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MEASURING EXPORTING TECHNICAL EFFICIENCY FOR THE MAIN EGYPTIAN AGRICULTURAL EXPORTS TO ARAB COUNTRIES

K. S. T. Mahmoud and H. M. F. Elshenawy
Department of Agricultural Economics Faculty of Agriculture Menoufia University
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ABSTRACT: ***The research paper intended mainly to estimate exporting technical efficiency (ETE) for main Egyptian agricultural exports to Arab countries during the period 1991-2004. Statistical analysis in this paper depended on using program of Stochastic Frontier Curves Ver. 4.1. Two of most important results in this paper are:***

- ***The ETE for the main Egyptian agricultural exports to Arab countries was less than 50% and estimated at about 33%, 49%, 35% and 26% for oranges, potatoes, onion and rice respectively.***
- ***The effect of GAFTA treaty on the ETE of such agricultural exports to Arab countries was found to be statistically insignificant.***

Key Words: ***Technical Efficiency – Allocative Efficiency – Economic Efficiency – Stochastic Frontier Curves – GAFTA – AOAD – FAO –AMF.***

INTRODUCTION

Egyptian agricultural exports to Arab countries represent an important part of total Egyptian agricultural exports. The average value of Egyptian agricultural exports to Arab countries is estimated at about 183 million US$ during the period 1991-2004, which represents about 33% of total Egyptian agricultural exports. Exports of rice, potatoes, onion and oranges are the main agricultural exports to Arab countries during the period 1991-2004. The average value of these exports represents about US$ 88 million representing nearly 53% of the total value of agricultural exports to Arab countries.

Research Problem:

The relative importance of Egyptian exports of rice, onions, potatoes and oranges to Arab countries represents about 33%, 6%,5%, and 9% respectively of the total value of Egyptian agricultural exports to Arab countries during the period 1991-2004. Comparison between the relative importance of these products in the structure of agricultural exports to Arab countries before and after implementation of GAFTA* treaty indicates that

* **GAFTA means Greater Arab Free Trade Area, which signed by 18 of Arab Countries in 1998. It aims at eliminating of trade barriers between GAFTA member Countries by gradually lowering customs duties on the imports by 10% each year started in**

relative importance for rice, onion and oranges increased from 32%, 6%, 6% to reach about 34%, 10% and 13% respectively, whereas the relative importance for potatoes decreased from 6% to 3%. This variation in value of Egyptian agricultural exports to Arab countries show the need to measure the ETE for main Egyptian agricultural exports to Arab countries during the period 1991-2004.

Research Objectives

The research aims mainly at:

- **Measuring the ETE for main Egyptian agricultural exports to Arab countries.**
- **Examining the influence of GAFTA treaty on ETE for main Egyptian agricultural exports to Arab countries.**
- **Estimating the effect of the main factors expected to have an influence on the quantity of main Egyptian agricultural exports to Arab countries.**

Methodology

- **Stochastic Frontier Analysis Ver 4.1 will be utilized to estimate the ETE for main Egyptian agricultural exports to main Arab partners.**
- **Stochastic Frontier Analysis Ver 4.1 will be utilized to study the influence of GAFTA treaty on the ETE for such studied agricultural exports to Arab countries.**
- **Stochastic Frontier Analysis Ver 4.1 will be used to estimate the effect of the main factors expected to have an influence on quantity of Egyptian agricultural exports to Arab countries.**

The variables, which are included in the analysis, are as follows: Y_{ijkt} , X_{jt} , X_{it} , R_{jt} , R_{it} , P_{wkt} , P_{ijkt} , Q_{iJkt} and Q_{iWkt} Where:

Y_{ijkt} is quantity of Egyptian exports of commodity k to importer Arab country j during the period t (1991-2004) in tones.

X_{jt} is per capita agricultural product for importer Arab country j during the period t in thousands US$.

X_{it} is per capita Egyptian agricultural product during the period t in thousands US$.

R_{jt} is exchange rate for the importer Arab country j (number of monetary units of local currency/ 1US$).

R_{it} is exchange rate for Egypt (number of monetary units of local currency/ 1US$).

P_{wkt} is world price of commodity k during the period t in thousands US$.

January,1998, to reach zero tariff by early 2005 after doubling the annual tariff reduction to become 20% in 2004 and 2005 (AMF,2003) .

P_{ijkt} is Egyptian export price of commodity k to importer Arab country j during the period t in thousands US$.
Q_{iJkt} is total quantity of Egyptian exports of commodity k to other importer Arab countries J during the period t in tones.
Q_{iWkt} is total quantity of Egyptian exports of commodity k to non importer Arab countries during the period t in tones.

Meaning of Technical Efficiency

Coelli (Coelli, T.J., 1996) illustrated the concept of technical efficiency through a simple example involving firms which use two inputs (X_1, X_2) to produce a single output (Y), under assumption of constant returns to scale*. The unit isoquant of the fully efficient firm represented by SS/ as depicted in figure (1).

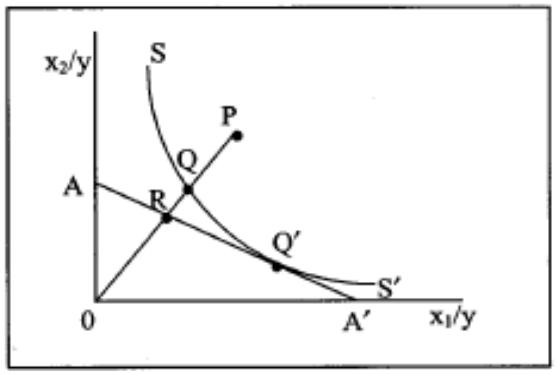

Figure 1: Technical and Allocative Efficiencies

If a given firm uses quantities of inputs, defined by the point P, to produce a unit of output, the technical inefficiency of that firm could be represented by the distance QP, which is the amount by which all inputs could be proportionally reduced without a reduction in output. This is usually expressed by the ratio QP/OP. The technical efficiency of a firm is most commonly measured by the ratio: TE= OQ/OP, which is equal to one minus QP/OP. It will take a value between zero and one. A value of one indicates that the firm is fully technically efficient. For example, the point Q is technically efficient because it lies on the efficient isoquant. If the input price ratio, represented by the line AA/ in figure 1, is also known, allocative

* The constant returns to scale assumption allows one to represent the technology using a unit isoquant.

efficiency may also be calculated. The allocative efficiency (AE) of the firm operating at P is defined to be the ratio: AE=OR/OQ.

Since the distance RQ represents the reduction in production costs that would occur if production were to occur at allocatively (and technically) efficient point $Q^{/}$, instead of at the technically efficient, but allocatively inefficient, point Q. The Total economic efficiency (EE) is defined to be the ratio: EE= OR/OP. Note that the product of technical and allocative efficiency provides the overall economic efficiency:
TE X AE = (OQ/OP) X (OR/OQ) = (OR/OP).

Stochastic Model Specification

A stochastic frontier, is defined as, a function that represents the maximum level of the dependent variable that can be obtained with the same level of inputs and technology. The model, which is described by Coelli (1996) and used in that paper for analyzing and estimating the TE in exporting main Egyptian agricultural crops to Arab countries, could be summarized as follows:

$$y_{it} = x_{it}\beta + (v_{it} - u_{it}) \qquad \text{.....(1)}$$

$$i = 1,2,...,N \qquad ,t = 1,2,...,T$$

Where:

y_{it} **is the logarithm of the production of the i-th firm in the t-th time period;**

x_{it} **is (k x 1) vector of input quantities of the i-th firm in the t-th time period;**

β **is a vector of unknown parameters;**

v_{it} **are random variables which are assumed to be iid N (** $0, \sigma_v^2$ **) and independent of** $u_{it} = (u_i e^{(-\eta(t-T))})$**, where** u_i **are non-negative random variables which are assumed to account for technical inefficiency in production and are assumed to be iid as truncations at zero of the N (**μ, σ_u^2**) distribution;**

η **is a parameter to be estimated.**

First of all, it is very important to test if the technical inefficiency error term is significant or not, through testing the significance of γ **parameter where** $\gamma = \sigma_u^2 / (\sigma_v^2 + \sigma_u^2)$ **. The null hypothesis H0:** γ **= 0 against the alternative hypothesis H1:** $\gamma \neq 0$ **should be tested. If the null hypothesis that** γ **equal**

zero is accepted, this would indicate that σ_u^2 is zero and hence that the u_{it} term should be removed from the model, leaving a specification with parameters that can be consistently estimated using ordinary least squares (OLS). If the null hypothesis that γ equal zero is rejected, it implies that the technical inefficiency error term u_{it} is significant and the Maximum Likelihood estimates are the best. Distribution of technical inefficiency error term u_{it} could be tested through testing the null hypothesis H0: u_{it} is distributed as half normal against the alternative hypothesis H1: u_{it} is distributed as truncated and then if it is distributed as time-invariant or time-variant which means that the null hypothesis H0: u_{it} is distributed as time-invariant against the alternative hypothesis H1: u_{it} is distributed as time-variant should be also tested. By comparing calculated and tabulated log Likelihood function∗, the right decision could be taken. Log Cobb-Douglas function (log dependant and explanatory variables) is used for estimating the effects of explanatory variables on the dependant variable.

Sources of Data:

The data analyzed in this paper, are collected from the following sources:

- **Arab Organization for Agricultural Development (AOAD), Statistics Yearbook, different Volumes.**
- **Web site of Arab Monetary Fund (AMF)**
- **Web site of Arab Organization for Agricultural Development.**
- **Web site of Food and Agriculture Organization (FAO).**

RESULTS AND DISCUSSION

First: Significance of technical inefficiency error term

Table (1) shows that, Gamma (γ) is highly significant for all studied exports. According to the significance of Gamma (γ), the technical inefficiency error term should be studied as a separate part of the random error term. On the other hand, estimates of Stochastic Frontier method are better than the estimates of OLS method.

∗ ***LR= 2[LR (H₁) – LR (H₀)]*;**
Where: *LR* (H_1) = log likelihood function under H_1 and LR (H_0) = log likelihood function under H_0 (There are four tables, included as appendix)

Table (1): Maximum Likelihood Estimates of Cobb-Douglas Stochastic Frontier for Egyptian agricultural exports to Arab countries (1991-2004)

Specification of Coefficients	Estimated Coefficients of Stochastic Frontier			
	orange	potatoes	onion	Rice
	Value of Coefficient	Value of Coefficient	Value of Coefficient	Value of Coefficient
α: Constant	(-3.97)	33.9**	17.3*	(3.20)
β_1: Coefficient of X_{jt}	(-0.27)	(0.20)	(0.30)	(-0.02)
β_2: Coefficient of X_{it}	2.96**	-2.76**	(-1.4)	1.91**
β_3: Coefficient of R_{jt}	(-0.86)	(-0.04)	(-0.07)	(-0.06)
β_4: Coefficient of R_{it}	(-0.16)	-2.30**	-3.09*	-2.21*
β_5: Coefficient of P_{wkt}	(-0.07)	2.14*	-3.69*	(0.32)
β_6: Coefficient of P_{ijkt}	(0.66)	-0.81**	(-0.08)	(0.50)
β_7: Coefficient of Q_{Jkt}	(0.19)	-1.49**	-1.13**	(-0.20)
β_8: Coefficient of Q_{iWkt}	(-0.20)	(0.15)	(-0.16)	(-0.15)
Gamma (γ) $\gamma = \sigma_u^2 / (\sigma_v^2 + \sigma_u^2)$	0.80**	0.71**	0.60**	0.83**
Mean of technical efficiency	0.33	0.49	0.35	0.26

** Significant at 1%
* Significant at 5%
( ) Insignificant at 5%

Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Second: Distribution of Technical Inefficiency Error Term

The results in table (2) show that technical inefficiency error term is distributed as a half normal and time-invariant. This means that the technical inefficiency error term does not vary significantly from year to year during the period of study.

Table (2): Distribution of Technical Inefficiency Error Term and Its Relation to The Time Variable.

Crop	Distribution of inefficiency error term	Relationship between inefficiency error term and the time
orange	Half Normal	Time invariant
potatoes	Half Normal	Time invariant
onion	Half Normal	Time invariant
Rice	Half Normal	Time invariant

Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Third: ETE for The Main Egyptian Agricultural Exports to Arab Countries

Table (3) shows that ETE for oranges ranges from a minimum of about 10% for Qatar to a maximum of about 68% for Oman. The mean of ETE is estimated at about 33%, which means that the quantity of Egyptian exports of oranges could be increased by about 67% with the same level of inputs (possibilities available to export) and the same level of technology.

The results show also that ETE for Potatoes ranges from a minimum of about 4% for Qatar to a maximum of about 77% for Kuwait. The mean of TE estimated at about 49%, which means that the quantity of Egyptian potatoes exports could be increased at about 51% with the same level of inputs and technology.

Analysis of onion exports shows that ETE ranges from a minimum of about 5% for Qatar to a maximum of about 73% for Saudi Arabia. The mean of TE estimated at about 35%, which means that the quantity of Egyptian onion exports to Arab countries could be increased by about 65% with the same possibilities available for exporting and the same technology.

The analysis show also that ETE for rice ranges from a minimum of about 0.6% for Qatar to a maximum of about 78% for Syrian. The mean of ETE is estimated at about 26%, it represents an increase of about 74% in quantity of Egyptian rice exports which may be consider as a potential increase at the same level of resources and technology.

Table (3): Mean of ETE for Main Egyptian Agricultural Exports (1991-2004).

Rice		Onion		Potatoes		Oranges	
Main Importer Arab countries	Efficiency (%)	Main Importer Arab countries	Efficiency (%)	Main Importer Arab countries	Efficiency (%)	Main Importer Arab countries	Efficiency (%)
Syrian	٧٨	Saudi	73	Kuwait	77	Oman	68
Libyan	44	Kuwait	71	Lebanon	٦٨	Saudi	67
Jordan	35	Lebanon	46	Oman	50	Kuwait	19
Sudan	٣٤	Oman	19	Saudi	47	Qatar	10
Saudi	٢٠	Jordan	18	Qatar	4		
Lebanon	١٨	Bahrain	9				
Kuwait	2	Qatar	5				
Oman	١						
Qatar	٠.٦						

Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Fourth: The Effect of GAFTA Treaty on ETE for Main Egyptian Agricultural Crops to Main Importer Arab Countries

The technical inefficiency error term as presented in table (2) is distributes as a half normal and time-invariant. It means that the technical inefficiency error term does not vary significantly from year to year during the period of study. Over and above, this result proofs the impact of GAFTA treaty on ETE of such exports to Arab countries is insignificant. The absence of GAFTA's effect on ETE may be attributed to (AMF, 2003):

- **Elements of executive program of GAFTA are not applied or only partially applied.**
- **Some Arab countries are still applying non-tariff barriers not subject to the 10% annual reduction as stipulated in the executive program. Non tariff barriers include administrative, monetary or quota restrictions.**
- **The detailed norms of origin for Arab goods are not completed or applied till now.**
- **Six of Arab countries(*), which belong to the Least Developed Countries (according to the United Nations classification) started to apply the program of tariff reduction in January, 2005 by gradually lowering the tariffs on their imports by 20% each year to reach zero tariffs by year 2010.**
- **Palestine is considered as a special case. The Arab summit held in Baurit 2001, granted full tariff exemption for Palestinian exports to other Arab countries, while Palestinian imports from Arab countries were excluded from tariff exemption.**
- **Six countries, Jordan, Tunisia, Syria, Lebanon, Egypt and Morocco, were granted some exceptions for a number of their imports from applying the annual tariff reduction (these exceptions should not apply after September 16, 2002).**

Fifth: Effect of Explanatory Variables

The effects of main explanatory variables on the quantity of Egyptian agricultural exports to Arab countries could be presented as follows:

Egyptian Oranges Exports:

The Quantity of Egyptian oranges exports to Arab countries Y_{ijkt} is positively and significantly affected by per capita Egyptian agricultural product X_{it}, whereas the effects of other explanatory variables are insignificant.

(*) Djibouti, Somalia, Comoros Islands, Sudan, Mauritania and Yemen.

Egyptian Potatoes Exports:

- **The Quantity of potatoes exports Y_{ijkt} is negatively and significantly affected by per capita Egyptian agricultural product X_{it} , Egyptian exchange rate R_{it} , Egyptian export price to Arab countries P_{ijkt} and total quantity of Egyptian exports to other importer Arab countries Q_{iJkt} . The signs of coefficients of these independent variables are compatible with the economic Logic.**
- **The effect of world price P_{wkt} is highly significant and positive, which is not compatible with the economic Logic.**
- **The effects of per capita agricultural product for importer Arab countries X_{jt}, exchange rate for importer Arab countries R_{jt} and total quantity of Egyptian potatoes exports to non Arab countries are insignificant.**

Egyptian Onion Exports:

The Quantity of Egyptian onion exports to Arab countries is affected by Egyptian exchange rate R_{it} , world price P_{wkt} and total quantity of Egyptian onion exports to other Arab countries Q_{iJkt} . The effect is significant and negative. This is compatible with the economic Logic. But the effects of the other explanatory variables on the Egyptian exports are insignificant.

Egyptian Rice Exports:

The Quantity of rice exports Y_{ijkt} is positively and significantly affected by per capita Egyptian agricultural product X_{it}. The effect of Egyptian exchange rate R_{it} is significant and negative, which coincides with the economic Logic. The effects of the other explanatory variables on this argument are insignificant.

Summary and Conclusion:

The value of Egyptian agricultural exports to Arab countries represents an important part of total Egyptian agricultural exports with a relative importance estimated at about 33% during the period 1991-2004. Egyptian exports of rice, onions, potatoes and oranges are considered the main Egyptian agricultural exports to Arab countries with relative importance estimated at 33%, 6%, 5% and 9% respectively of total value of Egyptian agricultural exports to Arab countries (1991-2004).

Stochastic Frontier Analysis Ver. 4.1 is used to estimate the ETE for main Egyptian agricultural exports to Arab countries. The analysis intends also to estimate the impacts of the main factors expected to affect the quantity of Egyptian agricultural exports to Arab countries (1991-2004).

The results show the following:

- **The estimates of Stochastic Frontier method are better than the estimates of OLS method.**

- **The technical inefficiency error term distributes as a half normal and time invariant in each case of the four studied Egyptian agricultural exports (1991-2004).**
- **The ETE for main Egyptian agricultural exports to Arab countries are less than 50% and estimated at 33%, 40%, 35% and 26% for oranges, potatoes, onions and rice respectively during the period of study.**
- **The GAFTA treaty affects the ETE insignificantly.**
- **The effects of the main explanatory variables expected to affect the quantity of main Egyptian agricultural exports to Arab countries were summarized in table (1):**

Recommendations

For enhancing the ETE for main Egyptian agricultural exports to Arab countries the research paper suggests the following recommendations:

- **Carrying out detailed studies for discovering the main factors causing the decline of ETE.**
- **Applying the technique of Stochastic Frontier Curves on the level of exporting Institutions.**

For facilitating the flow of Egyptian Arab trade, the following recommendations may be proposed:

- **Increasing the productivity of the agricultural crops, through implementation of new technologies in agriculture, to increase the agricultural exports.**
- **Promoting and enhancing the role of non-governmental organizations in developing the agricultural production and activating the flow of intra-Arab trade, through enhancing their role in decision making.**
- **Increasing the funds allocated to the scientific research especially in agriculture.**
- **Specialization of enterprises in the Arab countries on regional basis (in accordance with the comparative advantage and division of labor) will help their economies to be complementary to each other and as a result the flow of intra-Arab trade will increase.**
- **Harmonization of Arab economic policies.**
- **Encouragement of processing especially for the agricultural products to benefit from the value added resulting from processing and not reliance completely on exporting of raw materials.**
- **The creation of a positive investment environment to encourage the investment of Arab and international capital in the Arab world (through financial and bank services, infrastructure development, legislations and technology up-grading).**
- **Cooperation should not be restricted within exemption of tariffs, but it should focus on stimulating capital mobilization and labor transfer among Arab countries.**

- **All Arab countries should replace their strategy from import replacement and self-sufficiency to export promotion and economic liberalization.**
- **Strengthening the role of the private sector and giving free rein to the rules of the market, taking into consideration the role of the government in supervising the economic activities.**
- **Setting and full application norms of origin offer the possibility of developing intra-industry trade.**
- **Removal of non-tariff barriers.**
- **Respect for GAFTA's decisions by individual Arab countries and adoption of the necessary legislatives and administrative measures for the application of the program.**

APPENDIX

Table (A1): Distribution of technical inefficiency error term for orange during the time period (1991-2004)

Results of analysis for testing truncated against half normal distribution of technical inefficiency error term		
Type of technical inefficiency error term distribution	Alternative Hypothesis Truncated/Time-invariant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-1.18E+02	-1.18E+02
Calculated LR	4.66E-02	
Primary decision	Technical efficiency error term distributed as a half normal (Null hypothesis accepted).	
Results of analysis for testing the distribution of technical inefficiency error term with the time		
Relationship between the distribution of technical inefficiency error term and the time	Alternative Hypothesis Half normal /Time-variant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-1.18E+02	-1.18E+02
Calculated LR	1.52E+00	
Final decision	Technical efficiency error term distributed as a half normal and time-invariant (Alternative hypothesis accepted).	

Tabulated LR at level of Significance 5% and 2 degrees of freedom = 5.138
Tabulated LR at level of Significance 5% and 2 degrees of freedom = 8.273
** **Significant at 1%**
* **Significant at 5%**
( ) **Insignificant at 5%**

Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Table (A2): Distribution of technical efficiency error term for potatoes during the time period (1991-2004)

Results of analysis for testing truncated against half normal distribution of technical inefficiency error term		
Type of technical inefficiency error term distribution	**Alternative Hypothesis Truncated/Time-invariant**	**Null Hypothesis Half normal/Time-invariant**
Log-Likelihood function	**-1.00E+02**	**-1.01E+02**
Calculated LR	**1.06E+00**	
Primary decision	**Technical efficiency error term distributed as a half normal (Null hypothesis accepted).**	
Results of analysis for testing the distribution of technical inefficiency error term with the time		
Relationship between the distribution of technical inefficiency error term and the time	**Alternative Hypothesis Half normal /Time-variant**	**Null Hypothesis Half normal/Time-invariant**
Log-Likelihood function	**-1.00E+02**	**-1.01E+02**
Calculated LR	**9.10E-01**	
Final decision	**Technical efficiency error term distributed as a half normal and time-invariant (Alternative hypothesis accepted).**	

Tabulated LR at level of Significance 5% and 2 degrees of freedom = 5.138
Tabulated LR at level of Significance 5% and 2 degrees of freedom = 8.273
****Significant at 1%**
*** Significant at 5%**
( ) Insignificant at 5%
Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Table (A3): Distribution of technical efficiency error term for onion during the time period (1991-2004)

Results of analysis for testing truncated against half normal distribution of technical inefficiency error term		
Type of technical inefficiency error term distribution	Alternative Hypothesis Truncated/Time-invariant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-1.80E+02	1.80E+02
Calculated LR	-7.21E+02	
Primary decision	Technical efficiency error term distributed as a half normal (Null hypothesis accepted).	
Results of analysis for testing the distribution of technical inefficiency error term with the time		
Relationship between the distribution of technical inefficiency error term and the time	Alternative Hypothesis Half normal /Time-variant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-1.80E+02	1.80E+02
Calculated LR	-7.21E+02	
Final decision	Technical efficiency error term distributed as a half normal and time-invariant (Alternative hypothesis accepted).	

Tabulated LR at level of Significance 5% and 2 degrees of freedom = 5.138
Tabulated LR at level of Significance 5% and 2 degrees of freedom = 8.273
****Significant at 1%**
*** Significant at 5%**
( ) Insignificant at 5%
Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

Table (A4): Distribution of technical efficiency error term for Rice during the time period (1991-2004)

Results of analysis for testing truncated against half normal distribution of technical inefficiency error term		
Type of technical inefficiency error term distribution	Alternative Hypothesis Truncated/Time-invariant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-2.22E+02	-2.22E+02
Calculated LR	1.74E-03	
Primary decision	Technical efficiency error term distributed as a half normal (Null hypothesis accepted).	
Results of analysis for testing the distribution of technical inefficiency error term with the time		
Relationship between the distribution of technical inefficiency error term and the time	Alternative Hypothesis Half normal /Time-variant	Null Hypothesis Half normal/Time-invariant
Log-Likelihood function	-2.22E+02	-2.22E+02
Calculated LR	2.46E-02	
Final decision	Technical efficiency error term distributed as a half normal and time-invariant (Alternative hypothesis accepted).	

Tabulated LR at level of Significance 5% and 2 degrees of freedom = 5.138
Tabulated LR at level of Significance 5% and 2 degrees of freedom = 8.273
** **Significant at 1%**
* **Significant at 5%**
( ) **Insignificant at 5%**
Source: Analysis results obtained through applying program of FRONTIER (Version 4.1c).

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قياس الكفاءة الفنية التصديرية لأهم الصادرات الزراعية المصرية الى الدول العربية

خالد صلاح الدين طه محمود ، حسين محمد فوزى الشناوى

قسم الاقتصاد الزراعى – كلية الزراعة– جامعة المنوفية

الملخص العربى

استهدف البحث بصفة أساسية تقدير الكفاءة الفنية التصديرية لأهم الصادرات الزراعية المصرية الى الدول العربية خلال الفترة ١٩٩١-٢٠٠٤. وأعتمد التحليل الإحصائى المستخدم فى هذا البحث على تطبيق برنامج الدوال الحدودية Stochastic Frontier Curves Ver. 4.1. ، وكانت أهم النتائج البحثية التى تم التوصل اليها تتمثل فى تدنى كفاءة عمليات التصدير لأهم الصادرات الزراعية المصرية الى الدول العربية ، حيث قدرت تلك الكفاءة بأقل من ٥٠% ، وبلغت فى المتوسط حوالى ٣٣% ، ٤٩% ، ٣٥% ، ٢٦% للصادرات المصرية من البرتقال ،البطاطس ، البصل والأرز على الترتيب. كما تم التوصل الى أن تأثير اتفاقية منطقة التجارة الحرة العربية الكبرى على الكفاءة الفنية التصديرية لأهم الصادرات الزراعية المصرية الى الدول العربية كان غير معنوى. ويشتمل البحث على توصيات من أهمها أن يتم إجراء دراسات تفصيلية لإستكشاف الأسباب الرئيسية التى تؤدى الى إنخفاض الكفاءة الفنية التصديرية لأهم الصادرات الزراعية المصرية الى الدول العربية، على أن تجرى تلك الدراسات على مستوى الهيئات والشركات التصديرية المصرية وليس على المستوى القومى فحسب.