

Economic Analysis of impact of Theinternational Marketing of Dates on Development of Agricultural Exports in Iraq

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Abstract: *This study attempts to analyze the function of Iraqi agricultural exports for the period 1990-2016 and to shows the effect of Iraqi date exports on it by using econometric analysis and trying to find out and explain the effect of some economic variables in the agricultural exports function during the target period. The study concluded that the agricultural product does not affect in agricultural exports, where the significance of the function is not determined. The new results show offer omitting the agricultural product that all the variables are statistical significance, this means that those independent variables (Iraqi dates exports, dinar exchange rate against US dollar, and the openness of trade of Iraq ,the study found that the exchange rate is one of the most important factors affecting agricultural exports and then dates exports. The coefficient of determinants was about 91%. The significance of the model as a whole was found at 1% through F test. The openness of trade abroad through trade agreements, the exchange rate and the increase in the value of date exports through the export of the varaites which wanted globallyhave a great impact on the development of agricultural exports, especially date exports. The study recommended to need to activate the institutional structures for export to supports efforts towards the goal of development trade openness are the most important variables affected the exports of Iraqi agricultural products.*

Key words: *Export of dates, Function of agricultural exports, Export development.*

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I. Introduction

International marketing allows the state to benefit from export advantages, which are mainly concentrated in obtaining foreign exchange, which is used to finance imports and to meet the balance of payments deficit. The balance of payments principle is therefore one of the most important principles governing international marketing activities and its contribution to achieving this balance. The marketing of agricultural products to the international market is an important means of developing exports and obtaining foreign exchange through increased exports, or by replacing local commodities resulting from the expansion of agricultural production in the place of agricultural imports, then improving the balance of payments. The exchange rate affects the local economy through the imbalance between supply and demand and then the severe shortage of foreign exchange which leads to an increase in the exchange rate (2). The effect of inflation is the effect of many factors such as the exchange rate, interest rate, wages, and standard of living (1). This leads to a decline in the prices of imported goods relative to their local counterparts (10). Believe that increased state exports and increased foreign exchange earnings can be used to repay external debt or increase the volume of foreign exchange reserves, which will have a positive impact on the exchange rate (8). There is a close relationship between exports and the exchange rate of the local currency of any country. The high value of exports leads to an increase in the demand for the local currency, leading to an increase in the value of the local currency (11). Iraq has long been one of the oldest palms growing and date production in the world (4). Dates are one of the most important national treasures besides natural resources and other resources in Iraq (6). Iraq depends on the oil producing to export its crude oil to finance its budget and to spend on its development and operational plans. In view of the economic crisis that Iraq is experiencing due to the low prices of crude oil globally and the fact that oil is depleted, the world is under pressure as it seeks about alternative sources of energy other than oil. This is what has been noticed in the light of Iraq's exposure to economic sanctions that have limited the importance of using this resource. Iraq's revenues from export dates are not commensurate with the volume of its exports, and Iraq still faces many problems in the export of dates, hence the problem of research, although Iraq is at the forefront of countries in the production of dates, but dates in Iraq are experiencing problems of productivity, marketing and export has affected the reality of the production of dates in Iraq, although Iraq is one of the largest contributors to the production of date palm fruits in the world and export it is supposed to lead to obtain reasonable returns from export. However, the reality is that the country's revenues from the export of dates palm fruits are not commensurate with the volume of exports of them, due to

the low prices for sale dates palm fruits abroad because of the low efficiency of marketing as well as unfair competition sometimes.

II. The Materials and Methods

The scientific vision in modern research and studies is based on the scientific method based on the study and analysis of the different factors and variables related to the research questions. Therefore, the descriptive approach and the method of reasoning will be used in both extrapolative and statistical methods and the quantitative analytical approach(5).

Specification of the proposed model of agricultural exports:

From the description of the model that represents the beginning of the standard work that identifies the problem to be studied and the factors that influence it and help in its interpretation, the logic of the economic theory and the previous applied studies depends on determining the relationship between the variables included in the model and the preconceptions about the signals and sizes of the estimated parameters. Evaluation of the results of the estimation, based on time series data for the period 1990 - 2016, which were analyzed by multiple regression and using Eviews program.

The work on increasing exports, including agricultural exports, generally leads to the encouragement and increase of domestic and foreign investment and the application of modern methods in agriculture and in the production of export commodities, which in turn leads to a large and continuous increase in the rate of agricultural growth, which leads to an increase in agricultural exports again because of the existence of a direct (causal) correlation between the rate of agricultural growth and agricultural exports. In terms of the specification of the agricultural export model, agricultural product is the most important variable for agricultural exports in addition to the exchange rate which plays a role In the total volume of exports in general and agricultural exports in particular, as the agricultural trade openness is an important role in increasing the total agricultural exports, including that one of the objectives of the study is to measure the impact of dates exports on the development and growth in agricultural exports that were introduced date exports in the model of agricultural exports.

Thus, the adopted form of the agricultural export function model takes the following formula:

$$AEX = f(ADP, Exchange, Tar, DEX)$$

Whereas:

AEX = Value of exports of agricultural commodities of Iraq (million Iraqidinars).

AGP: Agricultural product (million dinars).

Exchange: The official exchange rate of Iraqi dinar against US dollar.

Tar: Represents trade openness (the ratio of foreign trade to GDP).

DEX: Value of thedate exports of Iraq (million dinars).

The data obtained from the study were extended for the period from 1990 to 2016. The linear formula was used in several forms of estimation. The double logarithmic formula was one of the best models as it is considered the most suitable for the relationship adopted in the study because it is consistent with the statistical, econometric and economic tests on exports.

Table 1. Results of the Estimation of the Export Function of Agricultural Commodities of Iraq

| Dependent Variable: LOG(AEX) | | | | |
|------------------------------|-------------|-----------------------|-------------|--------|
| Method: Least Squares | | | | |
| Date: 05/29/18 Time: 02:14 | | | | |
| Sample: 1990 2016 | | | | |
| Included observations: 27 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 9.754112 | 7.462209 | 1.307135 | 0.2047 |
| LOG(AGDP) | -0.252010 | 0.947985 | -0.265837 | 0.7928 |
| LOG(DEX) | 0.231676 | 0.115490 | 2.006033 | 0.0573 |
| LOG(EXCHANGE) | 0.895852 | 0.154566 | 5.795919 | 0.0000 |
| LOG(TAR) | 0.116077 | 0.035103 | 3.306775 | 0.0032 |
| R-squared | 0.913456 | Mean dependent var | 16.60191 | |
| Adjusted R-squared | 0.897721 | S.D. dependent var | 2.055759 | |
| S.E. of regression | 0.657454 | Akaike info criterion | 2.164693 | |
| Sum squared resid | 9.509420 | Schwarz criterion | 2.404663 | |
| Log likelihood | -24.22336 | Hannan-Quinn criter. | 2.236049 | |
| F-statistic | 58.05157 | Durbin-Watson stat | 1.311596 | |
| Prob(F-statistic) | 0.000000 | | | |

Source: - From the researchers based on the outputs of the statistical program E-views 9.

As well as having verified the logic of the estimated transactions in terms of reference and size in accordance with economic standards, the role of statistical standards, the most important test coefficient of determination R^2 , which amounted to 0.91 this means that 91% of fluctuations in the value of agricultural exports due to the explanatory variables present in the model while only 9% are attributed to other variables not included in the model or fall within the random variable that absorbed the effect. The significance of the estimated parameters was confirmed by t test where the calculated value was greater than the tabulated at a significant level 5% except for the intercept parameter where the calculated value was less than the tabulated at 5% and that the value of the parameter is not different from zero. The significance of the variables included in the model, as confirmed by the second-order tests, was also shown by the F-test of the model as a whole by its calculated value 58, which exceeds its tabulated value at a significant level 1%. Most of the model coefficients of the value of exports of agricultural commodities to Iraq were consistent with the logic of economic theory. However, the intercept parameter and the agricultural product parameter did not prove their significance at the acceptable levels 1%, 5%. Its value in the model is outrageous is not different from zero because it is insignificant. The new model of the agricultural export function of Iraq was obtained as shown in table 2.

Table 2. Results of the estimation of the new agricultural export model

| Dependent Variable: LOG(AEX) | | | | |
|------------------------------|-------------|-----------------------|-------------|--------|
| Method: Least Squares | | | | |
| Date: 05/29/18 Time: 02:12 | | | | |
| Sample: 1990 2016 | | | | |
| Included observations: 27 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 7.797823 | 1.211758 | 6.435130 | 0.0000 |
| LOG(DEX) | 0.227193 | 0.111920 | 2.029963 | 0.0541 |
| LOG(EXCHANGE) | 0.880907 | 0.141040 | 6.245791 | 0.0000 |
| LOG(TAR) | 0.114520 | 0.033904 | 3.377746 | 0.0026 |
| R-squared | 0.913178 | Mean dependent var | 16.60191 | |
| Adjusted R-squared | 0.901854 | S.D. dependent var | 2.055759 | |
| S.E. of regression | 0.644035 | Akaike info criterion | 2.093826 | |
| Sum squared resid | 9.539966 | Schwarz criterion | 2.285802 | |
| Log likelihood | -24.26666 | Hannan-Quinn criter. | 2.150911 | |
| F-statistic | 80.63671 | Durbin-Watson stat | 1.288811 | |
| Prob(F-statistic) | 0.000000 | | | |

Source: - From the researchers based on the outputs of the statistical program E- views9.

The significance of the estimated parameters were determined by t test where the calculated value was greater than the tabulated at level 1 %. With the exception of the dates export parameter, its significance was determined at the level of 5%. It was also shown by the F test that significance of the model as a whole by its calculated value was 80, which exceeds its tabulated value at 1%, also 91% of the fluctuations in the value of the agricultural exports due to the explanatory variables in the model, while only 9% are attributed to other variables not included in the model or fall within the random variable that has absorbed their impact, we note that the deletion of agricultural product has not affected the morality of the function and the explanatory power of the model, its deletion has improved the significance of the intercept, and it was confirmed through the tests of the second degree that the estimated model is free of the existence of the problem of self-correlation between the residues (Auto Correlation) by testing the LM as shown in Table3 where the value of the statistical F equal to 1.6 at level 0.20, and the value of corresponding to it is equal to 3.7 at a level of significance 0.15, this means that the calculated value of it smaller than its tabulated value at the level of significance 5%, which means the absence of the problem of auto-correlation so we accept the null hypothesis, so it is not suffers from the problem of the existence of auto-correlation, as well as it was confirmed that there is no phenomenon of linear correlation multiple Independent variables (Multicollinearity) because the model is estimated by double logarithmic formula.

Table 3. LM test results for the new estimated model.

| Breusch-Godfrey Serial Correlation LM Test: | | | | |
|---|-------------|-----------------------|-------------|--------|
| F-statistic | 1.689795 | Prob. F(2,21) | 0.2087 | |
| Obs*R-squared | 3.742842 | Prob. Chi-Square(2) | 0.1539 | |
| Test Equation: Dependent Variable: RESID Method: Least Squares Date: 05/30/18 Time: 04:42 Sample: 1990 2016 Included observations: 27 Presample value lagged residuals set to zero. | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | -0.124711 | 1.312595 | -0.095011 | 0.9252 |
| LOG(DEX) | 0.010871 | 0.118066 | 0.092073 | 0.9275 |
| LOG(EXCHANGE) | -0.010332 | 0.143323 | -0.072089 | 0.9432 |
| LOG(TAR) | -0.004528 | 0.039112 | -0.115779 | 0.9089 |
| RESID(-1) | 0.367955 | 0.222055 | 1.657042 | 0.1124 |
| RESID(-2) | -0.236054 | 0.244328 | -0.966135 | 0.3450 |
| R-squared | 0.138624 | Mean dependent var | 2.28E-15 | |
| Adjusted R-squared | -0.066466 | S.D. dependent var | 0.605741 | |
| S.E. of regression | 0.625547 | Akaike info criterion | 2.092751 | |
| Sum squared resid | 8.217500 | Schwarz criterion | 2.380714 | |
| Log likelihood | -22.25213 | Hannan-Quinn criter. | 2.178377 | |
| F-statistic | 0.675918 | Durbin-Watson stat | 1.940948 | |
| Prob(F-statistic) | 0.646357 | | | |

Source: - From the researcher's based on the outputs of the statistical program.E-views9.

Via Using the BPG test it became clear that the errors were constant and that the model (9) was free from Hetero at level 1% and 5%. This means that the calculated F value is less than the nominal F and below the level of probability 0.39. The model does not suffer from the problem of Heteroscedasticity as shown in Table 4.

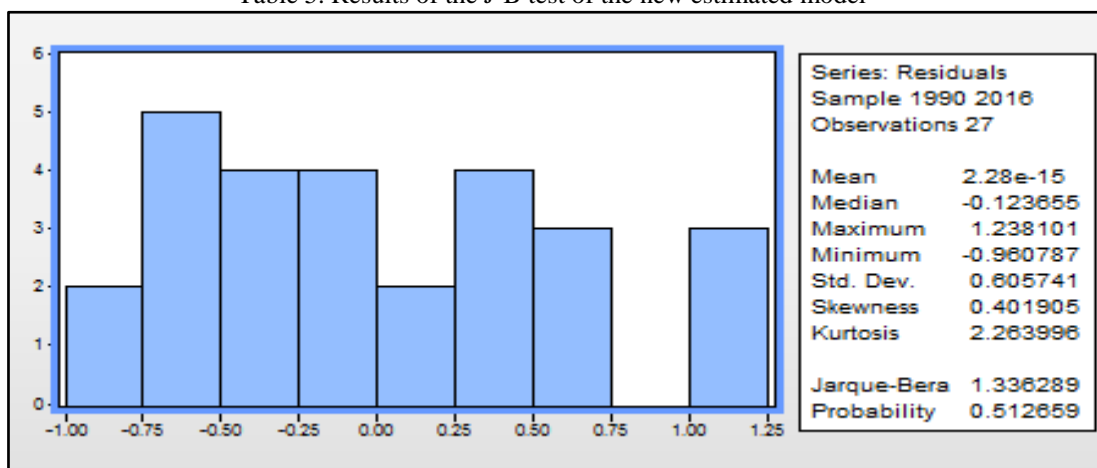
Table 4. BPG test results for the new estimated model

| Heteroskedasticity Test: Breusch-Pagan-Godfrey | | | | |
|--|-------------|-----------------------|-------------|--------|
| F-statistic | 1.038636 | Prob. F(3,23) | 0.3941 | |
| Obs*R-squared | 3.221391 | Prob. Chi-Square(3) | 0.3587 | |
| Scaled explained SS | 1.477363 | Prob. Chi-Square(3) | 0.6875 | |
| Test Equation: Dependent Variable: RESID^2 Method: Least Squares Date: 05/30/18 Time: 04:43 Sample: 1990 2016 Included observations: 27 | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| C | 1.675607 | 0.759962 | 2.204857 | 0.0377 |
| LOG(DEX) | -0.107878 | 0.070191 | -1.536917 | 0.1380 |
| LOG(EXCHANGE) | 0.074120 | 0.088454 | 0.837943 | 0.4107 |
| LOG(TAR) | 0.015357 | 0.021263 | 0.722250 | 0.4774 |
| R-squared | 0.119311 | Mean dependent var | 0.353332 | |
| Adjusted R-squared | 0.004438 | S.D. dependent var | 0.404810 | |
| S.E. of regression | 0.403911 | Akaike info criterion | 1.160707 | |
| Sum squared resid | 3.752307 | Schwarz criterion | 1.352683 | |
| Log likelihood | -11.66955 | Hannan-Quinn criter. | 1.217792 | |
| F-statistic | 1.038636 | Durbin-Watson stat | 2.765866 | |
| Prob(F-statistic) | 0.394116 | | | |

Source: - From the researchers based on the outputs of the statistical program E-views9.

It was also confirmed that the model is goodfitted and that the residuals are distributed normally according to the Jarque-Bera test, where P-Value 0.51 > 0.05. We accept the null hypothesis that the residuals are distributed normally as shown in Table (5).

Table 5. Results of the J-B test of the new estimated model



Source: - From the researchers based on the outputs of the statistical program E-views 9.

The validity of the model was tested by using the Ramsey reset test, which is one of the most important tests of the validity of the model, which is to know the suitability of the model in terms of the type of the shape of the duality of the selected model(7), and the null hypothesis of this test assumes that the function does not suffer from the problem of mis- specification, The value of the calculated F is about 2.6 at a significant level 0.11, which is greater than 5%. This means acceptance of null hypothesis and rejection of the alternative hypothesis. The model does not suffer from the wrong dialect problem, as shown in table 6.

Table 6. Ramsey reset results for the new estimated model

| Ramsey RESET Test | | | |
|---|------------|---------|--------------|
| Equation: EQ03 | | | |
| Specification: LOG(AEX) C LOG(DEX) LOG(EXCHANGE) LOG(TAR) | | | |
| Omitted Variables: Squares of fitted values | | | |
| t-statistic | Value | df | Probability |
| | 1.620601 | 22 | 0.1193 |
| F-statistic | 2.626348 | (1, 22) | 0.1193 |
| Likelihood ratio | 3.044911 | 1 | 0.0810 |
| F-test summary: | | | |
| | Sum of Sq. | df | Mean Squares |
| Test SSR | 1.017417 | 1 | 1.017417 |
| Restricted SSR | 9.539966 | 23 | 0.414781 |
| Unrestricted SSR | 8.522549 | 22 | 0.387389 |
| LR test summary: | | | |
| | Value | df | |
| Restricted LogL | -24.26666 | 23 | |
| Unrestricted LogL | -22.74420 | 22 | |

Source: - From the researchers based on the outputs of the statistical program E-views9.

Interpretation of the results of the model Intercept (β₀):

The coefficient of the intercept β₀ was estimated at 7.797, which represents the effect of the independent variables removed from the estimated model. The significance of these variables was determined at 1% according to T test, which represents the average logarithm of the value of agricultural exports of Iraq. The other variables that affect the value of agricultural exports of Iraq such as economic conditions and restrictions on agricultural trade and other variables that have not been introduced in the estimated model, that is, even if the values of all the independent variables where zero, and there will be agricultural exports up to 2,433,291 dinars. Parameter of datesexportsThe value of this variable in the model for time series data was0.22 it is a positive value and is consistent with the logic as dates are the most important export agricultural commodities. This parameter indicates that when the rest variables are fixed at the averages, the increase in date exports by 10% will lead to increase agricultural exports by 2.2%, it has been established at the level of 5% according to the t-test.

Exchange rate parameter:

The exchange rate parameter was about 0.88, i.e., the value of the exchange rate coefficient was a positive sign to confirm the positive relationship between the exchange rate and the volume of agricultural exports. It is identical to the economic logic. The lower the currency, the higher the exchange rate. and that the relationship is significant and this means that the parameter is different from zero, and Iraqi agricultural exports

depend on the exchange rate and affect the changes that take place in the exchange rate of the local currency, as the exchange rate increase by 10% will lead to increase agricultural exports by 8.8% because the exchange rate will increase competitive power of agricultural commodities and increasing the exchange rate will reduced the distortions occurring in the economy against the agricultural sector. The parameter of trade openness. The coefficient of trade openness reached 0.11 and it was a positive sign and that prove the positive relationship between trade openness and the growth of agricultural exports, which is identical to the economic logic, and this relationship is significant at the level

1%, that is, Iraqi agricultural exports depend on trade openness and 10% increase in trade openness will increase agricultural exports by 1.1%, because by increasing trade openness, the volume of trade exchange will increase, increasing the volume of demand for agricultural exports, which is an inevitable result of the exchange. Trade between countries 91% of the fluctuations in agricultural exports were caused by fluctuations in dates exports, exchange rates and trade openness. Only 9% of these fluctuations were due to other variables. Their effect was absorbed by the random factor, the significant of the model as a whole was determined by the F test at 1%. Based on the above, it can be concluded that the study indicates that the variables used in the analysis of the function of agricultural exports were highly significant, i.e., there is a strong causal relationship between agricultural exports, and date exports, exchange rate and trade openness. Based on the findings of the study, we recommend to measures development of the agricultural sector in general, and role of the cultivation and production of dates 'it, especially it is important agricultural commodities with a competitive advantage, and the development of date exports will lead to development of agricultural exports to Iraq.

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