian lemon prices are greater than one, known later as more than half of the time year, and the average for the time month reached about 1.18 during that period, which indicates that Egyptian lenses have a higher production than their Jordanian competitor in the Emirati market, and this may be due to the lower price of exporting stock than the recorded price of Jordanian apple juice to the Emirati market during that period, while I found that the pressure index for Egyptian tomatoes for prices is less than one in all tomato juice except for the years 2005 and 2009, and the average index even reached less than about 0.53, which indicates the presence of competition to obtain a target in the Emirati market, and we also note that tomato juice for fresh juice in the Emirati market reached less than one in the entire time period except for the year 2005, and the average reached. The second part of the price index was approximately 0.50 during that period, indicating that Egyptian yeast did not enjoy a comparative advantage over Indian yeast in the UAE market. This was due to the higher price of Egyptian tomato exports compared to Indian exports to the UAE market during that period.

Table (13): Price competitiveness index for the Egyptian tomato crop for the UAE market during the period (2000-2022) .

The state	Years	Egypt price	Jordan price	Price ratio	Iran price	Price ratio	India price	Price ratio
UAE	2000	154.54	433.21	2.80	116.44	0.75	123.03	0.80
	2001	199.51	306.57	1.54	152.32	0.76	151.39	0.76
	2002	207.48	938.78	4.52	112.02	0.54	119.75	0.58
	2003	195.4	356.32	1.82	153.28	0.78	108.11	0.55
	2004	263.51	331.71	1.26	166.67	0.63	136.47	0.52
	2005	211.34	450	2.13	250	1.18	262.22	1.24
	2006	489.93	450	0.92	271.74	0.55	298.4	0.61
	2007	1103.17	450.1	0.41	263.16	0.24	295	0.27
	2008	1048.78	1151.06	1.10	388.83	0.37	219.93	0.21
	2009	1129.03	670.99	0.59	1487.8	1.32	1106.19	0.98
	2010	455.98	543.79	1.19	415.56	0.91	403.43	0.88
	2011	1220.24	360.16	0.30	606.79	0.50	329.71	0.27

2012	985.43	705.9	0.72	489.8	0.50	287.24	0.29
2013	690.92	779.8	1.13	338.98	0.49	512.87	0.74
2014	1251.54	796.39	0.64	319.99	0.26	535.32	0.43
2015	1201.14	708.77	0.59	328.95	0.27	432.12	0.36
2016	1323.64	781.02	0.59	297.19	0.22	494.1	0.37
2017	1280.64	646.49	0.50	357.69	0.28	407.57	0.32
2018	1336.62	502.99	0.38	477.03	0.36	482.11	0.36
2019	1495.9	1597.02	1.07	679.9	0.45	491.58	0.33
2020	1673.19	1673.02	1.00	473.06	0.28	493.78	0.30
2021	1562.96	1561.64	1.00	473.9	0.30	427.81	0.27
2022	2060.39	2061.04	1.00	487.93	0.24	354.73	0.17
Average	936.58	793.77	1.18	396.04	0.53	368.39	0.50

Source: Compiled and calculated from the FAO, FAOSTAT websites.

UN Trade Map https://www.trademap.org/Index.aspx

Fourth: Price Competitiveness Index for Egyptian Tomatoes in the Dutch Market during the Period (2000-2022).

The Spanish, French, and Belgian markets are considered Egypt's most important competitors in tomato exports to the Dutch market. Table (14) shows that the Price Competitiveness Index values for Egyptian tomatoes relative to Spanish tomato prices are greater than one over half of the time series. The average Price Competitiveness Index was approximately 1.01 over that period, indicating that Egyptian tomatoes enjoy a competitive advantage over their Spanish competitors in the Dutch market. Meanwhile, the Price Competitiveness Index for Egyptian tomatoes relative to French tomato prices was greater than one over most of the time series, with the exception of 2014, 2015, and 2016. The average Price Competitiveness Index was approximately 1.09, indicating that Egyptian tomatoes enjoy a high competitive advantage over their French competitors in the Dutch market. This may be due to the lower export price of Egyptian tomatoes compared to French tomato prices to the Dutch market during that period. We also note that the Price Competitiveness Index for Egyptian tomatoes relative to Belgian tomato prices is less than one over more than half of the time series. The average price competitiveness index was approximately 0.94 during that period, indicating that Egyptian tomatoes did not have a comparative advantage over their Belgian competitors in the Dutch market during that period.

Table(14): Price competitiveness index for the Egyptian tomato crop for the Dutch market during the period (2000-2022) .

The state	Years	Egypt price	Spain price	Price ratio	France price	Price ratio	Belgium price	Price ratio
Dutch	2000	653.34	526.66	0.81	872.11	1.33	456.97	0.70
	2001	825.12	715.14	0.87	1062.47	1.29	647.24	0.78
	2002	996.90	903.63	0.91	1252.83	1.26	837.51	0.84
	2003	1221.82	1160.87	0.95	1530.95	1.25	1091.99	0.89
	2004	1335.46	1306.98	0.98	1668.44	1.25	1113.88	0.83
	2005	1362.81	1210.07	0.89	1490.81	1.09	1424.02	1.04
	2006	1785.30	1821.46	1.02	2224.69	1.25	1622.84	0.91
	2007	1771.07	1722.14	0.97	2308.28	1.30	1492.87	0.84
	2008	1492.69	1492.93	1.00	1492.87	1.00	1529.5	1.02
	2009	1475.83	1814.99	1.23	1741.76	1.18	1241.89	0.84
	2010	1490.43	1540.28	1.03	1553	1.04	1470.91	0.99

2011	1352.23	1550.91	1.15	1464.03	1.08	1275.01	0.94
2012	1590.74	1619.27	1.02	1432.95	0.90	1368.09	0.86
2013	1694.52	1630.6	0.96	1505.44	0.89	1275.6	0.75
2014	1971.89	1360.28	0.69	1351.62	0.69	1395.95	0.71
2015	1809.9	1465.43	0.81	1261.6	0.70	1303.95	0.72
2016	2146.55	1714.18	0.80	1510.15	0.70	1267.8	0.59
2017	1229.17	1435.53	1.17	1394.77	1.13	1319.27	1.07
2018	1097.08	1406.8	1.28	1320.03	1.20	1483.83	1.35
2019	1310.15	1484.32	1.13	1426.24	1.09	1693.1	1.29
2020	1607.67	1720.4	1.07	1544.24	0.96	1848.54	1.15
2021	1542.03	1754.56	1.14	1628.03	1.06	2175.26	1.41
2022	1665.45	2167.06	1.30	2212.54	1.32	1834.828	1.10
Average	1443.76	1457.59	1.01	1532.60	1.09	1355.25	0.94

Source: Compiled and calculated from the FAO, FAOSTAT websites.

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Recommendations:

1. Focus on the quality standards required for tomato exports, as it is a major global export crop.

2. Maintain tomato export markets by meeting global market requirements and opening new markets to accommodate our exports.

3. Study the causes of fluctuations and declines in tomato exports in certain years, and develop policies to address these fluctuations and declines.

4. Target and seek to penetrate European markets, as European markets importing Egyptian tomatoes are limited. This can be achieved by identifying demand in these markets and the required specifications.

5. Issue periodic newsletters to provide producers and exporters with global market needs for Egyptian tomatoes and the required specifications, and to identify prices from competing countries in major markets.

6. Maintain a highly competitive export price for Egyptian tomatoes to increase the market share of Egyptian exports.

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دراسة اقتصادية للقدرة التنافسية لمحصول الطماطم في مصر

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الملخص

تلعب الصادرات الزراعية دورًا هامًا في تحقيق الأهداف الاقتصادية الوطنية ومصدر رئيسي للنقد الأجنبي لذلك، يتزايد الاهتمام بتهيئة مناخ تصديري أفضل يُمكّن هذه الصادرات من توسيع نطاق وصولها إلى الأسواق الخارجية، الأمر الذي يتطلب دراسة مؤشراتها التنافسية. تُظهر الدراسة أن صادرات الطماطم المصرية تراوحت بين الارتفاع والانخفاض خلال فترة الدراسة، حيث بلغ الحد الأدنى للكمية المُصدَّرة حوالي 1745 طنًا عام 2000، وبلغ الحد الأقصى حوالي 748013 طنًا عام 2013 كما أظهرت الدراسة أن مؤشر الميزة النسبية لمحصول الطماطم خلال الفترة (2010–2022) تجاوز المتوسط الصحيح في جميع سنوات الدراسة باستثناء عامي 2010 و2011، وهو ما قد يُعزى إلى التحديات التي واجهت الاقتصاد المصري خلال تلك الفترة. ومع ذلك، وبشكل عام، تؤكد البيانات وجود ميزة نسبية لصادرات الطماطم إلى الأسواق الخارجية. وبلغ متوسط مؤشر الميزة النسبية الظاهرية لمحاصيل الطماطم خلال فترة الدراسة حوالي 1.6، مما يشير إلى أن هذا المحصول التصديري يُعدّ من المحاصيل المهمة التي تُنافس بقوة في الأسواق العالمية.

الكلمات المفتاحية: محصول الطماطم، الميزة التنافسية الظاهرية، الصادرات الزراعية، مصر.