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The Effect of the Labor and Capital Components on the Production of the Agricultural Sector in Jordan Using the Cobb-Douglas Production Function

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Abstract

The goal of mixing the four production elements: land, capital, labor, and organization is to achieve the most significant production at the lowest cost [1]; it can be said that work and capital are among the essential elements in the production process. Therefore, combining these two elements is one of the most critical decisions that determine productivity, especially in the Cobb-Douglas function; the agricultural sector is one of the productive sectors in each country. The percentage of its participation in the local product varies from country to country. Still, the strategic importance in this sector is due to the verified food security. The agricultural sector in Jordan is less involved in the local production, but it is the sector that is witnessing growth in all stages of the study; although this sector is suffering from marginalization, it still produces. The study focused on the intensity of the production elements and the yield stage in increasing or decrease reliability. The researchers reached some results: the agricultural sector in Jordan suffers from sluggish employment and persuasive unemployment, and the agricultural sector in Jordan is in decline. Therefore, they recommended restructuring workers in the agricultural sector and taking careful employment studies.

Keywords: Labor; Capital; Cobb-Douglas; Agricultural sector.

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1. Introduction

Jordan is one of the third world countries that seek to advance in its economic fields, and the most important of these areas is the agricultural sector, which is considered the traditional sector in the path of development.

The agricultural sector also works to preserve natural resources such as land, water and vegetation, which contributes to achieving ecological balance, preserving biodiversity, reversing the process of desertification and securing the conditions for sustainable development. Agriculture is the main user of treated wastewater within the terms of technical, health and environmental safety [2].

There is a gap between those who believe in state-led approaches and those who believe in market-led approaches [3] to promote agriculture.

In this study, we tried to access digital facts to know the productive factors that increase or decrease agricultural production and how we can expect production in the coming years by focusing on the labor and capital component and how to benefit from mixing these elements in proportion to the agricultural reality in Jordan and benefit from its characteristics and comparative advantage in low wages for the labor force.

The survival of farmers on their lands and adherence to work in agriculture because it increases unemployment rates and the number of years of the family stays in the area (years in the village) significantly affects technical efficiency and economic efficiency [4].

Like the rest of the third world countries, the capital in Jordan suffers from a lack of availability, so labor intensity was characteristic of this sector.

1.1. The Importance of the Research

The importance of the research lies in clarifying the concept of production and factors of production for the agricultural sector in Jordan in light of the difficult economic conditions in these circumstances and the critical stage and the search for a product renaissance in financial aspects in all sectors represented by economies of scale, which is the least costly and the technical and distributive in terms of performance [5].

Concerning the small size of the Jordanian economy, the agricultural sector represents a strategic dimension in food security in light of the inflamed conditions in neighboring countries militarily and the existence of the COVID-19 Pandemic.

1.2. Research Problem

The research problem lies in answering the following questions:

1. Is the production of the agricultural sector in Jordan in the stage of increasing yields?
2. Does the used employment represent productive efficiency?
3. Are the allocations for investment in this sector sufficient?
4. Can the future production volume of this sector be predicted?

1.3. Research Methodology

The current research aims to identify the effect of the labor and capital components on the production of the agricultural sector in Jordan by using the Cobb-Douglas production function**.** The method that will be used in this research is based on the two following aspects:

1.3.1. Descriptive Approach

1.3.2. Standardized Approach

The descriptive approach is based on subtracting tables and numbers on the elements of production and production in Jordan from 2008 to the end of 2016 by using the EXCEL program, which including some graphs to clarify and take the necessary indicators. While in the standard method, we used EVIEWS 10 program to analyze data by the least-squares and the tests needed to reach the multiple linear regression equation for the Cobb-Douglas function and find the factors of the function.

1.4. Research Hypotheses

The research is based mainly on two hypotheses which can be formulated as follows:

1.4.1. The First Hypothesis:

H0: production at the stage of increasing returns if $\alpha + {}_{\beta} > 1$ at the significance level of (0.05).

H1: production at the declining or stable stage of yield if $\alpha + {}_{\beta} \leq 1$ at the significance level of (0.05).

1.4.2. The Second Hypothesis:

H0: density productivity of workers if $\left| \alpha / (_{\beta}) \right| > 1$ at the significance level of (0.05).

H1: the productive intensity of capital if $\left| \alpha / (_{\beta}) \right| \geq 1$ at the significance level of (0.05).

2. Previous Studies

Many studies have been conducted on the subject of labor and capital components on the agricultural sector's production, but the majority of those studies are conducted out of the Jordanian environment.

The study of Shehata [6] entitled the role of technological change in Egypt's demand for agricultural labor. The study examined the role of technological development in demand for agricultural employment and the nature of the relationship between work and capital in the Egyptian agricultural sector (1985-2004), and the possibility of convincing unemployment in the agricultural sector. The study concluded that there is efficiency in using the labor component and that the technology is used extensively for agricultural labor, which helps in replacing the labor component with the capital component. Also, there is no convincing unemployment in the agricultural sector. The study recommended the use of non-intensive technological methods in the use of the capital component.

Hamdan [7], in a study entitled estimating the production function in the Palestinian economy. The study used the Cobb-Douglas production function to estimate the flexibility of production in the Palestinian economy, focusing on the labor component, capital component, and density. The study found that the elasticity of production for labor reached (0.53), while the capital component's elasticity was (0.63). As a result, the study recommended developing strategic plans to train workers and increase research and employment development.

Hamid [8], entitled the contribution of technical education to development, a case study of the production function in the Sudanese agricultural sector, the study aimed to build an economic model for the contribution of technical education to economic development and human resource development in Sudan through the application of the Cobb - Douglas function and by using independent elements of work and education outcomes, the rate of rainfall and agricultural areas, while the dependent factor was production. The study concluded that the independent variables are not significant in the function, but agricultural lands are associated with a negative relationship with production, which is not expected, but it justifies this.

Al-Gharabawi [9], entitled the impact of human capital on economic growth in Palestine, the study aims to highlight the role of human capital in the Palestinian financial growth period (2000-2012); the study found that 40% of the change in the local product is due to the work component and the study evidence is the importance of government spending on education and the development of productive efficiency. Therefore, the study recommended the attention and development of technical education in capital investment for the technical human element.

Thiabat [10], entitled reclamation of agricultural land and its impact on exports and the number of workers in the agricultural sector in Jordan. The study was based on building the effect of agricultural land reclamation on both the labor and exports component of the agricultural economy in Jordan; the study found that increasing the agricultural area will create new job opportunities and an increase in exports. Furthermore, theIn addition, the study recommended reducing the arrival of foreign workers in the sector and finding a legal framework to permit them to work; it also recommended supporting the Agricultural Credit Fund to provide working capital and requesting the study with direct support from the state treasury for the agricultural sector.

3. Theoretical Background

Descriptive statistics are numerical and mathematical methods for gathering, abbreviating, and presenting information in tables and drawings [11].

The Jordanian economy is considered one of the economies of the promising countries in the region because of the support for direct investment by creating an appropriate climate for that, as the population of Jordan, according to statistics of 2018, is (10309) million, and the total area is (89,318) km, the population density is (116.1) while the unemployment rate is (18.6). Moreover, the average wage is 700 dollars, and the gross domestic product (GDP) is 29984 million dinars, whereas the growth rate of the gross domestic product (GDP) at current prices (3.70%) is presented in the table 1.

Table-1. Jordanian electronic government (Jordan in Figures 2018)

Jordan Figures	
Area	89.318 km^2
Population	10309 million
Population density	116.1
Unemployment rate	18.6
Average wages	700 dollars
Gross domestic product at current prices	42231 million dollars
GDP growth rate at current prices	3.70%

Source: Jordan Department of Statistics.

Although the various sectors operate in varying degrees, the agricultural sector consists of agriculture, forestry, and fishing. This study will focus on the labor component and the capital component as the two most essential elements affected by production according to the Cobb-Douglas production function.

Table-2. Gross Domestic Product at current prices by sectors from 2008 to 2016

Participation rate	**Gross domestic product at current prices**		**GDP at the current prices of the agricultural sector**		
%	Million dollars	Million dinars	Million dollars	Million dinars	Year
0.034	22191.549	15756	745.07	529	2008
0.038	23943.662	17000	908.45	645	2009
0.042	26519.718	18829	1109.86	788	2010
0.041	28907.042	20524	1184.51	841	2011
0.039	30935.211	21964	1195.77	849	2012
0.042	33616.901	23868	1412.68	1003	2013
0.046	36050.704	25596	1673.24	1188	2014
0.051	37922.535	26925	1939.44	1377	2015
0.052	39197.183	27830	2056.34	1460	2016

Source: Department of Statistics, National Accounts, Annual Estimates
Fourth revision (ISICY) from 2008 to 2016
Dinar = 1 dollar * 0.71 *.

The gross domestic product at current prices depends on final goods and services [12]. Table 2 indicates that the gross domestic product increased at the current prices since 2008 when it reached (22191.549) million US dollars in 2016 and reached (39197.183) million US dollars in continuous increases every year. Likewise, the gross domestic product of the agricultural sector was 529 million US dollars in 2008 and increased to 1460 dollars in 2016, and with constant growth every year, the percentage of the agricultural sector's production of the gross output was a few percentages, so it was (0.034%) at its lowest level and (0.052%) at its highest level.

Table-3. Fixed capital formation by sectors, 2008 to 2016

Participation rate	Gross fixed capital formation.		The capital formation of the agricultural sector		
%	Million dollars	Million dinars	Million dollars	Million dinars	Year
0.013	6221.13	4417	83.10	59	2008
0.011	6573.24	4667	70.42	50	2009
0.008	7297.18	5181	57.75	41	2010
0.007	7319.72	5197	53.52	38	2011
0.009	6705.63	4761	63.38	45	2012
0.011	6712.68	4766	76.06	54	2013
0.012	7139.44	5069	87.32	62	2014
0.012	7342.25	5213	85.92	61	2015
0.020	6967.61	4947	140.85	100	2016

Source: Department of Statistics, National Accounts, Annual Estimates Fourth revision (ISICY) from 2008 to 2016 1 dinar = 1 dollar * 0.71 *.

Stored capital is a raw material and final product necessary for regular operation [13]. Table 3 indicates an increase in the total fixed capital formation from 2008 when it reached (6221.13) million dollars, an increase to 2012 that decreased to (6705.63) million US dollars. It increased to 2015 and reached (7342.25) million dollars in 2016; it decreased again and reached (6967.61) million dollars with variable increases every year. As for the agricultural sector's fixed capital formation, we suffered from continuous changes in each period, reaching the lowest level in 2011, and it reached (38) million US dollars. The highest level reached in 2016 when it reached (100) million US dollars; the percentage of the capital formation of the agricultural sector for the total capital formation was small, which was (0.007%) at its lowest level in 2011 and (0.02%) at its highest level in 2016.

Table-4. Number of employees by sector from 2008 to 2016

	Jordanian workers in the agricultural sector/worker			Total number of Jordanian workers/workers			Ratio
Year	Male	Female	Total	Male	Female	Total	%
2008	27109	2824	29933	991990	180711	1172701	0.026
2009	30467	3636	34103	1024529	195991	1220520	0.028
2010	22977	2038	25015	1033015	202933	1235948	0.020
2011	20280	1492	21772	1041263	209708	1250971	0.017
2012	23769	2003	25772	1056003	212090	1268093	0.020
2013	24032	1191	25223	1065317	197318	1262635	0.020
2014	22559	1012	23571	1088865	197823	1286688	0.018
2015	22548	1719	24267	1173730	224300	1398030	0.017
2016	25375	1353	26728	1177245	229395	1406640	0.019

Source: Department of Statistics, Reports and Analytical Summaries /work Analytical reports from 2008 to 2016.

Table 4 indicates that the number of Jordanian workers in 2008 reached (1172701) and rose to (1262635) in 2012 and then decreased to (1262635) in 2013, then the increase in the year 2016, when it reached (1406640), while the workers in the agricultural sector, the number fluctuated between the years of the study, reaching the lowest level in 2011, when it reached (21772). While 2009 was at the highest level, reaching (26728), as for gender, workers in the agricultural sector have always had a higher percentage of males than females at work. In 2009 it was the most increased female employment, as the number was (3636), as for the lowest level in 2014, which is reached (1012).

Table-5. Agricultural production, labor, and capital from 2008 to 2016

	Number of workers (L)	Capital used (K)	Agricultural Sector Production (Q)
Worker	Million dollars	Million dollars	Year
2008	745.07	83.10	29933
2009	908.45	70.42	34103
2010	1109.86	57.75	25015
2011	1184.51	53.52	21772
2012	1195.77	63.38	25772
2013	1412.68	76.06	25223
2014	1673.24	87.32	23571
2015	1939.44	85.92	24267
2016	2056.34	140.85	26728

Table 5 is extracted from tables 2, 3, and 4, where production, labor, and capital were entered in one table to enter data for analysis.

3.1. Output and Production Components*

Production is the sum of goods and services provided by workers during a time expressed in cash amounts, which represent the produced quantities; the result is calculated either in total, averages, or margins, as follows:

Total Product = Quantities TP = Q

Average output = total Product / number of Laborers TP / L

Marginal output = change in the total Product/change in the number of laborers Δ TP / ΔL

The elements of production are four:

Land, capital, labor, organization

The mathematician Cobb and economist Douglas in 1929 came to the production function called the Cobb-Douglas function, which links the mixing of production and production elements and takes the following formula:

$Q = C (K\alpha. L_{\beta})$

Where

Q represents the total product T.P

C represents the Constant limit

K represents the capital

L represents labor

α represents capital elasticity = ΔQ / ΔK

$_{\beta}$ represents work elasticity = ΔQ / ΔL

4. Discussion of the Research Results

To discuss the research results, we convert the function to the logarithmic, linear formula for standard case analysis Log (Q) = Log C + α Log (K) + β Log (L), and we enter it into EVIEWS 10 in the following formula in the long run, LQ = C + αLK + βLL, then we enter the equation in the algorithmic formula by adding E, which is the error coefficient in the short run as follows:

Log (Q) = Log C + α Log (K) + β Log (L) + E

And we enter it into EVIEWS 10 in the following formula in the short term:

LQ = C + αLK + βLL + E

According to the law of diminishing returns, an increase in one of the production elements initially leads to an increase in production yield, and if the increase continues, we reach yield stability. If the increase continues, we reach a decrease in yields [14], and we explain that by:

β + α> 1 Yields are increasing

β + α <1, yield is decreasing

β + α = 1 yield is stable

Also, the elements of production differ in their intensity and their participation in the production.

If α / ($_{\beta}$)> 1, we say the labor intensity is the largest

If α / ($_{\beta}$) <1, we say the capital intensity is the largest

4.1. Standard Model

According to the application of the standard model, we tested the following research hypotheses:

4.1.1. The First Hypothesis

H0: production is in the stage of increasing yield. If $\alpha +_{\beta} > 1$ is at level of significance (0.05).

H1: production is in the stage of diminishing or steady yield if $\alpha + _{\beta} \leq 1$ is at a level of significance (0.05).

4.1.2. The Second Hypothesis

H0: productive density of workers. If $|\alpha / (_{\beta})| > 1$ at a significance level (0.05)

H1: capital production density. If $|\alpha / (_{\beta})| \geq 1$ is at a significance level of (0.05)

Where the least-squares found the estimated regression equation

We find the estimated regression equation by Least Squares.

Table-6. Test of regression equation by least squares

The Dependent Variable: LQ
The method used: Least Squares.
Date of test: 12/18/20 Time of test: 22:54
The Sample: 2008-2016
Included observations: 9

Variable	Coefficient	Standard Error	t-Statistic	Probability.
LL	-1.715721	0.526514	-3.258641	0.0173
LK	0.821015	0.244806	3.353741	0.0153
C	21.04564	5.246473	4.011388	0.0070
R-squared	0.752415	Mean dependent var		7.163937
Adjusted R-squared	0.669887	S.D. dependent var		0.339026
S.E. of regression	0.194789	Akaike info criterion		-0.172598
Sum squared resid	0.227656	Schwarz criterion		-0.106857
Log-likelihood	3.776692	Hannan-Quinn criteria.		-0.314468
F-statistic	9.117074	Durbin-Watson stat		2.016450
Prob(F-statistic)	0.015176			

a: program eviews10.

From table 6 we have the following results:

- H0: statistically significant at (0 > 0.05)
- H1: statistically significant at (0 > 0.05)
- F-statistic is less than (0.05); that is, there is a statistically significant significance, so 70% of the output change is related to the independent factor l and independent factor k.
- The independent variable is less than (0.05), so it is statistically significant, and the null hypothesis is accepted.
- The Prob. of (LK) is less than (0.05), so ((LK) is statistically significant, and the null theory is accepted.
- The Prob. of (c) is less than (0.05), so (c) is statistically significant, and the null theory is accepted.

So, the estimated long-run regression equation will be as follow:
(LQ = -1.71572105004 * LL + 0.821015406644 * LK + 21.0456381724)
The ADF test is performed to test the stability of the time series.

Table-7. The test Results of Unit Root (ADF)

UNIT ROOT TEST RESULTS (ADF)				
Null hypothesis: the variable has a unit root				
	At Level			
		LL	LK	LQ
With Constant	t-Statistic	-7.0280	0.1846	-1.1581
	Prob.	***0.0012***	***0.9501***	***0.6338***
		***	n0	n0
With Constant & Trend	t-Statistic	-4.2609	-3.8853	-5.6777
	Prob.	***0.0609***	***0.0259***	***0.0167***
		*	**	**
Without Constant & Trend	t-Statistic	-0.2754	0.8271	4.7495
	Prob.	***0.5547***	***0.8694***	***0.9996***
		n0	n0	n0
	At First Difference			
		d(LL)	d(LK)	d(LQ)
With Constant	t-Statistic	-4.4954	-5.8460	-4.1765
	Prob.	***0.0182***	***0.0395***	***0.0251***
		**	**	**
With Constant & Trend	t-Statistic	-8.2217	-2.5245	-3.4787
	Prob.	***0.0056***	***0.3227***	***0.1470***
		***	n0	n0
Without Constant & Trend	t-Statistic	-5.6359	-0.7947	-1.3438
	Prob.	***0.0004***	***0.3361***	***0.1516***
		***	n0	n0

Notes:
a: (*) Significant at the 10%; (**) Significant at the 5%; (***) Significant at the 1% and (no) Not Significant.
b: Lag Length based on SIC.
c: Probability-based on MacKinnon (1996) one-sided p-values.
d: program eviews10.

According to the results from table 7, we note that the chains are at a stable level. Moreover, in the ADF test, we tested the stability of the remaining and find the roots of the unit and symbolize the remaining by symbol (e) according to the following table:

Table-8. The Unit Root Test Results (ADF)

	At Level	
		E
With Constant	t-Statistic	-7.3545
	Prob.	***0.0005***
		***
With Constant & Trend	t-Statistic	-5.4195
	Prob.	***0.0210***
		**
Without Constant & Trend	t-Statistic	-6.7278
	Prob.	***0.0001***
		***
	At First Difference	
		d(E)
With Constant	t-Statistic	-6.1433
	Prob.	***0.0042***
		***
With Constant & Trend	t-Statistic	-5.0790
	Prob.	***0.0404***
		**
Without Constant & Trend	t-Statistic	-6.1835
	Prob.	***0.0002***
		***

Notes:
b: Lag Length based on SIC.
d: program eviews10.

4.2. Error Correction Form

We add the error correction factor as an independent variable to the model to find the estimated regression equation in the short term.

Table-9. Error Correction Form

Dependent Variable: LQ
The method used: Least Squares.
Date of test: 12/18/20 Time of test: 23:12.
Sample (adjusted): 2009 2016.
Included observations: 8 after adjustments

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	19.24546	1.437911	13.38432	0.0002
LL	-1.555471	0.145095	-10.72033	0.0004
LK	0.855335	0.053154	16.09164	0.0001
E(E-1)	1.052318	0.251302	4.187469	0.0138
R-squared	0.987728	Mean dependent var.		7.232745
Adjusted R-squared	0.978524	S.D. dependent var.		0.287509
S.E. of regression	0.042133	Akaike info criterion		-3.189111
Sum squared resid	0.007101	Schwarz criterion		-3.149390
Log-likelihood	16.75644	Hannan-Quinn criteria.		-3.457011
F-statistic	107.3170	Durbin-Watson stat		3.252002
Prob(F-statistic)	0.000281			

a: program eviews10.

From table 9, we note the following results:
Null hypothesis H0: the variable has significant significance if Prob. > 0.05.

- Alternative hypothesis H1: the variable has no significant significance if Prob. > 0.05.
- The Prob. (F-statistic) (0.000281) is less than the level of significance (0.05); that is, there is a significant significance for F-statistic, and we assume the non-assumption, meaning that 99% of the change in production is due to the independent factor l and the independent factor k.
- The Prob. of the independent variable (0.0004) (l l) is less than the level of significance (0.05), meaning that there is a significant significance for me (l l), and we assume in the null hypothesis.
- The Prob. of the independent variable (0.0001) (l k) is less than the significance level (0.05), meaning that there is a significant significance for me (l k), and we accept the null hypothesis.

- The Prob. of the independent variable (0.0002) (c) is less than the significance level (0.05), which means that there is a significant significance for me (c), then we accept the null hypothesis.
- The Prob. of the independent variable (0.0138) (e) is less than the significance level (0.05), which means that there is a significant significance for (e) if the estimated regression equation after correction is for the short term.

(LQ = 19.2454586477 - 1.55547075028 * LL + 0.855334615803 * LK + 1.05231847813 * E) E-1

Contrast difference test we do this test with a quiz: Breusch-Pagan-Godfrey.

Table-10. Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey				
F-statistic	4.755560	Prob. F (3,4)		0.0830
Obs*R-squared	6.248177	Prob. Chi-Square (3)		0.1001
Scaled explained SS	0.434368	Prob. Chi-Square (3)		0.9331
Test Equation:				
Dependent Variable: RESID^2				
The method used: Least Squares.				
Date of test: 12/18/20. Time: 23:35.				
Sample period: 2009-2016.				
Included observations: 8				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.018574	0.014950	1.242395	0.2820
LL	-0.000964	0.001509	-0.639332	0.5574
LK	-0.001789	0.000553	-3.236531	0.0318
E(E-1)	-0.002203	0.002613	-0.843304	0.4465
R-squared	0.781022	Mean dependent var.		0.000888
Adjusted R-squared	0.616789	S.D. dependent var.		0.000708
S.E. of regression	0.000438	Akaike info criterion		-12.32159
Sum squared resid	7.68E-07	Schwarz criterion		-12.28187
Log-likelihood	53.28637	Hannan-Quinn criteria.		-12.58949
F-statistic	4.755560	Durbin-Watson stat		2.506504
Prob(F-statistic)	0.083050			

a: program eviews10.

Table 10 indicates the following results:

- Null hypothesis H0: the presence of heterogeneity in the error variance Prob.> 0.05.
- Alternative hypothesis H1: No homogeneity in error variance Prob.> 0.05.

We note that the probability value is equal to (0.0830), which is greater than the significance level of (0.05); therefore, we accept the null hypothesis, which means that the error variance is homogeneous.

Self-test and done by Breusch-Godfrey.

Table-11. Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	3.677096	Prob. F (2,2)		0.2138
Obs*R-squared	6.289537	Prob. Chi-Square (2)		0.0431
Test Equation:				
Dependent Variable: RESID				
The method used: Least Squares test.				
Date of test: 12/18/20 Time of test: 23:42.				
Sample period: 2009-2016.				
Included observations: 8				
Pre sample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.477560	0.994380	0.480260	0.6784
LL	-0.057824	0.100807	-0.573613	0.6241
LK	0.025669	0.036079	0.711469	0.5506
E(E-1)	-0.037319	0.185803	-0.200851	0.8594
RESID (-1)	-1.291544	0.483891	-2.669081	0.1164
RESID (-2)	-0.703765	0.508385	-1.384314	0.3005
R-squared	0.786192	Mean dependent var.		1.89E-15
Adjusted R-squared	0.251672	S.D. dependent var.		0.031850
S.E. of regression	0.027552	Akaike info criterion		-4.231788

Sum squared resid	0.001518	Schwarz criterion	-4.172207
Log-likelihood	22.92715	Hannan-Quinn criteria.	-4.633639
F-statistic	1.470838	Durbin-Watson stat	1.624434
Prob. (F-statistic)	0.451948		

a: program eviews10

From table 11, we note the following results:

- Null hypothesis H0: there is a Prob. correlation > 0.05
- Alternative hypothesis H1: no Prob. correlation> 0.05

Moreover, from table 11, we note that the value of Prob. F is equal to (0.2138), greater than the significance level of (0.05). Therefore, we accept hypothesis H0, which means that there is a second-degree correlation, which does not affect relations if it is found because it does not appear in the great integration.

4.3. Economic Analysis

From the estimated regression equation

(LQ = 19.2454586477 - 1.55547075028 * LL + 0.855334615803 * LK + 1.05231847813 * E (E-1))

The value of the α & $_{\beta}$ variables is as follows:

-1.55547075028 = α

0.855334615803 = $_{\beta}$

We notice that the labor factor is a negative signal, and this is evidence that the work component has exceeded the steady-state of the marginal product, but the marginal product has become negative in the sense that the increase in the employment of workers harms production.

4.4. Hypothesis Testing

The first hypothesis: Note that $\alpha + _{\beta} = 1$> -0.7001361344 = -1.55547075028 + 0. 855334615803.According to the first hypothesis, we reject the null hypothesis and accept the alternative hypothesis, which means that production in the agricultural sector is in a critical stage of yield.

The second hypothesis: $\left| \right. = \alpha / (_{\beta})$ Note that $\left| \right.$

$\left|-1.55547075028 \setminus 0.855334615803\right| = 1.81855232$. According to the second hypothesis, we accept the null hypothesis and reject the alternative hypothesis, which means that the density was for the work element.

5. Findings and Recommendations

From the Discussion of the research results, the researchers reached the following findings and recommendations:

5.1. Findings

1. The agricultural sector in Jordan suffers from sluggish employment and persuasive unemployment.
2. The agricultural sector in Jordan is in decline.
3. The capital intensity used in the Jordanian agricultural sector is less than the needed level.
4. The limited agricultural lands in Jordan

5.2. Recommendations

1. We recommend restructuring workers in the agricultural sector and taking careful employment studies.
2. We recommend not accepting agricultural work permits for foreign workers.
3. We recommend attracting investments to the agricultural sector to exploit the available labor and reclaim agricultural land.
4. We recommend developing employment competencies in the agricultural sector based on a knowledge economy and creating technical disciplines in universities related to the agricultural sector.
5. We recommend that attention be paid to technological development in the agricultural field and new patterns and intensive technologies for the capital component.

6. Conclusion

In conclusion, we must use scientific and analytical methods in looking at the agricultural sector like the rest of the other sectors, especially since the agricultural sector, Jordan, despite the challenges it faces, is able to supplement the gross domestic product and absorb the unemployed if the government plays a serious role in controlling the foreign labor market in this sector, removing distortions caused by unlicensed workers and decreasing yields as a result, in addition to taking advantage of the climatic environment of agricultural areas and using technology to increase production to reach the optimum output and working with maximum productivity within the available production elements. The peculiarity of Jordan's increase in population due to successive migrations resulting from the circumstances of neighboring countries was one of the important reasons that led to the labor intensity and its impact on the decrease in yields.

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