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AN ECONOMIC AND ECONOMETRIC STUDY OF THE MOST IMPORTANT FACTORS AFFECTING IRAQ'S FOREIGN TRADE OF AGRICULTURAL COMMODITIES (WHEAT, RICE AND DATES, AN APPLIED MODEL) FOR THE PERIOD (1990-2020)

Alaa Names Talal Nassif Jassim Al-Ahbabi Usraa Tarik Baker
Tikrit University - College of Agriculture - Department of Agricultural Economics
Usraa_Tariq@tu.edu.iq

Abstract

Wheat, rice and dates are considered essential strategic commodities for the Iraqi people, as they have become indispensable for the Iraqi individual, and these crops also have an important role in the foreign trade of countries. In this research, the factors affecting the foreign trade of wheat, rice and dates in Iraq for the period of time have been studied. (1990-2020), The wheat and rice imports function was adopted in the economic and econometric analysis, while the wheat and rice exports were analyzed by the descriptive method due to the presence of many gaps in the time series data under study. The dates exports function was adopted in the economic and econometric analysis. While the imports of dates were analyzed by the descriptive method, as Iraq began to import small quantities of canned dates used in the food industry in the last years of the study, and Iraq did not import any dates in previous years, as this matter was prohibited because Iraq has a comparative advantage in its production. The imported quantities of wheat and rice are the dependent factor (Y),The independent factors were represented by (gross agricultural output, world price, domestic price, exchange rate, national income, population, and average per capita national income), while the exported quantities of dates were considered the dependent factor (Y). The independent factors were represented by: (border price, domestic price, average per capita national income, the number of population, and the exchange rate), and time series data were relied upon to estimate the phenomenon in question, and the best results were reached through a standard model in the (linear) formula, and it was adopted based on its preference and superiority in terms of statistical and standard tests, The study ended with a number of conclusions and recommendations, including: Iraq suffers from a nutritional gap in wheat and rice crops, despite the presence of local production, which requires filling this gap by importing from abroad, while there is a surplus in the local production of dates, and this matter requires the country's attention to this. The comparative advantage of increasing its production and greatly activating the role of date exports .Accordingly, the study recommended paying attention to commercial cooperation between the agricultural sector and other sectors in order to narrow the food gap and reduce food dependency by increasing local production of wheat and rice crops, and activating the role of food industries for dates and canning them instead of importing dates manufactured from, and thus reducing imports and narrowing the food gap and exporting the surplus From domestic production to abroad.

Keywords: foreign trade, wheat, rice, dates

introduction

Agricultural foreign trade is of great importance, as agriculture is the main sector in most economies of developing countries, and some WTO statistics show that agriculture represents more than a third of the export revenues of about 50 developing countries, as the revenues from exporting agricultural products to 40 countries, of which they represent more than half of the revenues exported ,Therefore, any discussion of trade policy must begin with an understanding that in most countries, agricultural foreign trade policy represents an expansion of domestic agricultural policy, and foreign trade in agricultural products is an important factor for developing countries, including Iraq(FAO, 2022), because of its great importance in introducing agricultural products to regional and global markets. Providing its need for agricultural products from the outside world, and thus foreign trade for agricultural commodities occupies a great importance in countries that suffer from a deficit in domestic production to meet consumer needs, especially in the short term(Ministry of Planning, Central Bureau of Statistics,2022). The strategic crops and commodities under consideration (wheat, rice and dates) are of great importance. (Central Bank of Iraq,2021). As it represents an important food resource, and plant production can contribute significantly to increasing national income and increasing per capita income in general and agricultural income in particular.) In particular(Hussein, 2009),). These commodities are considered basic commodities in the Iraqi society, and because Iraq has a comparative advantage in producing some of them, so it is possible that these commodities are the second source after oil for hard currency for the country(Al-Badri et al,2016). of these commodities. Hence the need to rely on the local production side of it to bridge the food gap and meet the needs of the Iraqi society, and to know and study the quantitative trends of the factors affecting the foreign trade of these commodities and their change with the change of time and the increase in the population that reflects the increase in the required quantity of commodities,(Al-Jubouri, 2018), It is also necessary to know the international and local prices and the extent of their effects on the exported and imported quantities and other variables that have a direct impact on the foreign trade of these commodities, and to develop appropriate methods to reduce the volume of imports and increase the volume of exports from them, and thus achieve social and economic well-being.

Research problem

The problem from which the research was based was represented in the diminishing contribution of one of the extremely important economic sectors, such as the agricultural sector in foreign trade, and the increasing deficit in the agricultural trade balance, as well as the fact that the agricultural producer was, in most years of the study, receiving prices for his crops that are lower than international prices, especially strategic crops, and the inability to The Iraqi agricultural product will not be able to withstand the imported products, in addition to losing the competitive advantage in the case of exports. The agricultural product was subjected to a dumping policy, in addition to the failure of the agricultural foreign trade policy to draw a map of the agricultural products in which Iraq has an apparent comparative advantage in order to be included in the products that are being negotiated with the start of Iraq's accession rounds to the World Trade Organization.The problem of this research emerged in the presence of a significant decline in agricultural foreign

trade in Iraq for commodities (wheat, rice and dates) during the study period (1990-2020).Where this regression included a clear decline on the part of exports of these basic agricultural commodities, while there was a significant increase on the part of agricultural imports, which called for the need for an economic study to know the most prominent causes of this problem and an indication of how to address it

research aims

The aim of the research is to evaluate the foreign trade policy for agricultural commodities (wheat, rice and dates) in Iraq and to know the basic factors that affect it negatively and positively, especially in the time period that the research is studying for the period (1990-2020), as this period witnessed a lot of political conflicts and wars, and it is known that Political factors and international relations of any country have a significant impact on foreign trade, so this study seeks to identify the factors that most affect agricultural foreign trade.

Research hypothesis:

The research assumes a hypothesis that the production capacity of wheat and rice crops is low, and the export side of Iraqi dates is continuously weak due to the lack of interest by the state in these important commodities resulting from the conditions experienced by Iraq. The export of dates, and each function includes a set of independent variables that have an impact on this function. (Wheat, rice, and dates were chosen as a model) to study the extent of the impact of these variables. The following describes the economic model for the functions of exports and imports of agricultural commodities under study, and in which the independent variables appear as assumed variables It has an effect on the export and import functions.

The reality of wheat production in Iraq for the period (1990-2020)

Area

The data of tables (1) and (2) indicate a clear gradation in the cultivated areas of the wheat crop at the country level over the study period (1990-2020), as the annual average area was about 1.6 million hectares during the period (1990-2005). , while the average area was approximately 1.3 million hectares during the period (2006-2020), while the annual average of the cultivated area of wheat over the study period (1990-2020) was more than 1.4 million hectares. 2005, the maximum area planted with the crop amounted to about 2,549,750 ha, while the year 2018 recorded the lowest area planted with the crop, which amounted to about 783,721 hectares. Considering that wheat is a strategic crop.

production

It is clear from the two previous tables that the production of the wheat crop in Iraq recorded an annual average of about 1.3 million tons during the period (1990-2005) and about 3.1 million tons during the period (2006-2020), while the annual average of the wheat crop over the period The study (1990-2020) had reached about 2.2 million tons, and table (1) showed that the year 2020 recorded the maximum production of about 6,238,392 tons, while the year 2000 recorded the lowest production, amounting to about 384,000 thousand tons.

productivity

Tables (1) and (2) show that there is a slight gradient in wheat productivity at the country level, as productivity recorded an annual average during the period (1990-2005) amounting to about 8 thousand tons / ha, and about 23 thousand tons / ha for the period (2006-2020).), while the annual average on the period of the study (1990-2020) was about 15 thousand tons / ha, and the year 2016 recorded the highest level of productivity amounted to about 33181 tons / ha, while the year 2000 recorded the lowest level of productivity amounted to about 3200 tons / ha .

Table (1) The reality of wheat crop production in Iraq for the period (1990-2020)

Productivity (ton/ha)	Area (hectares)	production (ton)	Years
10129	1180575	1195800	1990
8056	1832775	1476400	1991
5999	1677000	1006000	1992
5897	2013000	1187000	1993
7431	1806000	1342000	1994
8052	1535000	1236000	1995
8667	1500000	1300000	1996
7566	1405000	1063000	1997
8071	1400000	1130000	1998
6154	1300000	800000	1999
3200	1200000	384000	2000
7405	1220000	903400	2001
15703	1648750	2589000	2002
13590	1713750	2329000	2003
11898	1539750	1832000	2004
8738	2549750	2228000	2005
13783	1513500	2086000	2006
14031	1569900	2202800	2007
13678	917546	1255000	2008
18756	906589	1700390	2009
19872	1383303	2748840	2010
19552	1436614	2808900	2011
24181	1266391	3062312	2012
23068	1811295	4178379	2013
23964	2109455	5055111	2014
28617	924311	2645061	2015
33181	920096	3052939	2016
28392	1047531	2974136	2017
27789	783721	2177885	2018
28144	1543316	4343473	2019
29105	2143421	6238392	2020

33181	**2549750**	**6238392**	highest value
3200	**783721**	**384000**	lowest value
15569.97	**1477366**	**2210684**	average

* Source: Reports of the World Food and Agriculture Organization (FAO) for the period (1990-2020).

The reality of rice production in Iraq for the period (1990-2020)

Area

The data of tables (3) and (4) indicate a slight fluctuation in the cultivated areas of the rice crop at the country level from year to year during the period (1990-2020), where the annual average area was about 100 thousand hectares during the period (1990-2005). While the average area decreased to approximately 73 thousand hectares during the period (2006-2020), As for the annual average area of the rice crop on the length of the study period (1990-2020), it amounted to more than 91 thousand hectares, and the year 1995 recorded the maximum area planted with the crop amounted to about 175,000 hectares, while the year 2018 recorded the lowest area cultivated with the crop amounted to about 5423 hectares , It is noted that the areas allocated for this crop were very large in the nineties, and perhaps the reason for this is due to the subsidy policy that was followed in Iraq during this era and the widespread demand of farmers for local agriculture due to the economic blockade imposed on Iraq during that period.As for the recent years, the data indicates that Iraq has moved towards economic openness to the world and the willingness of merchants to import luxurious international types of rice crops, which were widely accepted by consumers.

production

It is clear from the previous data that the production of the rice crop in Iraq recorded an annual average of about 200 thousand tons, during the period (1990-2005) and about 300 thousand tons during the period (2006-2020), while the annual average of the rice crop over the period study (1990-2020) had reached about 260 thousand tons ,Table (3) shows that the year 2019 recorded the highest production, amounting to about 574,705 tons, while the year 2018 recorded the lowest production, amounting to about 18,196 tons. This fluctuation may be attributed to the difference in market demand from year to year.

productivity

Through the rice data, it was found that there is a slight fluctuation in rice productivity at the country level, where the productivity recorded an annual average during the period (1990-2005) amounting to about 21 thousand tons / ha, and about 39 thousand tons / ha during the period (2006-2020),While the annual average over the study period (1990-2020) was about 30 thousand tons / ha, and the year 2014 recorded the highest level of productivity, which amounted to about 51049 tons / ha, while the year 2000 recorded the lowest level of productivity, which amounted to about 6000 tons / ha.

Table (3) The reality of rice production in Iraq for the period (1990-2020)

Productivity (ton/ha)	**Area (hectares)**	**production (ton)**	**Years**

28889	**79200**	**228800**	**1990**
22008	**85925**	**189103**	**1991**
18947	**95000**	**180000**	**1992**
18727	**110000**	**206000**	**1993**
23497	**163000**	**383000**	**1994**
18000	**175000**	**315000**	**1995**
22500	**120000**	**270000**	**1996**
20165	**121000**	**244000**	**1997**
23438	**128000**	**300000**	**1998**
13846	**130000**	**180000**	**1999**
6000	**100000**	**60000**	**2000**
12800	**100000**	**128000**	**2001**
25000	**100000**	**250000**	**2002**
30508	**29500**	**90000**	**2003**
28409	**88000**	**250000**	**2004**
28879	**107000**	**309000**	**2005**
28867	**125750**	**363000**	**2006**
31630	**124250**	**393000**	**2007**
29281	**84750**	**248157**	**2008**
31511	**54925**	**173074**	**2009**
32482	**47974**	**155829**	**2010**
35762	**65745**	**235118**	**2011**
45468	**79471**	**361339**	**2012**
47162	**95808**	**451849**	**2013**
51049	**78949**	**403028**	**2014**
44776	**24390**	**109209**	**2015**
48056	**37731**	**181320**	**2016**
48975	**54283**	**265852**	**2017**
33553	**5423**	**18196**	**2018**
45014	**127673**	**574705**	**2019**
45633	**101716**	**464159**	**2020**
51049	**175000**	**574705**	highest value
6000	**5423**	**18196**	lowest value
30349.419	**91627.838**	**257443.16**	average

***Source: Reports of the World Food and Agriculture Organization (FAO) for the period (1990-2020).**

Area

The data of tables (1) and (2) indicate the relative increase in cultivated areas at the country level from year to year during the period (1990-2020), as the annual average area reached about 120 thousand hectares during the period (1990-2005),While the annual average recorded approximately 180 thousand hectares during the period (2006-2020), and the annual average of the date area over the length of the study period (1990-2020), it reached more than 147 thousand hectares, and the year 2017 recorded the maximum area planted with the crop. It amounted to about 288,264 hectares, while the year 2005 recorded the lowest area planted for dates, which amounted to about 50,000 hectares.

production

It is clear from the date production data in Iraq in both tables that date production has recorded an annual average of about 711 thousand tons, during the period (1990-2005) and about 592 thousand tons during the period (2006-2020), While the annual average of dates over the period of the study (1990-2020) was about 653 thousand tons, and table (5) shows that the year 2000 recorded the maximum production of about 932,000 tons, while the year 2005 recorded the lowest production of about 404,030 tons. .

productivity

Tables (5) and (6) show that there is a relative increase in the productivity of dates at the country level, as productivity recorded an annual average during the period (1990-2005) amounting to about 63 thousand tons / ha, and about 36 thousand tons / ha during the period (2020). -2006),While the annual average over the study period (1990-2020) was about 50,000 tons/ha, and the year 2001 recorded the highest level of productivity, which amounted to about 89,360 tons/ha, while the year 2017 recorded the lowest level of productivity, which amounted to about 21,467 tons/ha.

The reality of importing and exporting the wheat crop in Iraq for the period (1990-2020)

Table (7) shows that wheat imports are somewhat stable along the chain, except for the end of the chain, where it is noted that there is a significant decline in the last two years of the chain (2019 and 2020).

trade balance	Export quantity (tons(	Import quantity (tons(	Years
-1900000	0	1900000	1990
-670000	0	670000	1991
-1230000	0	1230000	1992
-450000	0	450000	1993
-500000	0	500000	1994
-480000	0	480000	1995
-300000	0	300000	1996
-1975000	0	1975000	1997
-2323160	2840	2326000	1998
-1838570	2030	1840600	1999
-3182140	3060	3185200	2000
-2975110	24890	3000000	2001

-2380724	**36740**	**2417464**	**2002**
-1155647	**121020**	**1276667**	**2003**
-2265082	**236330**	**2501412**	**2004**
-2535520	**0**	**2535520**	**2005**
-2833813	**5000**	**2838813**	**2006**
-2423143	**570**	**2423713**	**2007**
-2962740	**580**	**2963320**	**2008**
-3049819	**590**	**3050409**	**2009**
-1854525	**0**	**1854525**	**2010**
-2674720	**0**	**2674720**	**2011**
-2643064	**0**	**2643064**	**2012**
-3084500	**0**	**3084500**	**2013**
-3018237	**0**	**3018237**	**2014**
-1042504	**0**	**1042504**	**2015**
-302500	**0**	**302500**	**2016**
-214553	**0**	**214553**	**2017**
-1552301	**0**	**1552301**	**2018**
-14148	**0**	**14148**	**2019**
-1263	**0**	**1263**	**2020**
-1720695	**20302.42**	**1740997**	highest value
-2948870	**236330.00**	**3185200**	lowest value
-1263.00	**0.00**	**1263.00**	average

As the annual average of wheat imports in Iraq was about 1.7 million tons during the period (1990-2020),The highest percentage of wheat imports reached about 3,185,200 tons during the period (1990-2020), while the lowest percentage of wheat imports was about 1,263 tons along the chain.The reason for this decrease in imports may be the increase in the cultivated areas of wheat nationwide in recent years, and thus the increase in the domestic production of wheat and the decrease in the size of the food gap from this crop.As for wheat exports from Iraq, they were very weak or non-existent in most of the years of the study. The annual average of wheat exports over the period of study (1990-2020) was about 20 thousand tons, and the highest percentage recorded during this period was in the year 2004 amounted to about 236,330 tons, While the year 2007 recorded the lowest percentage of wheat exports, amounting to about 570 tons, and this is apart from the zero values in some years, which mean that there are no wheat exports. The reason for this decline in wheat exports may be the lack of self-sufficiency in domestic production of the wheat crop, which led the country to depend on bridging the food gap from this crop on foreign

imports, and therefore this means that the country is unable to meet its needs of local production, let alone export This crop.

Table (7) shows the reality of imports and exports of the wheat crop for the period (1990-2020)

trade balance	Export quantity (tons(	Import quantity (tons(	Years
-379450	**550**	**380000**	**1990**
-300000	**0**	**300000**	**1991**
-450000	**0**	**450000**	**1992**
-655000	**0**	**655000**	**1993**
-200000	**0**	**200000**	**1994**
-225000	**0**	**225000**	**1995**
-214000	**0**	**214000**	**1996**
-684000	**0**	**684000**	**1997**
-628730	**270**	**629000**	**1998**
-755580	**25420**	**781000**	**1999**
-1139670	**60330**	**1200000**	**2000**
-1273627	**4540**	**1278167**	**2001**
-1152750	**9250**	**1162000**	**2002**
-432300	**1200**	**433500**	**2003**
-649431	**2210**	**651641**	**2004**
-828939	**1700**	**830639**	**2005**
-1329089	**0**	**1329089**	**2006**
-735900	**0**	**735900**	**2007**
-1051916	**0**	**1051916**	**2008**
-1099560	**0**	**1099560**	**2009**
-1854525	**0**	**1854525**	**2010**
-2674720	**0**	**2674720**	**2011**
-2643064	**0**	**2643064**	**2012**
-3084500	**0**	**3084500**	**2013**
-3025581	**0**	**3025581**	**2014**
-1059008	**0**	**1059008**	**2015**
-1720905	**0**	**1720905**	**2016**
-1164431	**0**	**1164431**	**2017**
-2783889	**0**	**2783889**	**2018**
-1636011	**0**	**1636011**	**2019**
-2103691	**0**	**2103691**	**2020**
-1247256	**5024**	**1252280**	highest value

-3024170	**60330**	**3084500**	lowest value
-200000	**0**	**200000**	average

Source: Republic of Iraq, Ministry of Planning, Central Statistical Organization. Commodity balances for the period (1990-2020).

The reality of importing and exporting rice crop in Iraq for the period (1990-2020)

Table (8) shows that rice imports are somewhat stable along the chain, as is the case with wheat imports, with a slight fluctuation that does not have a significant effect on the stability of the chain. The annual average of rice imports in Iraq was about 1.2 million tons during the period (1990-2020), The highest percentage of rice imports during this period was in 2013, when it amounted to 3,084,500 tons, while the lowest percentage of rice imports was about 200,000 tons in 1994. The reason for this increase in the imported quantities of rice may be the difficulty of cultivating rice in large areas commensurate with its water needs. Especially since rice needs large amounts of water and is often grown on the banks of rivers, and thus it is difficult to increase the cultivated areas or to significantly increase local production. There is another reason that led to the increase of the country's dependence on foreign imports of the rice crop, which is the diversification of consumers' tastes towards new and different types of rice that may not be grown in Iraq, such as (long grain, basmati, and others), especially after the years of the blockade and the country's opening up to the global market of all kinds. Hence the need to rely on rice imports to bridge the nutritional gap from it, especially since rice is one of the basic commodities of the Iraqi table and almost every house is devoid of this commodity. As for rice exports, they were also similar to wheat exports, where they were weak and non-existent in most of the study years. The annual average of rice exports on the study period (1990-2020) was about 5024 tons, and the highest rate recorded during this period was in the year 2000. amounted to about 60,330 tons, While the year 1998 recorded the lowest percentage of rice exports, amounting to about 270 tons, and this is in spite of the zero values in some years, which mean that there are no rice exports. The reason for this decline in rice exports may be due to the lack of self-sufficiency in domestic production of the rice crop, which led the country to depend on bridging the food gap from this crop on foreign imports, and therefore this means that the country is unable to meet its needs of domestic production, let alone export This crop.(Bruce ,2012),

Table (8) shows the reality of imports and exports of the rice crop for the period (1990-2020)

trade balance	Export quantity (tons(	Import quantity (tons(	Years
190000	**190000**	**0**	**1990**
20000	**20000**	**0**	**1991**
22000	**22000**	**0**	**1992**
10000	**10000**	**0**	**1993**
30000	**30000**	**0**	**1994**
40000	**40000**	**0**	**1995**

50000	**50000**	**0**	**1996**
90000	**90000**	**0**	**1997**
100000	**100000**	**0**	**1998**
30000	**30000**	**0**	**1999**
30000	**30000**	**0**	**2000**
4000	**4000**	**0**	**2001**
8000	**8000**	**0**	**2002**
5016	**5016**	**0**	**2003**
23485	**23485**	**0**	**2004**
149660	**149660**	**0**	**2005**
42776	**42776**	**0**	**2006**
221016	**221016**	**0**	**2007**
296642	**296642**	**0**	**2008**
198777	**198777**	**0**	**2009**
126731	**126731**	**0**	**2010**
138437	**138437**	**0**	**2011**
177498	**177498**	**0**	**2012**
144607	**144607**	**0**	**2013**
354052	**362492**	**8440**	**2014**
286351	**296979**	**10628**	**2015**
308133	**321661**	**13528**	**2016**
240804	**254751**	**13947**	**2017**
241531	**263457**	**21926**	**2018**
213321	**227321**	**14000**	**2019**
201784	**207946**	**6162**	**2020**
128858.7	**131717.80**	**2859.06**	highest value
340566	**362492**	**21926**	lowest value
4000	**4000**	**0**	average

Source: Republic of Iraq, Ministry of Planning, Central Statistical Organization. Commodity balances for the period (1990-2020)

The reality of importing and exporting dates in Iraq for the period (1990-2020)

Table (9) indicates that imports of dates are non-existent from the beginning of the series until 2014, when imports of dates start to rise directly in a remarkable manner. The annual average of imports of dates in Iraq was about 2.8 thousand tons during the period (1990-2020), and it was the highest percentage of imports of dates. During this period, it was in 2018, when it reached 21,926 tons, while the lowest percentage of imports of dates was about 6,162 tons in 2020, regardless of the zero values that mean that there is no import of dates at the beginning of the series. The reason

for this sudden increase in the imported quantities of dates may be the entry of new foreign cultivars of dates into the local Iraqi market in recent years, which has led to the divergence of consumer tastes towards these imported items, especially from Iran, Saudi Arabia and some neighboring countries, hence the need to adopt the country Ali for importing dates to meet the desire of the Iraqi local market for this commodity.As for date exports, they were relatively stable during most of the years of the study, and this stability reflects the comparative advantage that characterizes Iraq in the production of dates, and it is also considered a commodity that reflects something of the country's heritage.The annual average of Iraq's exports of dates on the period of time of the study (1990-2020) was about 1.3 hundred thousand tons, and the highest percentage recorded during this period was in 2014, amounting to about 362,492 tons, while the year 2001 recorded the lowest percentage of exports. Dates have reached about 4000 tons The table shows that the quantity of dates exports is high compared to the rest of the other food commodities exported by Iraq. This means that there is self-sufficiency in this commodity and there is a surplus in local production over the needs of the Iraqi market. However, Iraq needs agricultural and marketing support from the state to produce this commodity and marketing them locally and internationally in order to be a reason for obtaining hard currency and for Iraq to maintain the comparative advantage in the production of dates, as well as restrictions and customs duties must be imposed on the importer of dates so that the imported quantities do not affect the local production of dates and cause a decrease in its production and the diversion of hard currency outside the country from import route. (Fogarasi, 2011),

Table (9) shows the reality of imports and exports of dates for the period (1990-2020)

trade balance	Export quantity (tons(	Import quantity (tons(	Years
190000	**190000**	**0**	**1990**
20000	**20000**	**0**	**1991**
22000	**22000**	**0**	**1992**
10000	**10000**	**0**	**1993**
30000	**30000**	**0**	**1994**
40000	**40000**	**0**	**1995**
50000	**50000**	**0**	**1996**
90000	**90000**	**0**	**1997**
100000	**100000**	**0**	**1998**
30000	**30000**	**0**	**1999**
30000	**30000**	**0**	**2000**
4000	**4000**	**0**	**2001**
8000	**8000**	**0**	**2002**
5016	**5016**	**0**	**2003**
23485	**23485**	**0**	**2004**
149660	**149660**	**0**	**2005**
42776	**42776**	**0**	**2006**

221016	**221016**	**0**	**2007**
296642	**296642**	**0**	**2008**
198777	**198777**	**0**	**2009**
126731	**126731**	**0**	**2010**
138437	**138437**	**0**	**2011**
177498	**177498**	**0**	**2012**
144607	**144607**	**0**	**2013**
354052	**362492**	**8440**	**2014**
286351	**296979**	**10628**	**2015**
308133	**321661**	**13528**	**2016**
240804	**254751**	**13947**	**2017**
241531	**263457**	**21926**	**2018**
213321	**227321**	**14000**	**2019**
201784	**207946**	**6162**	**2020**
128858.7	**131717.80**	**2859.06**	**المتوسط**
340566	**362492**	**21926**	**أعلى قيمة**
4000	**4000**	**0**	**أدنى قيمة**

Source: - Ministry of Planning, Central Statistical Organization, Trade Statistics Directorate, commodity and food balance reports, years of study.
Food and Agriculture Organization of the United Nations (FAO).
Initial estimation of the autoregressive model for distributed slowing of wheat yield (ARDL).

After confirming the stability of the time series of the variables at the level and at the first difference, we make the initial estimate of the autoregressive distributed delay (ARDL) model using the Eviews12 statistical program, which automatically determines the optimal delay time according to the (AIC) criterion.We note from Table (16) that the value of the corrected determination coefficient for the Adjusted Wheat Imports function (R2) is equal to (0.81), meaning that the independent variables included in the estimated model explain about (81%) of the changes in the dependent variable. This is an indication that the explanatory factors have the greatest influence on the function, while the remaining (19%) are unexplained, i.e. the variables not included in the model are responsible for them and are represented by the random variable. The value of the (F) test calculated is equal to (16.84) and with a significant score equal to (0.000)which is less than (0.05) and even less than (0.01), and this means that the estimated model is significant as a whole and can be relied upon in the future planning and forecasting process. (Pesaran, et al 2001),

Table (12) Results of the initial estimate of the (ARDL) model for the wheat imports function.

Dependent Variable: Y
Method: ARDL
Date: 12/08/22 Time: 10:10
Sample (adjusted): 2 31
Included observations: 30 after adjustments
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evalulated: 192
Selected Model: ARDL(1, 0, 0, 0, 0, 1, 0)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Y(-1)	0.351627	0.130637	2.691642	0.0137
X1	-0.206070	0.066203	-3.112723	0.0053
X2	6.421754	1.934975	3.318778	0.0033
X3	-331.7316	216.1557	-1.534688	0.1398
X4	1.618281	0.499760	3.238117	0.0039
X5	519088.5	240448.8	2.158832	0.0426
X5(-1)	-537126.1	269709.4	-1.991499	0.0596
X6	0.887842	0.209472	4.238485	0.0004
C	441966.8	1276006.	0.346367	0.7325

R-squared	0.865148	Mean dependent var	1745548.
Adjusted R-squared	0.813776	S.D. dependent var	1101527.
S.E. of regression	475349.0	Akaike info criterion	29.22481
Sum squared resid	4.75E+12	Schwarz criterion	29.64517
Log likelihood	-429.3722	Hannan-Quinn criter.	29.35929
F-statistic	16.84085	Durbin-Watson stat	2.532749
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: prepared by the researcher based on the outputs of (Eviews12) program.

Initial estimation of the autoregressive rice distributed deceleration (ARDL) model.

After confirming the stability of the time series of the variables at the level and at the first difference, we make the initial estimate of the autoregressive distributed delay (ARDL) model using the Eviews12 statistical program, which automatically determines the optimal delay time according to the (AIC) criterion.We note from Table (17) that the value of the corrected determination coefficient for the Adjusted Rice Imports function (R2) is equal to (0.96), meaning that the independent variables included in the estimated model explain about (96%) of the changes in the dependent variable, and this is an indication that the explanatory factors are the same. the largest effect in the function,As for the remaining (4%), it is unexplained, the variables not included in the model and represented by the random variable are responsible for it. The value of the (F) test calculated is (65.82) with a significant score equal to (0.000), which is less than (0.05) and even less than (0.01). This means that the estimated model is moral as a whole and can be relied upon in the future planning and forecasting process.

Table (20) Results of the initial estimation of the (ARDL) model for the rice imports function.

Dependent Variable: Y
Method: ARDL
Date: 12/08/22 Time: 21:37
Sample (adjusted): 4 31
Included observations: 28 after adjustments
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): X1 X2 X3 X4 X5 X6
Fixed regressors: C
Number of models evalulated: 192
Selected Model: ARDL(3, 1, 1, 0, 0, 0, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Y(-1)	0.060571	0.122157	0.495848	0.6267
Y(-2)	0.542273	0.096417	5.624270	0.0000
Y(-3)	-0.352950	0.101440	-3.479394	0.0031
X1	-0.020064	0.003395	-5.908938	0.0000
X1(-1)	-0.009879	0.004418	-2.236266	0.0399
X2	385.7953	153.4051	2.514878	0.0230
X2(-1)	-736.9179	160.4606	-4.592516	0.0003
X3	-1985.084	481.5689	-4.122118	0.0008
X4	17412.31	22854.87	0.761864	0.4572
X5	0.288432	0.053462	5.395049	0.0001
X6	0.284413	0.138565	2.052557	0.0568
C	2357008.	506785.6	4.650898	0.0003

R-squared	0.978381	Mean dependent var	1318241.
Adjusted R-squared	0.963518	S.D. dependent var	866457.0
S.E. of regression	165494.9	Akaike info criterion	27.16880
Sum squared resid	4.38E+11	Schwarz criterion	27.73974
Log likelihood	-368.3631	Hannan-Quinn criter.	27.34334
F-statistic	65.82700	Durbin-Watson stat	2.400142
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: prepared by the researcher based on the outputs of (Eviews12) program.

Initial estimation of the autoregressive distributed lag (ARDL) model.

We note from Table (18) that the value of the corrected determination coefficient for the Adjusted Dates Export function (R2) is equal to (0.90), meaning that the independent variables included in the estimated model explain about (90%) of the changes in the dependent variable. This is an indication that the explanatory factors have the greatest influence on the function, while the remaining (10%) are unexplained,the variables not included in the model are responsible for them and are represented by the random variable. The value of the (F) test calculated is equal to (42.64) and with a significant score equal to (0.000). which is less than (0.05) and even less than (0.01), and this means that the estimated model is significant as a whole and can be relied upon in the future planning and forecasting process.

Table (28) Results of the initial estimation of the (ARDL) model for the function of dates exports.

Dependent Variable: Y
Method: ARDL
Date: 12/08/22 Time: 22:03
Sample (adjusted): 2 31
Included observations: 30 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (2 lags, automatic): X1 X2 X3 X4 X5
Fixed regressors: C
Number of models evalulated: 972
Selected Model: ARDL(1, 0, 0, 0, 0, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Y(-1)	0.193285	0.125616	1.538698	0.1381
X1	-0.622344	0.166094	-3.746943	0.0011
X2	7.232733	1.279092	5.654584	0.0000
X3	-0.004018	0.005855	-0.686415	0.4996
X4	-15612.66	5358.680	-2.913527	0.0081
X5	57.72832	28.07562	2.056173	0.0518
X5(-1)	-48.27661	26.09864	-1.849775	0.0778
C	219507.4	89765.83	2.445334	0.0229

R-squared	0.931361	Mean dependent var	129775.1
Adjusted R-squared	0.909522	S.D. dependent var	111696.6
S.E. of regression	33597.89	Akaike info criterion	23.90549
Sum squared resid	2.48E+10	Schwarz criterion	24.27914
Log likelihood	-350.5824	Hannan-Quinn criter.	24.02503
F-statistic	42.64556	Durbin-Watson stat	1.623211
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

Source: prepared by the researcher based on the outputs of (Eviews12) program.

The study concluded:

1. The results of the quantitative analysis are significant for each of the variables (gross agricultural output, domestic price, exchange rate, national income, population, and average per capita national income) in affecting the imported quantities of wheat crop in Iraq.
2. The results of the quantitative analysis also showed the significance of each of the variables (gross agricultural output, world price, domestic price, national income, population, and average per capita national income) in affecting the imported quantities of rice.
3. The results of the quantitative analysis showed the significance of each of the variables (border price, local price, population, average per capita national income, and exchange rate) in affecting the exported quantities of dates.

The study recommended:

1- The necessity of expanding the areas cultivated with wheat and rice and not relying on semi-arid agriculture only to cover the country's need for these crops and reducing the size of the food gap to the lowest possible extent in order to achieve self-sufficiency in these commodities instead of importing from abroad by providing all requirements for the production of these crops with good specifications. And sell them to farmers at affordable prices.

2- Activating the role of food industries for dates and canning them instead of importing manufactured dates from abroad.
3- The need for agricultural extension agencies to play their role by introducing farmers to modern production and agricultural methods and the use of modern agricultural methods by holding courses and seminars under the supervision of a competent and competent team.

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