



دراسة إقتصادية لواردات مصر من القمح في الأسواق الخارجية

هبة محمد أبو النور أمين، بهاء الدين محمد مرسي ، ثناء النوبى أحمد سليم ، منى كمال رياض

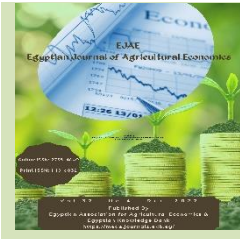
قسم الاقتصاد الزراعي ، كلية الزراعة جامعة عين شمس

بيانات البحث	المستخلص
استلام 2022 /12/14 قبول 2023 / 2 / 8	يزداد الاهتمام بمحصول القمح لكونه من أهم محاصيل الحبوب، ومصدراً أساسياً لغذاء الفرد المصري. وتتركز مشكلة الدراسة في عجز الإنتاج المحلي من القمح عن ملاحقة الزيادة في متطلبات الاستهلاك المحلي المتزايد نتيجة الزيادة السكانية، وذلك في ضوء محدودات كثيرة من أهمها محدودية الموارد الأرضية وندرة الموارد المائية، وارتفاع متوسط الاستهلاك الفردي. ويلاحظ أنه على الرغم من تزايد مساحة محصول القمح نتيجة اهتمام الدولة بالعمل علي تخفيض الفجوة الغذائية من القمح بديلاً عن الاستيراد من الخارج، إلا أن الفجوة لازالت تتزايد وتمثل ضغطاً مستمراً على حصيلة البلاد من النقد الأجنبي، وتبين أن روسيا جاءت في المرتبة الأولى من حيث متوسط كمية والتي قدرت بحوالي 7795.98 ألف طن بأهمية نسبية بلغت حوالي 68.81% خلال الفترة (2016-2020)، في حين جاءت أوكرانيا وأمريكا في المرتبة الثانية والثالثة بمتوسط بلغ نحو 2047.92، 536.63 ألف طن بأهمية نسبية بلغت نحو 18.08 % ، 4.74% على الترتيب ، ويتضح أن هناك علاقة عكسية بين متوسط نصيب الفرد المصري من كمية الواردات من القمح بالكيلو جرام للفرد، ومتوسط السعر النسبي مصر لروسيا بالدولار للطن ، ومتوسط السعر التصدير فرنسا بالدولار للطن ، حيث أنه كلما انخفض السعر النسبي مصر لروسيا بالدولار بنسبة 1% كلما زادت كمية واردات مصر من القمح بنسبة 9.1% سنويا وثبتت المعنوية الإحصائية لهذه المعادلات عند مستويات المعنوية المألوفة، وتبين وجود علاقة عكسية كمية واردات مصر من القمح حيث أنه كلما انخفض سعر تصدير فرنسا بالدولار بنسبة 1% كلما زادت كمية واردات مصر من القمح بنسبة 2.1% سنويا وثبتت المعنوية الإحصائية لهذه المعادلات عند مستويات المعنوية المألوفة .
الكلمات المفتاحية: التجارة الخارجية، القمح ، محدودات الطلب ، التوزيع الجغرافي، كمية واردات مصر .	

الباحث المسئول: هبة محمد أبوالنور امين

البريد الإلكتروني: heba19884376@gmail.com

© The Author(s) 2023.



Available Online at Ekb Press

Egyptian Journal of Agricultural Economics ISSN: 2311-8547 (Online),
1110-6832 (print)

<https://meae.journals.ekb.eg/>

An Economic Study of Egypt's Wheat Imports in Foreign Markets

Heba Mohamed Abu Al-Nour Amin

Bahaa El Din Mohamed Morsi

Thanaa El-Noby Ahmed Selim

Mona Kamal Riad

Department of Agricultural Economics, Faculty of Agriculture, Ain Shams University

ARTICLE INFO

ABSTRACT

Article History

Received:14-12- 2022

Accepted:8- 2- 2023

Keywords:

Foreign Trade,
Wheat, Demand
Determinants,
Geographical
Distribution, and
Quantity of
Egypt's Imports.

The importance of wheat is increasing because it is one of the most important cereal crops and an essential source of food for the Egyptians. The research problem is focused on the inability of the domestic production of wheat to keep pace with the increase in the requirements of domestic consumption as a result of population increase. In light of many determinants, the most important of which are the limited land resources, the scarcity of water resources, and the high average per capita consumption. It is noted that despite the increasing Wheat due to the state's interest in reducing the food gap of wheat instead of importing from abroad, the gap is still increasing and represents continuous pressure on the country's foreign exchange earnings. Russia was found to be the top importer, with an estimated average import amount of 7795.98 thousand tons and relative importance of 68.81% during the period (2016-2020). Meanwhile, Ukraine and the United States ranked second and third with an average of about 2047.92 and 536.63 thousand tons, and relative importance of 18.08% and 4.74%, respectively. is clear that there is an inverse relationship between the average Egyptian per capita of the number of imports of wheat per capita and the wheat relative price in Egypt to Russia in dollars per ton. The average export price of France in dollars per ton is lower than the relative price of Egypt to Russia in dollars by 1%. The greater amount of Egypt's imports of wheat by 9.1% annually has a Statistical significance of these equations on significant levels, and shows an inverse relationship the amount of Egypt's imports of wheat as the lower the export price of France in dollars by 1%, the greater the amount of Egypt's imports of wheat by 2.1% annually and proved the statistical significance of these equations at the levels of moral familiar

Corresponding Author: **Heba Mohamed Abu Al-Nour Amin**

Email: heba19884376@gmail.com

© The Author(s) 2023.

Introduction

The wheat crop is one of the main cereal crops and the most important strategic crops that receive the attention of economic policymakers, as it is the main source of the bread industry, which is the basic food for all categories of people, and local production is not enough for the population needs, which leads to import to fill the deficit and bear the burdens of the import bill, especially in light of the liberalization of the exchange rate and the continuous rise in prices globally. The wheat crop has become one of the most important issues facing Egypt at the present time and in the future, due to the limited number of countries that can export wheat and the subject of production conditions to natural and climatic changes, in addition to the fact that wheat exporting countries use the food weapon as one of the pressure elements in the policies they follow in the strategic field on importing countries...

Wheat is the main source of the bread industry, which is the basic food for all categories of people, and the provision of wheat is one of the most important issues facing Egypt at the present time and in the future, due to the limited number of developed countries that can export wheat to developing countries and the subjection of production conditions in these countries and others to natural and climatic changes in addition to controlling the political goals of exporting countries in the wheat trade, as it is proven that developed countries use food weapons as a means of political pressure and where This weapon is one of the ruling elements in the policies pursued by the advanced capitalist countries in the strategic field, and wheat is one of the main cereal crops, as flour is extracted from it necessary to produce bread of all kinds, which represents a major component in the diet of the population, in addition to the use of flour also in the manufacture of various types of pasta, which is an important food for all the world's population in general and for the Egyptian citizen in particular.

The research Problem:

The research problem is focused on the deficit of domestic wheat production in Egypt to follow the increase in the requirements of increasing domestic consumption, the limited land resources and the scarcity of water resources, the increase in population and the high average per capita consumption, and the lack of a mechanism to achieve fair distribution and rationalization of consumption. The insufficiency of domestic production entails some of the import problems faced by the state to fill the deficit in production. Egypt also relies on certain countries to import the largest volume of imports, as Egypt imports about 86.88% of its wheat imports from Russia and Ukraine during the period (2016-2020), and it is noted that despite the increase in the area of the wheat crop as a result of the state's interest in working to reduce the food gap of wheat instead of importing from abroad, the gap is still increasing and represents a continuous pressure on the country's foreign exchange earnings.

Objective of the study

The research aims to identify an economic study of Egypt's imports of wheat in foreign markets, as well as through the current situation to study the amount, value, and cost of Egypt's imports of wheat, the geographical distribution of the number of Egypt's imports of wheat from foreign markets, the demand function of the determinants of Egyptian demand of wheat from foreign markets and what contributes when formulating agricultural economic policies to help increase the cultivated area of wheat and reduce the deficit in the food gap of the crop.

Research method and data sources

To achieve the objectives of the research, the methods of descriptive and quantitative analysis are used in addressing the topics of study, such as general trend and percentages, and multiple phase regression analysis when estimating the demand function. The research is based on the data contained in the agricultural economics bulletins of the Economic Affairs Sector at the Ministry of Agriculture, and the World Trade Map website (TREAD MAP), as well as studies and research related to the research topic.

This section deals with the foreign trade of Egypt's imports of wheat crops in terms of quantity, value, export, and import price, and the most important countries in the world exporting wheat to Egypt during the period (2005-2020). The mathematical form of the previous relationship can be described as follows:

$$\ln Y = \ln \alpha \pm B_1 \ln X_1 \pm B_2 \ln X_2 \pm B_3 \ln X_3 \pm B_4 \ln X_4 \pm B_5 \ln X_5 \pm B_6 \ln X_6 \pm B_7 \ln X_7 \pm B_8 \ln X_8$$

Where:

Y: It expresses the average Egyptian per capita wheat consumption in kg.

X₁: Expresses the relative average wheat price of Egypt to Russia in dollars per ton.

X₂: expresses the average wheat export price of Ukraine in dollars per ton.

X₃: expresses the average wheat export price of France in dollars per ton.

X₄: Expresses the average wheat export price of USA in dollars per ton.

X₅: expresses the average wheat export price of Australia in dollars per ton.

X₆: expresses the average wheat export price of Romania in dollars per ton.

X₇: It expresses the average per capita income of the Egyptian in dollars.

X₈: the Egyptian population in thousand inhabitants .

Results and discussion

First: The current situation of Egypt's wheat imports:

1) The number of Egyptian imports of wheat during the period (2005-2020):

Table (1) shows the development of the number of Egyptian imports of wheat in thousand tons over the period (2005-2020), from which it was found that the average number of imports reached its lowest point in 2013 by about 2212.63 thousand tons, while its maximum in 2019 was about 14979.23 thousand tons, and the general average for the period as a whole was about 7885.89 thousand tons.

By examining the directional relationship of wheat imports per 1,000 tons of Egyptian over the period (2005-2020), it was found from equation No. (1) in Table (2) that the number of Egyptian imports of wheat increased by about 466.11 thousand Tons per year during the study period, a growth rate of about 5.91%, demonstrating that morale is the morale of the model as a whole. As a result, about 39% of the change in the number of imports is due to a set of factors whose influence is reflected in variable time, And watch value DW 1.98 indicate that the autocorrelation problem is not found.

Table (1): Evolution of the quantity and value of Egyptian imports and the export price of wheat during the period (2005-2020)

(Quantity: thousand tons, value: million dollars, price: dollars per ton)

Years	Quantity of imports	Value of imports	Import price
2005	5687.76	924.57	162.55
2006	5816.91	964.54	165.82
2007	5901.04	1563.94	265.03
2008	4077.54	2110.91	517.69
2009	4059.93	1576.06	388.20
2010	9926.57	2181.91	219.80
2011	9800.06	3199.21	326.45
2012	8246.87	3196.88	387.65
2013	2212.63	721.69	326.17
2014	3136.53	3066.22	977.58
2015	10658.75	2522.95	236.70
2016	9768.42	2238.47	229.15
2017	11031.82	2636.50	238.99
2018	11290.45	2806.06	248.53
2019	14979.23	3024.16	201.89
2020	9579.70	2693.85	281.20
Average	7885.89	2214.24	323.34
Minimum	2212.63	721.69	162.55
Maximum	14979.23	3199.21	977.58

Source: www.trademap.org

Table (2): Equations of the general time trend of the evolution of the quantity, value and price of imports of wheat during the period (2005-2020)

M	Dependent variable	growth rate	F	R ²	DW	Estimated model
1	Quantity of imports	5.91	8.84	0.39	1.98	$\hat{Y} = 3923.9 + 466.11 X$ (2.59) (2.97) *
2	Value of imports	4.99	9.22	0.40	2.01	$\hat{Y} = 1274.5 + 110.55 X$ (3.6) (3.04) *
3	Import price	-	7.4	0.44	1.89	$\ln \hat{Y} = 278.37 + 0.04 X$ (4.10) (3.17) *

where: Y = estimated value of the amount, value, and cost of imports of Egyptian wheat.

X = time variable where (1, 2, 3, ... 16).

The value in parentheses shows the calculated value of (T). (2) the coefficient of. (F) the significance of the model as a whole. (*) refers to the significance of the regression coefficient at a significant level of 0.05. (*) indicates the insignificant regression coefficient. Source: Calculated from the data of Table (1) in Al-Yahith.

2) Evolution of the value of Egyptian imports of wheat during the period (2005-2020):

Table (1) shows the evolution of the value of Egyptian imports of wheat in million dollars during the period (2005-2020), from which it was found that the average value of imports reached its lowest in 2013 by about 721.69 million dollars, while it reached its maximum in 2011, which was estimated at 3199.21 million dollars, and the general average for the period as a whole was about 2214.24 million dollars.

By examining the directional relationship of the value of Egyptian wheat imports in millions over the period (2005 to 2020), equation (2) in Table (2) shows that the value of Egyptian wheat imports in millions increased by about 110.55. At \$1 million per year and a growth rate of about 4.99% during the study period, the morale and overall model effectiveness were proven.

The results also showed that about 40% of the change in the value of Egyptian wheat imports in millions of dollars is due to a group of factors that reflect variable time, , In addition the value of D-W= 2.01 indicate that the autocorrelation problem is not found.

3) The evolution in Egyptian wheat export prices over the period (2005-2020):

Table (1) shows the development of the export price of wheat in dollars per thousand tons over the period (2005-2020), from which it was found that the average export cost was low in 2005 by about \$ 162.55 per ton, while its lowest in 2014 was about \$ 977.58 per ton, and the general average for the period as a whole was about \$ 323.34 per ton.

By examining the directional relationship of the Egyptian wheat export prices in dollars over the period (2005-2020), it was found from Table (2) showed that Egyptian wheat export prices in dollars increased by 0.04 dollars/ton per year during the study period as well as the overall effectiveness, And watch value DW 1.89.

Second: Geographical distribution of the amount of Egypt's wheat imports from foreign markets:

- 1- Geographical distribution of the number of Egyptian wheat imports from major countries in the world during the period (2016-2020): By reviewing the data of Table (3), it was found that Russia came in first place in terms of average quantity, which was estimated at about 8366.5 thousand tons. and with a relative importance of about 68.81% **during the period (2019-2020)**, while Ukraine and America came in second and third place with average of an about 2518.2, 579.4 Thousand tons with a relative importance of about 18.08%, 4.74% respectively during the same period, and France, Romania, and Australia came in fourth, fifth and sixth place with an average quantity of about 317.5,212.6, 182.9 thousand tons and a relative importance of about 3.93%,

2.26%, 1.48% respectively, while the average quantity for the rest of the countries was 80.21 A thousand tons with a relative importance of about 0.71%.

Table (3): The relative importance of the quantity of Egyptian wheat imports from the most important countries of the world in thousand tons during the period (2016-2020)

(Unit: thousand tons)

Years	2016	2017	2018	Average (2016-2018)	2019	2020	Average (2019-2020)	%
Russia	6566.93	7640.77	8039.2	7415.6	10948.2	5784.86	8366.5	68.81
Ukraine	1800.7	1751.03	1651.36	1734.4	2781.29	2255.19	2518.2	18.08
USA	331.72	688.25	504.46	508.1	539.96	618.75	579.4	4.74
France	451.23	676.15	463.15	530.2	316.35	318.67	317.5	3.93
Romania	344.34	131.11	381.1	285.5	210.23	215.02	212.6	2.26
Australia	140.43	131.21	201.08	157.6	120.15	245.74	182.9	1.48
Rest of the world	133.07	13.3	50.1	65.5	63.09	141.47	102.3	0.71
World	9768.42	11031.8	11290.5	10696.9	14979.2	9579.7	14979.2	100

Source: Compiled and calculated from [www. trademap.org](http://www.trademap.org)

Third: The demand function of the determinants of Egyptian demand for wheat from foreign markets

The study showed that Russia and Ukraine are among the most important wheat exporters to Egypt, and then this part will study the external demand relations of the Egyptian market. The study of imports of wheat for the Egyptian market shows that the most important markets from which Egypt imports are Russia, Ukraine, Romania, France, Australia, and America during the period (2005-2020).

The set of independent variables for which the data were available and were subjected to study and analysis in this part is the average relative price of Egypt to Russia in dollars per ton, the average price of Ukraine export, the average price of France export, the average price of America's export, the average price of Australia's export, the average price of Romania's export, the average price of the Egyptian individual export of national income, the population during the period (2005-2020).

Statistical estimation of the Egyptian per capita demand function of wheat from the most important foreign markets:

To study the determining factors of the quantity of Egypt's imports of wheat during the period (2005-2020), attempts were made to estimate the demand function for Egyptian wheat

from foreign markets using various mathematical models, which include all variables related to the Egyptian demand for Egyptian wheat .

$$\ln Y = 0.91 - 0.45 \ln X_1 - 0.21 \ln X_4$$

$$(2.1) \quad (-5.01) \quad (-3.53)$$

$$F=35.12 \quad R^2=0.70 \quad DW=1.99$$

Where:

Y: It expresses the average Egyptian per capita wheat in kg per capita.

X₁: Expresses the relative average price of Egypt to Russia in dollars per ton.

X₂: expresses the average export price of Ukraine in dollars per ton.

X₃: expresses the average export price to France in dollars per ton.

X₄: Expresses the average export price of America in dollars per ton.

X₅: expresses the average export price of Australia in dollars per ton.

X₆: expresses the average export price of Romania in dollars per ton.

X₇: It expresses the average income of the Egyptian individual dollars per capita.

X₈: Population in thousand inhabitants .

Source: compiled and calculated from [www.world Bank](http://www.worldbank.org) , [www. trademap.org](http://www.trademap.org)

The results of the statistical analysis of the demand function indicate the significance of the model used, where the calculated F value was greater than its tabular counterpart and the adjusted coefficient of determination of the function was about 0. 70, which means that 71% of the changes in the individual demand of the Egyptian market of wheat can be explained through the independent variables contained in the equation, and it is clear from the function that there is an inverse relationship between the average Egyptian per capita amount of imports of wheat in kg per capita and the average relative price of Egypt to Russia in dollars per ton, and the average export price of America in dollars per ton, as the lower the relative price of Egypt to Russia in dollars by 1%, the greater the amount of Egypt's imports from Wheat by 9.1% annually and proved the statistical significance of these indicators at the levels of the usual moral, and show an inverse relationship the amount of imports of Egypt of wheat as the lower the price of export to France in dollars by 1%, the greater the amount of imports of Egypt of wheat by 1.2% annually and proved the statistical significance of these equations at levels of moral familiar, And watch value DW 1.99.

Recommendations

- Taking into account the pricing of the wheat crop in proportion to the actual cost of producing an acre of grain crops, in the light of which the rewarding price is determined by collecting the necessary information and data.
- Taking into account the pricing of the wheat crop in light of the profitability of competing crops that affect the farmer's decision to adopt his cultivation.
- Intensifying the state's interest in scientific research in the field of developing high-productivity varieties.

- The need for the state to move towards horizontal expansion in wheat cultivation to increase production, which works to reduce the amount of Egyptian imports of wheat and thus reduce the Egyptian import bill of wheat.
- Activating the role of extension in educating farmers to adopt the use of approved seeds in agriculture because this leads to an increase in production by 10%
- Reconsider Egyptian wheat agricultural policies with the aim of including the cultivation of the highest productive varieties at the governorate level with the development of incentives guaranteeing this.
- Follow a preventive policy to confront climate change using inferred wheat varieties that withstand a wide range of these changes.
- Activating the role of the media in terms of educating consumers in order to rationalize consumption.
- Directing Egyptian import policies of wheat during periods of low prices, which is reflected in reducing the wheat bill and thus reducing the deficit in the Egyptian trade balance.

References:

- Mona Kamal Riad Abdel Karim, The Impact of Economic Reform Policies on the Wheat Sector in Egypt, Master's Thesis, Department of Agricultural Economics, Faculty of Agriculture, Ain Shams, 2006.
- Mona Fouad Mohamed Ismail Al-Kashef, The Impact of Local and International Prices on the Production of Some Major Crops in Egypt, Master Thesis, Department of Agricultural Economics, Faculty of Agriculture, Cairo University, 2004.
- Hedy Ali Hassan Ahmed El-Gendy, The Impact of Agricultural Policy on the Most Important Economic Features of the Wheat Crop in Egypt - Reality and Hope, The Egyptian Journal of Agricultural Economics, Volume 20, Issue Two, June 2010.
- Walid Mohamed Lotfy Abu Auf Nassar, Structural Changes in the Wheat Milling Industry in Egypt, PhD Thesis, Department of Agricultural Economics, Faculty of Agriculture, Ain Shams University, 2011.
- Hani Said Abdel Rahman Al-Shatla (Doctor) and Hossam El-Din Mohamed Mohamed Seddik (Doctor), Solving the Wheat Problem in Egypt. Possible Methods, Egyptian Journal of Agricultural Economics, Egyptian Association for Agricultural Economics, Volume Twenty-Three, Issue Two, June 2013.