Study of the Foreign Demand for the Egyptian Frozen Vegetables

Shaima M. M. Muhamed [1], Mohamed H. Salem[2], Atef A. A. Gouda[3], Ibrahim M. Hassan[4], Ibrahim A. M. Abdel Fattah[3]

ABSTRACT

Export is considered a basic pillar, the economic launch depends on it in providing permanent sources of foreign exchange, as export resources can be used to finance the needs of the state's production apparatus, service the external debt, and pay the import bill. The main goal of the study is represented in studying reasons of decreasing Egypt's exports from frozen vegetables, to help decision makers to develop appropriate and conducive policies to increase exports, it was found that the average value of Egypt's exports of frozen vegetables amounted to about 12.2 million dollars during the period (2018-2022), and the United States of America came in the first rank in the value of exporting Egyptian frozen vegetables with an average period of about 29.7 million dollars, with a percentage of about 15.1% of the average value of Egyptian exports for the period (2018-2022), while Saudi Arabia came in second rank with an average period of about 26.4 million dollars in a ratio of about 13.5% of the average value of Egyptian exports of Egyptian frozen vegetables during the same period, and the most influential factors on the average per capita share from the quantity of Egyptian exports of frozen vegetables in grams is Egypt's export price in dollars per ton, Belgium's export price, and the average American per capita share of national income in US dollars.

Keywords: Foreign trade indicators, competitive conditions, frozen vegetables, demand functions.

INTRODUCTION

Export is considered a basic pillar, the economic launch is based on it in providing permanent sources of foreign exchange, as export resources can be used to finance the needs of the state's productive apparatus, service the external debt, and pay the import bill. Export is also an integrated component with the components of economic and social development policy, and its encouragement leads long term positive results far extent from various investment fields of investment, and the policy of orientation towards export is not only limited to supporting the economic activity of country, but it also pushes the export sector to play a major role in raising the efficiency of the national economy in the face of contemporary global changes, and then adapting and dealing objectively with them in light of their Its data and developments seen now and in the future.

Vegetables occupy an important position in Egyptian agricultural production, and these crops have received a large share of attention as a source of diversification of agricultural production and food security, and the provision of necessary raw materials for food industries and diversification of exports. Food industries based on vegetables and fruits are also considered important transformational industries in which Converting fresh vegetables and fruits into edible Products for all year round.

RESEARCH PROBLEM

The research problem represented in the decreasing the quantity of Egypt's exports of frozen vegetables during earlier years, as it was about 308.64 thousand tons in 2013, then it decreased to about 238.00 tons in 2022, even though it adds value to Egypt's exports of fresh vegetables, then The price of a ton of Egyptian frozen vegetable exports increased to about $1,315.96/ton in 2012, and the price of a ton of Egyptian frozen vegetable exports decreased to about $1,203.38/ton in 2022. This shows the importance of developing policies that work to increase Egyptian frozen vegetable exports, and for this to happen, the reasons for decreasing exports must be studied, especially in its most important markets to help decision makers in developing policies that help in this.

RESEARCH OBJECTIVES

The main objective is to study the reasons for decreasing the Egypt's exports of frozen vegetables to help decision makers in developing appropriate policies that lead to increasing exports of them. In order to achieve the main objective, there were sub-goals represented in the following:

1- Studying the general trend and relative importance of Egyptian frozen vegetables.

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[1]Post graduate student
[2] Professor in Agricultural Economics, Faculty of Agriculture, Ain Shams University.
[3]Lecturer in Agricultural Economics, Faculty of Agriculture, Ain Shams University
[4] Professor in Food Industries, Faculty of Agriculture, Ain Shams University
[3]Lecturer in Agricultural Economics, Faculty of Agriculture, Ain Shams University.

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2- Studying the geographical distribution of Egyptian frozen vegetables and identifying the most important export markets.

3- Studying some foreign trade indicators and competitive conditions for frozen vegetables in the most important import markets.

4- Studying the determinants of foreign demand for Egyptian frozen vegetables in the most important import markets.

RESEARCH METHODOLOGY AND DATA SOURCES

To achieve the objectives of the study, qualitative and quantitative analysis methods were used, relying on some methods such as averages, relative importance, simple and multiple regression methods, indicators measuring relative and competitive ability, and estimating individual demand functions, in addition to using some other economic and statistical standards or measures that serve the objectives of the study. The study relied on secondary data published from various sources, such as: using global databases on the Internet for trade maps, the Central Agency for Public Mobilization and Statistics, the Food and Agriculture Organization (FAO), and the World Bank.

RESULTS DISCUSSION

First: The development of Egypt's exports from frozen vegetables:

A- Development of the quantity of Egypt's exports from frozen vegetables:

Table (1) shows the development of the quantity of Egypt's exports from frozen vegetables in thousand tons at the republic level during the period (2005-2022), and it shows that he quantity of frozen vegetable exports has fluctuated between increase and decrease, as the lowest amounted to about 33.89 thousand tons in 2006, while the maximum amounted in 2013, it was estimated at about 308.64 thousand tons, while the average for the period as a whole was about 142.48 thousand tons.

Table 1. Development of the quantity, value and price of Egypt's exports of frozen vegetables during the period (2005-2022)

years	Quantity (thousand tons)	Value (million dollars)	Price ($/ton)
2005	42.27	27.33	646.58
2006	33.89	22.46	662.87
2007	56.85	39.52	695.16
2008	108.08	119.44	1105.11
2009	119.38	135.40	1134.24
2010	111.38	130.92	1175.38
2011	139.53	173.61	1244.26
2012	115.91	152.53	1315.96
2013	308.64	185.22	600.11
2014	279.26	144.67	518.05
2015	136.94	150.89	1101.85
2016	134.20	154.60	1151.99
2017	128.58	153.75	1195.72
2018	136.84	154.47	1128.86
2019	141.07	164.62	1166.95
2020	156.91	182.58	1163.60
2021	176.93	191.32	1081.33
2022	238.00	286.41	1203.38
Average	142.48	142.76	1016.19
minimum	33.89	22.46	518.05
maximum	308.64	286.41	1315.96

Source: www.trade map.org

Table 2. General trend equations for the quantity, value and price of Egypt's exports of frozen vegetables during the period (2005-2022)

	Variable	Estimated model	R^2	F	percentage of annual change*
1	Quantity of exports (thousand tons)	$\hat{Y}= 69.7 + 7.66\ Xi$ $(2.29)^{*}\ \ (2.72)^{*}$	0.32	7.42	5.38
2	Export value (million dollars)	$\hat{Y}= 49.8 + 9.79$ $(2.78)^{*}\ \ (5.93)^{**}$	0.69	35.12	6.86
3	Export price ($/ton)	$\hat{Y}= 806.2 + 22.11\ Xi$ $(116.2)^{**}(2.06\ )^{*}$	0.21	4.24	2.18

Source: Calculated from data in Table 1 of the study * = b/Average *100

By studying the trend relationship of the quantity of Egypt's exports from frozen vegetables in thousand tons during the period (2005-2022), it appears from Table (2) that the linear picture is the best fit for the nature of the data, as the quantity of exports increased by a statistically significant amount at a 5% significance level, amounting to about 7.66 thousand tons annually which represents about 5.38% of the average quantity exported during the study period. The significance of the model as a whole was proven, and the coefficient of determination shows that about 32% of the changes in the quantity of exports are due to a group of factors whose effect reflects the time factor.

B- Development of the value of Egypt's exports of frozen vegetables:

Table (1) shows the development of the value of Egypt's exports of frozen vegetables in million dollars at the republic level during the period (2005-2022), and it shows that the value of frozen vegetable exports has fluctuated between increase and decrease, reaching its lowest in 2006 about 22.46 million dollars, while its maximum reached in 2022, it was estimated at about $286.41 million, while the average for the period as a whole was about $142.76 million.

By studying the trend relationship of the value of Egypt's exports of fresh vegetables in million dollars during the period (2005-2022), it is clear from Table (2) that the linear form is the best fit for the nature of the data, as the value of exports increased by a statistically significant amount at a 1% significance level, amounting to about 9.79 million dollars annually. It represents about 6.86% of the average value of exports during the study period. The significance of the model as a whole was proven, and the coefficient of determination shows that about 69% of the changes in the value of exports are due to a group of factors whose effect reflects the time element.

C - Development of the price of Egypt's exports of frozen vegetables:

Table (1) shows the development of the price of Egypt's exports of fresh vegetables in dollars/ton at the republic level during the period (2005-2022), and it is shown that the price of fresh vegetable exports has fluctuated between increases and decreases, reaching the lowest in 2014 about 518.05 dollars/ton, while It reached a maximum in 2012, estimated at about $1,315.96/ton, while the average for the period as a whole was about $1,016.19/ton.

By studying the relationship trend of the price of Egypt's exports of frozen vegetables in dollars/ton during the period (2005-2022), it is clear from Table (2) that the linear form is the best fit for the nature of the data, as the price of exports increased by a statistically significant amount at a 5% significance level, amounting to about $22.11/ton. Annually, representing 2.18% of the average export price during the study period, the significance of the model as a whole was also proven. The coefficient of determination also shows that about 21% of the changes in the quantity of exports are due to a group of factors whose effect reflects the time element.

Second: The relative importance of the most important countries importing Egyptian frozen vegetables during the period (2018-2022).

A. The relative importance of the most important countries importing Egyptian frozen vegetables in terms of quantity in thousand tons during the period (2018-2022).

Table No. (3) indicates that the average quantity of Egypt's exports of Egyptian frozen vegetables amounted to about 10.6 thousand tons during the period (2018-2022), and the United States of America occupies the first rank in importing Egyptian frozen vegetables during the study period, with an average amounting to about 27.2 represents about 16.0% of the average quantity of Egypt's exports of Egyptian frozen vegetables for the period (2018-2022), while Saudi

Arabia came in second rank with an average of about 24.1 thousand tons, representing about 14.19% of the average quantity of Egypt's exports of Egyptian frozen vegetables during the same study period. Italy came in the third rank with an average of about 11.0 thousand tons, representing about 6.0% of the average amount of Egypt's exports of frozen vegetables during the study period, while the Emirates, Jordan, Soviet Union, France, Kuwait, Libya, Spain, Belgium, Turkey, Palestine, Lebanon, and the Netherlands ranked from the fourth to the fifteenth, respectively, with an average of about 9.7, 9.3, 8.8, 7.7, 6.6, 5.6, 5.6, 5.1, 4.0, 3.8, 3.7, and 3.5 thousand tons, respectively in a percentage amounted to approximately 5.7%, 5.5%, 5.2%, 4.6%, 3.9%, 3.3%, 3.3%, 3.0%, 2.3%, 2.2%, 2.2% and 2.1%, respectively, of the average quantity of Egypt's exports of Egyptian frozen vegetables during The same study period. The same table indicates that Egypt exports frozen vegetables by 79.8% during the period (2018-2022).

B - The relative importance of the most important countries importing Egyptian frozen vegetables in terms of value in million dollars during the period (2018-2022).

By reviewing the data in Table No.(4) shows that the average value of Egypt's exports of frozen vegetables amounted to about $12.2 million during the period (2018-2022), and the United States of America occupies the first rank in the value of Egyptian frozen vegetable exports with an average period of about $29.7 million in a percentage represents about 15.1% of the average value of Egyptian exports for the period (2018-2022), while Saudi Arabia came in second rank in an average of the period amounted about 26.4 million dollars, represents about 13.5% of the average value of Egyptian exports of Egyptian frozen vegetables during the same period, while Italy came In third rank in an average of the period amounted about $12.8 million, or 6.5%, of the average value of Egyptian exports of frozen vegetables. Then they continued after that each of Jordan, the Soviet Union, France, Libya, Kuwait, Spain, Belgium, Palestine, Turkey, Lebanon, and Netherlands ranked from fourth to fourteenth, in an average of the period amounted about 10.5, 10.1, 8.6, 8.2, 7.7, 6.8, 5.7, 4.9, 4.6, 4.6, 3.9 million dollars, respectively, represent about 5.4%, 5.2%, 4.4%, 4.2%, 3.9%, 3.5%, 2.9%, 2.5%, 2.4%, 2.3%, 2.0% respectively. The same table indicates that Egypt exports frozen vegetables at a rate of 79.5% during the period (2018-2022).

Table 3. The relative importance of the most important countries importing Egyptian frozen vegetables in terms of quantity in thousand tons during the period (2018-2022)

Importing countries	2018	2019	2020	2021	2022	Average	%
United States of America	13.4	19.8	24.1	29.8	49.0	27.2	16.0
Saudi Arabia	23.1	21.8	24.4	24.5	26.7	24.1	14.2
Italy	8.2	10.7	10.3	11.9	13.7	11.0	6.5
The United Arab Emirates	9.2	7.8	12.6	8.9	9.9	9.7	5.7
Jordan	8.5	7.8	6.6	5.6	18.1	9.3	5.5
Russian Federation	3.0	2.5	7.1	13.3	17.9	8.8	5.2
France	6.9	7.7	8.2	8.8	6.9	7.7	4.6
Kuwait	6.8	6.1	8.4	5.5	6.2	6.6	3.9
Libya	5.8	4.5	4.3	5.6	7.7	5.6	3.3
Spain	3.8	4.6	7.0	5.2	7.3	5.6	3.3
Belgium	8.1	6.5	4.5	2.8	3.6	5.1	3.0
Turkey	3.4	5.6	2.3	3.2	5.3	4.0	2.3
country of Palestine	1.2	2.5	3.0	4.5	7.7	3.8	2.2
Lebanon	4.3	4.5	3.7	2.5	3.4	3.7	2.2
Holland	1.0	1.3	1.6	1.9	11.9	3.5	2.1
Rest of the world	30.2	27.5	28.7	43.1	42.6	34.4	20.3
the world	136.8	141.1	156.9	176.9	238.0	170.0	100.00
Average						10.6	%

Source: www.Trademap data

Table 4. The relative importance of the most important countries importing Egyptian frozen vegetables in terms of value (dollar) during the period (2018-2022)

Importing countries	2018	2019	2020	2021	2022	Average	%
United States of America	14.6	22.6	27.0	25.7	58.4	29.7	15.1
Saudi Arabia	25.6	24.6	27.6	21.2	32.8	26.4	13.5
Italy	9.6	13.0	12.0	11.7	17.5	12.8	6.5
The United Arab Emirates	10.5	8.9	14.3	10.6	11.8	11.2	5.7
Jordan	9.2	8.8	7.6	6.8	20.1	10.5	5.4
Russian Federation	3.2	2.7	8.0	15.7	21.0	10.1	5.2
France	7.9	9.1	9.5	7.8	8.8	8.6	4.4
Kuwait	7.9	6.5	7.1	8.4	11.0	8.2	4.2
Libya	7.7	7.0	9.6	6.6	7.7	7.7	3.9
Spain	4.4	5.6	8.0	6.6	9.3	6.8	3.5
Belgium	8.2	7.0	5.2	3.9	4.5	5.7	2.9
Turkey	1.5	3.4	4.3	5.8	9.5	4.9	2.5
country of Palestine	3.9	6.7	2.7	3.8	6.2	4.6	2.4
Lebanon	5.2	5.7	4.8	3.2	4.2	4.6	2.3
Holland	1.2	1.4	1.8	3.0	12.2	3.9	2.0
Rest of the world	34.0	31.5	33.0	50.5	51.5	40.1	20.5
the world	154.5	164.6	182.6	191.3	286.4	195.9	100.0

Source: www.Trademap data

Third: The competitive position of Egyptian frozen vegetables in its most important markets during the period (2018-2022)

In the following is a review of the two most important import markets for Egyptian frozen vegetables during the period (2018-2022):

It is noted in tables (3) and (4) that the most important countries importing frozen vegetables are the United States of America and Saudi Arabia, where the United States of America came in first rank in terms of quantity and value of import, and Saudi Arabia came in second rank. The research studied these two markets to try to predict an increase in Export opportunities for them.

Data in table No. (5) shows that although the United States of America and Saudi Arabia are traditional markets for Egypt in Egyptian frozen vegetables, their global ranking is first and twenty-second, respectively. The same table also indicates a decrease in the geographical concentration factor for the most important countries importing frozen vegetables amounted about 0.22 and 0.19, respectively. The same table also indicates that the share of the United States of America and Saudi Arabia from Egyptian exports as a percentage of the world amounted to about 20.4% and 11.4%, respectively.

Table 5. Market ranking among the most important countries importing Egyptian frozen vegetables, geographical concentration factor, average customs tariff, and the share from Egypt's exports during the period (2018-2022)

Importing countries	Market ranking among the most important countries importing frozen vegetables	Geographical concentration factor	Average customs tariff imposed on Egypt (%)	Share of Egypt's exports (%)
the world	-	-	-	100
United States of America	1	0.22	3.3	20.4
Kingdom of Saudi Arabia	22	0.19	0	11.4

Source: www.Trademap data

Table No. (6): indicates the percentage of Egypt's exports of frozen vegetables to both the United States of America and Saudi Arabia during the period (2012-2022), where the average amount of Egypt's exports to America during the study period reached an average of 13.1% during the study period, while it reached The average value of exports was 10.5%, in a maximum limit amounted about 38.1% during the year 2014, and in a minimum limit amounted about 7.5% during the year 2012. The same table also indicates the average amount of Egypt's exports to Saudi Arabia during the same period, with an average percentage of 14.8% during the same period, while it amounted to The value of exports as a percentage was 16.6%, with a maximum of 22.9% during the year 2015, and in a minimum amounted about 8.3% during the year 2013, while the value of exports as a percentage amounted to 22.7% during the year 2015, and in a minimum limit amounted about 11.1% during the year 2021.

Fourth: Study of the market share indicator for Egypt's most important markets of frozen vegetables:

A. Study of the market share of the most important competing countries within the American market for frozen vegetables during the period (2013-2022)

Table No. (7) Shows the market share of the most important competing countries within the American market for frozen vegetables during the study period, and shows a decrease in the amount of American market imports from Mexico in the second period (2018-2022) compared to the first period (2013-2017). Mexico occupies first rank in terms of the quantity of exports to the American market, as its market share during the first and second periods under study amounted about 45.87%, 40.95% for the two periods respectively, with an overall geometric average of about 43.34%, while Canada came in second rank in terms of the quantity of frozen vegetables to the market. The American market share during the two periods under study amounted about 16.91% and 13.67% for the two periods respectively, with an overall geometric average of about 15.20%. China, Guatemala, Belgium, Spain, Ecuador, the Netherlands, and finally Egypt ranked from third to tenth, respectively, in terms of Frozen vegetable exports quantity to the American market, where their market share during the first period (2013-2017) amounted in about 10.74%, 7.68%, 3.24%, 0.31%, 3.13%, 2.85%, 1.56%, and 0.84%, respectively, while the market share of frozen vegetables ranged countries during the second period (2018 - 2022) about 10.18%, 6.83%, 5.53%, 4.33%, 3.71%, 2.77%, 2.33% 1.98%, with an overall geometric average amounted about 10.46%, 7.24%, 4.23% 1.16%, 3.41%, 2.81%, 1.91%, and 1.98%, respectively. From the above, it is clear that Egypt is in tenth place in the American market in exporting frozen vegetables, which indicates a threat to Egypt's position in this basic and important market for Egypt. The reasons for this decline must be studied despite the second period's increase in market share over the first period, but Egypt occupies tenth place, so it must find out the economic reasons for this, it may be a quality factor or high prices, not just the presence of a customs tariff.

Table 6. Evolution of Egypt's exports of frozen vegetables to the United States of America and Saudi Arabia during the period (2012-2022)

years	Percentage of Egypt's exports to America in terms of quantity	Percentage of Egypt's exports to America in terms of value	Percentage of Egypt's exports to Saudi Arabia in terms of quantity	Percentage of Egypt's exports to Saudi Arabia in terms of value
2012	7.5	7.6	17.8	17.8
2013	14.2	7.3	8.3	18.6
2014	38.1	9.7	9.5	21.7
2015	9.2	8.8	22.9	22.7
2016	8.8	8.3	20.3	19.4
2017	8.3	7.9	18.2	17.3
2018	9.8	9.4	16.9	16.6
2019	14.0	13.8	15.5	15.0
2020	15.3	14.8	15.6	15.1
2021	16.8	13.4	13.8	11.1
2022	20.6	20.4	11.2	11.4
Geometric mean	13.1	10.5	14.8	16.6
Maximum limit	38.1	20.4	22.9	22.7
Minimum limit	7.5	7.3	8.3	11.1

Source: Collected and calculated from data in Table No. (1) In the Appendix.

Table 7. Market share of the most important competing countries within the American market for frozen vegetables in terms of the quantity of exports in thousand tons during the period (2013-2022)

years	Mexico	Canada	China	Guatemala	Belgium	Ecuador	Holland	Spain	Poland	Egypt
2013	48.74	17.82	10.19	7.91	2.59	2.60	2.73	0.10	1.07	0.65
2014	47.71	16.88	10.32	8.51	2.80	3.00	2.79	0.23	1.08	0.91
2015	45.33	17.68	10.37	7.60	3.60	3.17	3.25	0.18	1.59	0.92
2016	45.07	15.71	10.79	7.71	3.98	3.40	2.50	0.59	1.90	0.89
2017	42.72	16.58	12.15	6.77	3.41	3.63	3.04	1.25	2.66	0.88
Average of the first period	45.87	16.91	10.74	7.68	3.24	3.14	2.85	0.31	1.56	0.84
2018	41.15	15.02	11.61	7.78	4.17	3.32	2.91	2.97	3.18	1.05
2019	41.87	13.95	11.06	6.49	5.20	3.61	2.71	4.45	2.39	1.62
2020	40.82	12.44	11.16	6.64	6.20	3.85	2.65	4.88	1.96	2.36
2021	40.17	13.12	8.72	7.28	6.08	3.93	2.81	5.31	2.22	2.54
2022	40.76	13.95	8.73	6.08	6.32	3.87	2.78	4.45	2.05	3.01
Average of the second period	40.95	13.67	10.18	6.83	5.53	3.71	2.77	4.33	2.33	1.98
General average	43.34	15.20	10.46	7.24	4.23	3.41	2.81	1.16	1.91	1.29

Market share = (the quantity of the country's exports from the commodity / the total quantity of the country's imports from the commodity) *100

Source: Collected and calculated from www.Trademap website data

Table 8. Market share of the most important competing countries within Saudi Arabia in terms of the quantity of exports in thousand tons during the period (2013-2022)

years	Egypt	Belgium	India	Spain	America	Holland	Thailand
2013	34.09	12.41	20.30	2.89	9.70	2.99	5.27
2014	40.15	13.72	20.46	3.41	7.69	3.27	2.11
2015	36.45	16.57	9.13	5.27	5.24	4.60	2.46
2016	23.33	24.39	6.83	3.12	4.42	16.18	3.45
2017	38.05	12.46	15.75	4.43	4.34	0.87	9.19
Average of the first period	33.83	15.37	13.25	3.73	5.96	3.63	3.87
2018	38.90	10.27	9.75	9.26	4.20	2.87	5.51
2019	30.48	11.95	16.63	10.33	4.49	5.81	6.96
2020	51.53	8.67	10.81	8.19	4.99	0.90	4.03
2021	41.66	7.76	10.68	8.55	4.35	0.71	2.97
2022	47.30	8.32	11.40	8.73	1.46	0.40	1.65
Average of the second period	41.32	9.28	11.64	8.98	3.59	1.34	3.76
General average	37.38	11.94	12.42	5.78	4.63	2.20	3.82

Market share = (the quantity of the country's exports from the commodity / the total quantity of the country's imports from the commodity) *100

Source: Collected and calculated from www.Trademap website data

B- Study the market share of the most important competing countries within the Saudi market for frozen vegetables during the period (2013-2022).

Table No. (8): The market share of the most important competing countries within the Saudi market for frozen vegetables during the study period indicates that there is an increase in the amount of Saudi market imports from Egypt in the second period (2018-2022) over the first period (2013-2017). Egypt occupies the first rank in terms of the quantity of exports to the Saudi market, as its market share during the first and second period under study amounted about 33.83% and 41.32%, with an overall geometric average of about 37.38%, which is considered a positive indicator for Egypt to increase the exports of frozen vegetables to Saudi Arabia and this indicates the importance of increasing interest in staying within the Saudi market, as Egypt is characterized by historical political and

economic relations with Saudi Arabia, in addition to the spatial proximity between Egypt and Saudi Arabia, and not only that, in addition to the absence of customs tariffs between Egypt and Saudi Arabia, while India came in second rank in terms of the quantity of frozen vegetables to... The Saudi market, where its market share during the two periods under study reached about 13.25% and 11.64%, with an overall geometric average of about 12.42%, and Belgium, Spain, Thailand, America, and finally the Holland occupied from the third rank to seventh rank, respectively, in terms of the quantity of frozen vegetable exports to the Saudi market, where their market share during the first period (2013 - 2017) reached about 15.37%, 3.73%, 3.87%, 3.59%, 3.63%, respectively, while the market share of the same countries during the second period (2018 - 2022) ranged about 9.28%, %, 8.98%, 3.76%, 3.59% and 1.34%, with an overall geometric average of about 11.94%, 5.78%, 3.76%, 3.59%, and 1.34%, respectively.

Fifth: Estimating the demand function for Egyptian frozen vegetables

1- Demand of the American market for Egyptian frozen vegetables.

The following equation indicates the average of American per capita share from the exported quantity of Egyptian frozen vegetables as a dependent variable, and the export price of Egypt, Mexico, Canada, Guatemala, China, Ecuador, Belgium, Spain, Peru, the Netherlands, Chile, Poland, India, the average of per capita share from the American national income as independent variables, which are expected to have a negative or positive impact on the average of the American per capita share from the exported quantity of Egyptian vegetables during the period from (2005-2022). Through it, the demand for Egyptian frozen vegetables is estimated, and the mathematical formula for the demand function is as follows:

The result of the multiple linear model concluded that the relationship between each of these variables and the dependent variable was not significant due to the presence of econometric problems, most notably the problem of multicollinearity, which was confirmed by the estimates of the simple correlation coefficients with the correlation coefficient matrix, while it became clear from the stepwise regression model that the most important factors affecting the average of per capita share from Egyptian exports of frozen vegetables in grams are Egypt's export price in dollars per ton, Belgium's export price, the average of the American per capita share from national income in US dollars, as the "F" value indicates the significance of the equation statistically at a significance level of 0.05, The value of the adjusted coefficient of determination also shows that about 89% of the changes occurring in the average of per capita share from the quantity of exports are attributable to the independent variables shown in the equation, which indicates that there are other factors that affected the average of per capita share from the quantity of Egyptian exports of frozen vegetables and have not been taken into account.

$$\ln Y = 875.1 - 1.23\, X_1 + 9.5 \ln X_2 + 3.76 \ln X_3$$
$$(3.5) \quad (-3.43) \quad (3.65) \quad (2.99)$$
$$R^{-2} = 0.89 \qquad F = 13.56$$

Where:

Y: Average of the US per capita share from Egyptian frozen vegetable exports in grams

X1: Egypt's export price in dollars per ton.

X2: Belgium's export price in dollars per ton.

X3: Average US per capita national income in US dollars.

Source: Collected and calculated from data (www.Treadmap.org www.world bank.com)

2- Saudi market demand for Egyptian frozen vegetables.

The following equation indicates the average of the Saudi per capita share from the exported quantity of Egyptian frozen vegetables as a dependent variable, and the export price of Egypt, Spain, India, Belgium, America, Thailand, Poland, Bangladesh, Taiwan, China, Malaysia, the Netherlands, and the average of the per capita from the Saudi national income, as independent variables, which are expected to have a negative or positive impact on the average of the Saudi per capita share from the exported quantity of Egyptian vegetables, whether positive or negative, during the period from (2005-2022). Through it, the demand for Egyptian frozen vegetables is estimated, and the mathematical formula for the demand function is as follows:

$$\ln Y = 7.05 - 0.05\, X_1 + 1.98 \ln X_2 + 2.43 \ln X_3$$
$$(1.44) \quad (-3.56) \quad (2.99) \quad (2.98)$$
$$R^{-2} = 0.77 \qquad F = 11.56$$

Where:

Y: Average of the Saudi per capita share from the Egyptian frozen vegetable exports in grams

X1: Egypt's export price in dollars per ton.

X2: Poland's export price in dollars per ton.

X3: Average Saudi per capita national income in US dollars.

Source: Collected and calculated from data (www.Treadmap.org www.world bank.com)

The result of the multiple linear model concluded that the relationship between each of these variables and the dependent variable was not significant due to the

presence of econometric problems, most notably the problem of multicollinearity, which was confirmed by the estimates of the simple correlation coefficients with the correlation coefficient matrix, while it became clear from the stepwise regression model that the most important factors affecting the average of the per capita share from the quantity of Egyptian exports of frozen vegetables in grams are Egypt's export price in dollars per ton, Poland's export price, the average of the Saudi per capita share from national income in US dollars, as the "F" value indicates the significance of the equation statistically at a significance level of 0.05, The value of the adjusted coefficient of determination also shows that about 45% of the changes occurring in the average of the per capita share from the quantity of exports are attributable to the independent variables shown in the equation, which indicates that there are other factors that affected the average per capita share of the quantity of Egyptian exports of frozen vegetables, and they have not been taken into account.

RECOMMENDATIONS

1) Expansion of the frozen vegetable industry (as it adds value to fresh vegetables and helps create employment opportunities and increases the global demand for them and their availability throughout the year).
2) Counting the number of frozen vegetable factories and placing them under the consideration of country policy to encourage the stumbled ones.
3) Preserving traditional markets and working to increase the market share in them and in new markets by improving specifications and quality by controlling exports through (agricultural quarantine and central laboratories) so that they are compatible with international standard specifications, as competition in some of the most important markets is non-price competition. It may be due to specifications, or quality.
4 - Formulating a policy for production for the purpose of export and not export with surplus production.
5) Working to increase trade with Arab countries and Western countries and creating new markets, and working to increase the amount of exports, as distance has an advantage and is considered an attraction factor according to the gravity model, as appeared after the Corona crisis, as the amount of Egyptian exports increased to many countries, including (Kuwait, the Emirates, Iraq, and others).
6) Creating new markets by following suitable marketing policies, and entering markets in which competition from some countries with global export capacity may decrease, especially as a result of the Corona crisis, and enjoying what Egyptian exports may have gained in terms of price or non-price competitive advantage, and studying the causes of non-price competitiveness (quality - Timing, taste, etc.).

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الملخص العربي

دراسة الطلب الخارجى علي الخضروات المجمدة المصرية

شيماء مجدي مصطفي محمد، محمد حمدي سالم ،عاطف عبد العظيم جوده، ابراهيم محمد حسن و

ابراهيم علي محمد عبد الفتاح

تعتبر تنمية الصادرات الزراعية ركيزة أساسية يعتمد عليها المقتصد القومي في توفير مصادر دائمة للنقد الأجنبى، حيث يمكن توظيف موارد الصادرات لتمويل احتياجات القطاع الإنتاجى للدولة وخدمة المديونية الخارجية وسداد فاتورة الواردات ويتمثل الهدف الرئيسي دراسة أسباب تناقص صادرات مصر من الخضر المجمدة، لمساعدة متخذي القرارات لوضع السياسات الملاءمة والمؤدية لزيادة الصادرات منها ، وتبين أن متوسط قيمة صادرات مصر من الخضر المجمدة بلغت نحو ١٢,٢مليون دولار خلال الفترة (٢٠١٨-٢٠٢٢)، وجاءت الولايات المتحدة الامريكية في المرتبة الأولي في الدول المستوردة للخضر المجمدة المصرية بمتوسط فترة بلغ حوالي٢٩,٧ مليون دولار بنسبه بلغت نحو ١٥,١ % من متوسط قيمة الصادرات المصرية للفترة (٢٠١٨-٢٠٢٢) بينما جاءت السعودية في المرتبة الثانية بمتوسط فترة بلغ حوالي ٢٦,٤ مليون دولار بنسبه بلغت نحو ١٣,٥% من متوسط قيمة الصادرات المصرية من الخضر المجمدة المصرية خلال نفس الفترة ، وأن أكثر العوامل تأثيراً علي متوسط نصيب الفرد من كمية الصادرات المصرية من الخضر المجمده بالجرام هو سعر تصدير مصر بالدولار للطن، سعر تصدير بلجيكا ،متوسط نصيب الفرد الامريكي من الدخل القومي بالدولار الامريكي .

الكلمات المفتاحية: مؤشرات التجارة الخارجية، الاوضاع التنافسية، الخضر المجمده، دوال الطلب.