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Estimation the Cost function in long-run derived from the Cobb Douglas production function and estimating the resources demand function and the output supply function for Calves fattening projects in Baghdad Governorate

ABSTRACT

Despite the seriousness individual attempts made by some breeders to develop and improve methods of breeding and fattening to reduce costs, but most breeders follow the traditional methods of breeding and fattening their livestock, and this is what prompted me to do this study, A questionnaire for a sample of (100) breeders in Mahmoudia district (case study) for the year 2021, the study aimed to derive the cost function in long-run from the output of Cobb-Douglas production function, as well as deriving the supply function from the cost function in long-run derived from the Cobb-Douglas production function, and derivation the supply function From the production function estimated for Calves fattening projects, in addition to deriving the two demand functions for labor and capital Resources which use in the production process of Calves fattening projects, The cost function in long-run was estimated, and the results of the study showed that the demand for labor and capital in Calves fattening projects was up to (160.7) man /day for labor and (12,776.874) thousand dinars for capital. The displayed quantity of production is about (4040.77) kg, the study recommends the necessity of providing feed, especially concentrated feed, in the necessary quantities and qualities during different seasons by providing hybrid fodder crops such as fodder corn to obtain the desired weight gain.

INTRODUCTION

Red meat is of particular importance among the items of consumption, because it contains basic nutrients of great importance in human life, and human societies tend to increase what is available to them for consumption of red meat to cover the increasing demand for it by consumers through the so-called food security policy, which aims at societies Mankind is on its way to providing the largest possible amount of this demand now and in the future.

In general, Iraq, which has most of the ingredients for the success of animal production projects, but suffers from a clear shortage in the production of the various items of this vital sector, most animal products, especially red meat, which is considered one of the most important The goods that enter the Iraqi consumer basket are provided by importing from outside the country to fill the deficit in their production, so it is important to study and analyze the behavior of the production units of calves fattening projects to identify the possibilities of increasing and improving production as well as identifying the problems and obstacles that prevent the development of this important sector In order for us to be able to influence and overcome them with the available capabilities, foremost of which are production costs, especially the variable costs, through supporting production requirements, optimizing the production capacities of the producing fields, and coordinating and linking the complementary rings to them to stimulate and increase the activity

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of projects producing calves meat, and work to create a balance between the supply of domestic production and demand for it, and the reduction of imports, which burdens the budget of country is already tired, so work must be done to reduce the costs of the production process, through the use of modern technologies to reduce costs and maximize profit.

Research problem:

The research problem lies in the inability of red meat production in Iraq to meet the increasing needs, as well as the continuous rise in its prices and the prices of alternative products, which led to resorting to foreign markets, whether in the form of processed meat or live animals to bridge the growing gap between local production On the one hand, and its consumption on the other hand, which requires studying the causes and factors that led to an increase in the size of the gap between them instead of reducing it.

Research importance:

The importance of the research lies in the economic importance of the red meat production sector in general and beef in particular, as the red meat production sector is one of the most important agricultural sectors responsible for providing animal protein to humans, and Iraq is one of the countries that suffer from a low average per capita share of animal protein, And that the increase in demand for it in recent times, the low level of production and the high consumption of it on the Iraqi table, all these reasons necessitate that we study the reasons for the decrease in production, the most important of which is the high value of costs that are the subject of our research.

Research Hypothesis:

The research assumes that the majority of breeders in calves fattening projects in the province of Baghdad do not reach the optimum volumes of production, in addition to their inability to approach the optimal level of production that achieves the level of full use of resources, and the reason for this is due to the high costs of the production process, and therefore methods can be used More efficient in reducing costs and maximizing profits.

Research goals:

The research aims to estimate a number of economic functions derived from the production function of Cobb Douglas for calves fattening projects in Baghdad Governorate for the year 2021, including the Cost function in long time, the supply function derived from the Cost function in long time, the supply function derived from the production function of calves fattening projects, And the function of the demand for labor and capital suppliers in calves fattening projects .

Data collection:

In order to achieve the objectives of the research, two methods of data collection were adopted, the first of which is the primary (sectional) data using a questionnaire prepared for this purpose for a sample of (100) breeders distributed over the study area in the district of Mahmoudia in Baghdad governorate, and the second is secondary (library) data, which was obtained, from books, theses, letters, journals, and relevant scientific and research websites.

Previous studies:

Previous studies are considered a knowledge asset that contributes to defining research methods, approaches and analytical tools because of their great importance in the knowledge and information they provide necessary to reach the facts, standards, methods used, achieved results, and how Its interpretation, and from these studies and research that could be obtained in this regard, , in the year 2015 (Al-Shatla and others) was able to complete a study entitled "The economics of fattening livestock production in the New Valley Governorate". Factors that affect the achievement of economic efficiency in its production, and one of the other objectives of the study is to estimate the marginal rate of technological replacement for the feed used in nutrition with the aim of maximizing returns and minimizing costs to encourage producers and investors to invest in this area to narrow the food gap on the red beards in the New Valley Governorate, the data were collected by means of a questionnaire distributed to cattle breeders in the Dakhla Center, and descriptive and quantitative statistical methods were used to achieve the objectives of the study.

One of this study in the year 2018, (Ekowati & et al) conducted a study entitled (Factors affecting production and economic efficiency of beef farms in Grobogan district in Central Java), the study

aimed to analyze the agricultural business sub-system at the level of the family farm to analyze factors affecting production and economic efficiency of farms Beef, the survey method was used in four districts in Grobogan, and from each district two villages were taken for the purpose of obtaining data from the respondents, the total number of the respondents were (80) breeders, and an average of (20) respondents from each village, the data were analyzed descriptively under the agribusiness system approach, multiple linear regression and economic efficiency. The results of the research showed that the agricultural business sub-system was in a medium to good condition. The results also showed that the influencing factors are (breed, fodder, concentrated feed, health care, reproduction, work, year of breeding and implementation of farm business), the value of reproductive efficiency was (8.975) higher than one, but it was not effective, as well as the efficiency values of farm size, concentrated feed, health and employment (0.352, 0.128, 0.0184, 0.0235, 0.0843), respectively, and all Less than one was not effective.

Also in 2019, (Achmad F. & et al) conducted a study entitled (Factors Affecting the Profit Analysis of Small Holdings of Cattle Breeders in the Special Region of Yogyakarta). The study aimed to analyze the factors that affected the profits of small farmers from privately owned cattle breeders. (Self-owned) and those dependent on the partnership system, where smallholder farmers in Indonesia mostly maintain small farms for fattening cows. The study was conducted in four districts in Yogyakarta region, and a sample of 240 breeders (120 self- and 120 partnership breeders) was taken. The results of the analysis showed that the factors that negatively affected the profits of smallholder cow breeders are the cost of extinction for barns and equipment, The price of fattening calves, the price of feed, the price of concentrated feed and rented labor, and the added value of the above five variables tends to decrease in the profits obtained by farmers, while the factors that positively affected are the number of cows, the production system, the type of cows and the ownership system of cows. In 2020, publish Alsyied an econometric study of the productive and economic efficiency of red meat production farms in Ismailia Governorate for the year 2019, the research was based mainly on the primary data of a stratified random sample consisting of (100) farms. In achieving its objectives, the research relied on the method of descriptive and quantitative economic analysis and the use of many standard models for production and cost functions.

The research aimed to study the productive and economic efficiency of farms Production of red meat in this province, as well as estimating production costs in farms producing red meat from cows and buffaloes, in addition to estimating profit margins, and measures of economic efficiency for cattle and buffalo fattening farms within the study sample. The results showed that the most important factors affecting meat production are the amount of concentrated feed The quantity of dry fodder, the quantity of green fodder, and finally the costs of veterinary services, and by estimating the total elasticity coefficient of the function, it was found that it amounted to about 0.855, meaning that the return on capacity is decreasing, and this confirms that production takes place in the second economic phase of the law of diminishing returns, which indicates the optimal use For agricultural resources, especially fodder and human, as well as the obtained estimates indicate that the coefficient of determination The average amounted to (0.823), which indicates that 82.3% of the changes that occur in the head weight of fattening buffaloes are due to the explanatory factors included in the function. Human work per day, weight at the beginning of fattening in kilograms, length of fattening period per day for the head, and finally the costs of veterinary services.

MATERIALS RESEARCH AND METHODS

First - the long-run cost function.

The duality cost function related to the production function of the Douglas Cobb type can be found by performing the steps through which the expansion path equation is found by partially derivation each of (L) and (K), in the Douglas Cobb production function to get the marginal product of them, (Debertin, 2012: 181-183), and as follows:.

$Y = 5.9 \, L^{0.093} \, K^{0.641}$ Production function

$C = 12L + 1.04 \, K$ Cost function

$$\frac{MP_L}{MP_K} = \frac{MC_L}{MC_K}$$

$$\frac{b_1\ K}{b_2\ L} = \frac{w}{r}$$

$b_2 w L = b_1 r k$ Expansion Path

$b_2\ w\ L - b_1\ r\ K = 0$

$$\frac{0.093\ K}{0.641\ L} = \frac{12}{1.04}$$

$7.692\ L = 0.09672\ K$

$7.692\ L - 0.09672\ K = 0$ Expansion Path equation

     $12\ L + 1.04\ K = C$ Cost equation

 $A\ X = B$

Since:

A: Represents the coefficients matrix of the variables.

X: represents the vector variables to be found.

B: represent a vector of values.

Using Cramer's method, we derive the optimal values of the resources of labor and capital:

 A matrix   X value   B vector

$\begin{vmatrix} b_2 w & -b_1 r \\ w & r \end{vmatrix}$ $\begin{vmatrix} L \\ K \end{vmatrix} = \begin{vmatrix} 0 \\ C \end{vmatrix}$

$\begin{vmatrix} 7.692 & -0.09672 \\ 12 & 1.04 \end{vmatrix}$ $\begin{vmatrix} L \\ K \end{vmatrix} = \begin{vmatrix} 0 \\ C \end{vmatrix}$

$|A| = b_2 w\ r + b_1 w\ r$

   $= (7.692 * 1.04) + (0.09672 * 12)$

   $= (7.999 + 1.160) = 9.160$

To find the optimal amount of work we do the following:

$L = \dfrac{\begin{vmatrix} 0 & -b_1 r \\ C & r \end{vmatrix}}{|A|}$ $=$ $b_1\ r\ C\ /\ |A|$

$L = \dfrac{\begin{vmatrix} 0 & -0.09672 \\ C & 1.04 \end{vmatrix}}{9.160} = 0.09672\ C\ /\ 9.160$

$L = 0.010558\ C$

As for the capital, we follow the following:

$K = \dfrac{\begin{vmatrix} b_2 w & 0 \\ w & C \end{vmatrix}}{|A|}$ $=$ $b_{2\ W}\ C\ /\ |A|$

$K = \dfrac{\begin{vmatrix} 7.692 & 0 \\ 12 & C \end{vmatrix}}{9.160} = 7.692\ C\ /\ 9.160$

$K = 0.83973\ C$

$Y = 5.9\ L^{0.093}\ K^{0.641}$

$Y = 5.9\ (0.010558\ C)^{0.093}\ (0.8397\ C)^{0.641}$

$Y = 5.9\ (0.65494)\ C^{0.093}\ (0.894)\ C^{0.641}$

$Y = 3.4545\ C^{0.734}$

$C^{0.734} = \dfrac{Y}{3.4545} = \dfrac{1}{3.4545}\ Y$

$C^{0.734} = 0.2895\ Y$

$C = 0.2895\ Y^{\frac{1}{0.734}}$

$C = (0.2895\ Y)^{1.36239}$

$C = 0.1847\ Y^{1.36239}$ Total Cost in long run .

The equation of average costs and marginal costs can be derived from the long-run cost function, as follows:

$ATC = \dfrac{TC}{Y} = 0.1847\ Y^{0.36239}$ Average total costs equation

$MC = \dfrac{dTC}{dY} = 0.2516\ Y^{0.36239}$ Marginal cost function

The elasticity of the cost function in the long run for calves fattening projects is greater than the correct one (1.362), That's meaning the marginal cost is higher than the average total cost, and this means that production is subject to diminishing returns, as we obtain relative increases in production with greater relative costs.

Second - the supply function derived from the long-run cost function.

The supply function is derived from the long-parent cost function according to the following formula:

$$C = Z * y^{\frac{1}{E}}$$

By equating the marginal cost equation previously found from the long-run cost function with the output price, we get the following:

$MC = 0.251769 \, Y^{0.36239}$

$MC = P$

$0.251769 \, Y^{0.36239} = P$

$Y^{0.36239} = \dfrac{P}{0.251769}$

$Y = [\dfrac{P}{0.251769}]^{1/0.36239}$

$Y = [\dfrac{P}{0.251769}]^{2.759}$ Supply production function of Calves fattening projects.

At the selling price of one kilogram per live weight, which is (5.107) thousand dinars, the displayed quantity is equal to:

$Y = [\dfrac{5.107}{0.251769}]^{2.759}$

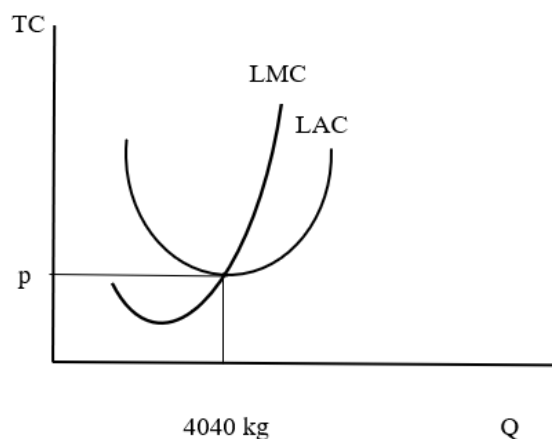$Y = [20.284]^{2.759}$

$Y = 4040.77 \; Kg$

Figure (1): The quantity supplied at (P = 5017)

Third - The supply function derived from the production function of calves fattening projects.

The supply function is found from the production function using the following equation:

$$Y = A^{\frac{1}{1-b1-b2}} \left(\frac{b1}{w}\right)^{\frac{b1}{1-b1-b2}} \left(\frac{b2}{r}\right)^{\frac{b2}{1-b1-b2}} (Py)^{\frac{b1+b2}{1-b1-b2}}$$

$$Y = (5.9)^{\frac{1}{1-0.093-0.641}} \left(\frac{0.093}{12}\right)^{\frac{0.093}{1-0.093-0.641}} \left(\frac{0.641}{1.04}\right)^{\frac{0.641}{1-0.093-0.641}} Py^{\frac{0.093+0.641}{1-0.093-0.641}}$$

$$Y = (5.9)^{\frac{1}{0.266}} \left(\frac{0.093}{12}\right)^{\frac{0.093}{0.266}} \left(\frac{0.641}{1.04}\right)^{\frac{0.641}{0.266}} Py^{\frac{0.734}{0.266}}$$

$$Y = 5.9^{3.759} \left(\frac{0.093}{12}\right)^{0.349} \left(\frac{0.641}{1.04}\right)^{2.409} Py^{2.759}$$

$Y = 5.9^{3.759} * 0.00775^{0.349} * 0.616^{2.409} * Py^{2.759}$

$Y = 790.01 * 0.183 * 0.3116 * Py^{2.759}$

$Y = 45.057 \, Py^{2.759}$ Supply production function of Calves fattening projects.

It becomes clear from Table (1) and figure (2) that the price and the quantities supplied are moving in the same direction, and this means that the supply curve is positively sloped and that any change in price of (10 %) leads to a change in the quantity supplied, but by a percentage greater than (10 %), As for the elasticity of the production supply of calves fattening projects, it is greater than the correct one (2.759), and this means that the product supply is flexible towards the increase in prices, which plays a major role in the price production policy, as shown in the table and figure below:

Table (1): shows the supplied quantities of the product at different prices

No.	Price (thousand dinars)	Supply Quantity (kg)
1	4.250	2440.547
2	4.500	2857.429
3	4.750	3317.110
4	5.000	3821.382
5	5.250	4372.016
6	5.500	4970.761

Source: From the researcher's work based on the supply production function
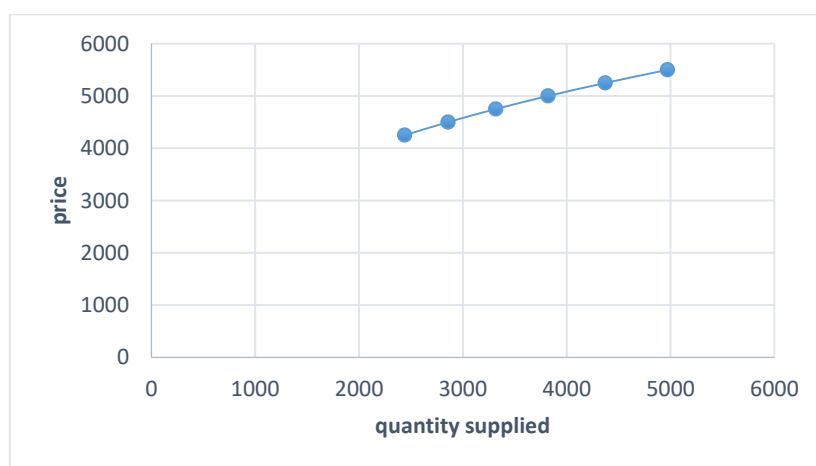
$$Y = 45.057 \, PY^{2.759}$$

Figure (2) The curve of quantities supplied at different prices.

Fourth - the function of the demand for labor and capital resources in the two calves' projects
A demand function of the labor resource for the average of the research sample
can be found as follows:

$$L = \left(\frac{b_1}{w}\right)^{\frac{1-b_2}{1-b_1-b_2}} \left(\frac{b_2}{r}\right)^{\frac{b_2}{1-b_1-b_2}} (A)^{\frac{1}{1-b_1-b_2}} (p)^{\frac{1}{1-b_1-b_2}}$$

$$L = \left(\frac{0.093}{w}\right)^{\frac{1-0.641}{1-0.093-0.641}} \left(\frac{0.641}{r}\right)^{\frac{0.641}{1-0.093-0.641}} (5.9)^{\frac{1}{1-0.093-0.641}} (p)^{\frac{1}{1-0.093-0.641}}$$

$$L = \left(\frac{0.093}{w}\right)^{\frac{0.359}{0.266}} \left(\frac{0.641}{r}\right)^{\frac{0.641}{0.266}} (5.9)^{\frac{1}{0.266}} (p)^{\frac{1}{0.266}}$$

$$L = \left(\frac{0.093}{w}\right)^{1.349} \left(\frac{0.641}{r}\right)^{2.409} (5.9)^{3.759} (p)^{3.759}$$

$$L = 0.0406 \left(\frac{1}{w^{1.349}}\right) 0.3425 \left(\frac{1}{r^{2.409}}\right) (790.01) (p)^{3.759}$$

$$L = 10.985 \, w^{-1.349} \, r^{-2.409} \, p^{3.759} \qquad \text{Demand function for labor resource.}$$

$$L = 0.0406 \left(\frac{1}{12^{1.349}}\right) 0.3425 \left(\frac{1}{1.04^{2.409}}\right) 790.01 (5.10724)^{3.759}$$

$$L = 0.0406 \left(\frac{1}{28.5637}\right) 0.3425 \left(\frac{1}{1.099}\right) 790.01 (459.274)$$

L $= 0.00142138 * 0.31139 * 790.01 * 459.274$

L $= 160.7$

L $= 160.7 * 6 = 964.2$

The number of labor hours required for the average research sample is (964.2) hours.

As for the demand function for the capital resource for the average of the research sample , it will be as follows:

$$K = \left(\frac{b_1}{w}\right)^{\frac{b_1}{1-b_1-b_2}} \left(\frac{b_2}{r}\right)^{\frac{1-b_1}{1-b_1-b_2}} (A)^{\frac{1}{1-b_1-b_2}} (p)^{\frac{1}{1-b_1-b_2}}$$

$$K = \left(\frac{0.093}{w}\right)^{\frac{0.093}{1-0.093-0.641}} \left(\frac{0.641}{r}\right)^{\frac{1-0.093}{1-0.093-0.641}} (5.9)^{\frac{1}{1-0.093-0.641}} (p)^{\frac{1}{1-0.093-0.641}}$$

$$K = \left(\frac{0.093}{w}\right)^{\frac{0.093}{0.266}} \left(\frac{0.641}{r}\right)^{\frac{0.907}{0.266}} (5.9)^{\frac{1}{0.266}} (p)^{\frac{1}{0.266}}$$

$$K = \left(\frac{0.093}{w}\right)^{0.349} \left(\frac{0.641}{r}\right)^{3.409} (5.9)^{3.759} (p)^{3.759}$$

$$K = 0.4365\left(\frac{1}{w^{0.349}}\right) 0.21957\left(\frac{1}{r^{3.409}}\right)(790.01) (p)^{3.759}$$

$K = 75.71638 \ w^{-0.349} \ r^{-3.409} \ p^{3.759}$ Demand function for Capital resource.

$$K = 0.4365\left(\frac{1}{12^{0.349}}\right) 0.21957\left(\frac{1}{1.04^{3.409}}\right)(790.01) (p)^{3.759}$$

$K = 0.4365(0.420) * 0.21955(0.87489) *790.01 P^{3.759}$

$K = 0.18333 * 0.19208 *790.01 P^{3.759}$

$K = 27.8197 P^{3.759}$

$K = 27.8197 (5.10724)^{3.759}$

$K = 27.8197 (459.27)$

$K = 12776.87421 *1000 = 12776874.21$

(12776.874) thousand dinars, the capital required for the average of the research sample.

$L = 10.985 \ w^{-1.349} \ r^{-2.409} \ p^{3.759}$ Demand function for labor resource

$K = 75.71638 \ w^{-0.349} \ r^{-3.409} \ p^{3.759}$ Demand function for the capital resource

From the above two demand functions for both labor and capital, we find the following:

1 - About the function of demand for labor.

❖The price elasticity of demand for the labor resource is (-1.349), and this value represents the relative change in the quantity demanded of the labor resource to the relative change in its price, and mathematically it is equal to $\left(\frac{\Delta L / L}{\Delta w / w}\right)$.

❖The cross-price elasticity of demand for the labor resource is (-2.409), and this value represents the relative change in the quantity demanded of the labor resource to the relative change in the price of the other resource (the price of capital) and mathematically equal to $\left(\frac{\Delta L / L}{\Delta r / r}\right)$.

❖Productive price elasticity of demand for the labor resource is (3.759), and this value represents the relative change in the quantity demanded of the labor resource to the relative change in the production price, and mathematically it is equal to $\left(\frac{\Delta L / L}{\Delta P / P}\right)$.

2 - with regard to the demand function for the capital resource.

❖The price elasticity of demand for the capital resource is (-3.409), and this value represents the relative change in the quantity demanded of the capital resource to the relative change in its price, and mathematically it is equal to $\left(\frac{\Delta K / K}{\Delta r / r}\right)$.

❖The cross-price elasticity of demand for the capital resource is (-0.349), and this value represents the relative change in the quantity demanded of the capital resource to the relative change in the price of the other resource (the price of labor), and mathematically it is equal to $\left(\frac{\Delta K / K}{\Delta w / w}\right)$.

❖The productive price elasticity of demand for the capital resource is (3.759) and this value represents the relative change in the quantity demanded of the capital resource to the relative change in the price of production, and mathematically it is equal to $\left(\frac{\Delta K / K}{\Delta P / P}\right)$.

Through the estimated values of the demand function for the labor resource, it becomes clear to us that the required quantity of the labor resource is a function of (labor wages, interest rate and

production price), and that there is an inverse relationship between the required quantity of the labor resource on the one hand, and the wages of labor and the interest rate on the other hand, This is evidenced by the negative sign of the price elasticity of demand for the labor resource (-1.349), and that any increase in labor wages by (1%) leads to a decrease in the quantity of labor demand by (1.349%), as well as there is a direct (positive) relationship between the quantity Required of the labor resource and the price of production.

The cross-price elasticity of demand is also negative and its value is (-2.409), meaning that an increase in the interest rate by (1%) leads to a decrease in the quantity of labor required by (2.409%), while the productive price elasticity of demand is positive and its value is (3.759), and that Any increase in the price of production by (1%), the quantity of demand for the labor resource increases by (3.759%).

As for the function of demand for the capital resource, we note that there is an inverse relationship between the wages of labor and the interest rate on the one hand, and the amount of capital required on the other hand, and this is indicated by the negative sign of the price elasticity of demand for capital, which amounts to (-3.409), and this means that an increase in the interest rate on capital by (1%) leads to a decrease in the quantity demanded of the capital resource by (3.409%), while the cross-price elasticity of demand is also negative (-0.349). And that any increase in the price of labor wages by 1% leads to a decrease in the required amount of capital by (0.349%), while the elasticity of productive price demand was positive (3.759), and this means that any increase in the price of production by (1%) The demand for capital resource increases by (3.759%).

CONCLUSIONS

It was reached to derive the cost function in long-run for the production of calves fattening projects in Baghdad province, as well as the marginal cost function, the average cost and the elasticity of the cost function in long-run for calves fattening projects in Baghdad province, where it was greater than the correct one (1.362), that's meaning the marginal cost is higher than the average total cost, and this means that production is subject to diminishing returns, as we obtain relative increases in production with greater relative costs, and the results of the study showed that the demand for more labor and capital in calves fattening projects was up to (160.7) man / day regarding labor, and (12,776.874) thousand dinars in relation to the capital, while the quantity supplied of production amounted to about (4040.77) kg. the research also showed that the price and the quantities supplied move in the same direction, and this means that the supply curve is positively sloping and that any change in price by (10%) leads to a change in the quantity supplied, but by a percentage greater than (10%), as for the elasticity of project production supply Fattening calves, they are greater than the correct one (2.759), and this means that the product supply is flexible towards the increase in prices, which has a major role in the price production policy.

RECOMMENDATIONS

The study recommends the following:

1-Activating the private sector in the establishment of large and distinct projects in each of the governorates of Iraq, because we do not have large production projects as much as small individual holdings, and this activation is through the provision of certain facilities such as long-term loans or providing facilities in the field of importing assets good meat-producing breeds and from solid origins known globally in this field and under the supervision of specialized state agencies.

2-work should be done to improve the local calf varieties by conducting genetic improvement and cross-breeding experiments with imported varieties with high quality specifications that are compatible with the local environmental conditions and selecting calves with high productive efficiency in muscle formation and speed of growth, and this is done through the establishment of specialized research centers to keep pace with Progress in the field of animal husbandry and improvement.

3- Allocating the necessary funds for scientific research institutions working in this field to support research, specialized studies and work To find a clear mechanism for linking and cooperation between scientific research institutions on the one hand and workers in the field of animal production on the other.

4- Importing good assets from mothers for the purpose of multiplying them in the country, As the study recommends the necessity of providing feed, especially concentrated feed, in the necessary quantities and qualities during different seasons by providing hybrid fodder crops such as fodder corn to obtain the desired weight gain in the shortest possible period.

REFERENCES

Achmad, F., Mulyo, J.H., Subejo and Masyhuri, (2019), Factors Affecting Profit Analysis of Small-Scale Beef Cattle Farmers in the Special Region of Yogyakarta, Indonesia, American-Eurasian Journal of sustainable Agriculture, Vol. (13), No. (2).

Al-Shatla, Hani Saeed Abdel Rahman and others (2015), the economics of livestock fattening production in the New Wadi Governorate, Journal of the Union of Arab Universities for Agricultural Sciences, Ain Shams University, Cairo, Vol. (23), No. (1).

Debertin, L. D. (2012), Agricultural Production Economics, MacMillan Canada, lnc. Second Edition.

Ekowati, T., Prasetyo E., and Handayani M., (2018), The factors influencing production and economic efficiency of beef cattle farm in Grobogan Region, Central Java, faculty of Animal and Agricultural Sciences, Diponegoro University, Indonesia, J. Indonesian Trop, Anim, Agric. Vol. (43) No. (1).

El-Sayed, Mohamed Ahmed, (2020), an econometric study of the productive and economic efficiency of meat production farms in Ismailia Governorate, Journal of agricultural Economics and Social Sciences, Vol. (11), No. (3).

تقدير دالة التكاليف في المدى الطويل المشتقة من دالة انتاج كوب دوغلاس وتقدير دالة الطلب على الموارد ودالة عرض الناتج لمشاريع تسمين العجول في محافظة بغداد

ناهض ناجي عيسى   حسن ثامر زنزل

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الخلاصة

الكلمات المفتاحية:
تسمين العجول، دالة التكاليف طويلة الاجل، دالة الطلب على الموارد، دالة العرض.

على الرغم من المحاولات الفردية الجادة التي يقوم بها بعض المربين في تطوير وتحسين اساليب التربية والتسمين لتقليل التكاليف، الا ان معظم المربين يتبعون الأساليب التقليدية في تربية وتسمين مواشيهم، وهذا ما دفعني للقيام بدراستي هذه استند البحث بصفة أساسية على البيانات الأولية التي جُمعت عن طريق استمارة استبانة لعينة مكونة من (100) مربي في قضاء المحمودية (حالة دراسية) للعام 2021، هدفت الدراسة الى اشتقاق دالة التكاليف طويلة الاجل من مخرجات دالة انتاج كوب دوغلاس، وكذلك اشتقاق دالة العرض من دالة التكاليف طويلة الاجل المشتقة من دالة كوب دوغلاس، واشتقاق دالة العرض من دالة انتاج مشاريع تسمين العجول المقدرة، فضلاً عن اشتقاق دالتي الطلب على موردي العمل ورأس المال المستخدمين في العملية الانتاجية لمشاريع تسمين العجول، تم تقدير دالة التكاليف طويلة الاجل وأظهرت نتائج الدراسة ان الطلب على موري العمل وراس المال في مشاريع تسمين العجول كانت بحدود (160.7) رجل/ يوم بالنسبة للعمل و(12776.874) ألف دينار بالنسبة لرأس المال، فيما بلغت الكمية المعروضة من الإنتاج نحو (4040.77) كغم، توصي الدراسة بضرورة توفير الاعلاف وخاصةً الاعلاف المركزة بالكميات اللازمة والنوعيات المطلوبة خلال المواسم المختلفة عن طريق توفير المحاصيل العلفية الهجينة مثل الذرة العلفية للحصول على الزيادة الوزنية المنشودة.