

## An Economic Study on the Red Meat in Arab Republic of Egypt

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**Abstract:** The red meat Represents a cornerstone in the style of food protein for human in Egypt, as the average capita consumption or the rate of calories given to the person in a year is one of the criteria's development and a measure of difference between progress and backwardness. The lack of availability of these criterions to the extent equivalent of the calories to the standard requests, it is a burden and population pressure. The problem of the study in Egypt difficult for the individual on the animal protein needed for good health because of the high prices of meat in general and in particular, the high prices of red meat and its substitutes and low awareness of food, with a lack of niche markets for red meat animals. The study aims to achieve a sustainable development of fleshy red production on standard methods with the study of the reasons for the low production of red meat, and stand on the most important economic and social factors affecting the natural production of red meat, and also factors influencing the consumption and marketing of red meat. The study relied on published and unpublished data. The achievement of the objectives of the study was based on methods of descriptive analysis and quantitative analysis of the data (using statistical methods and economic analysis), the simple regression and stepwise regression, where the main analysis was used. The study in the first part of the annual increase in the production of red meat during the study period (1995-2009) was estimated at 19.62 thousand tons, while the annual growth rate in the Egyptian consumption of red meat at about 39.04 thousand tons, thus achieving an annual rate of the increase of the gap meat to 19.4 thousand tons and the rate of the increase in the import of red meat at 12.5 thousand tons. While, the second part shows that, most influential factor on the production of red meat of Egypt, is the amount of alfalfa sustained ton (x2), the amount of straw (x3) and the amount of dry feed (x4), as an increase in each factor separately by the Unit. This leads to change the production of red meat increased by 0.0076, 0.064, 0.0063 tons). Nevertheless, the third part was among the most important influential factor on the consumption of red meat is the average per capita income (x2), and the price of poultry (x4), and the price of fish (x5), as an increase in each factor separately by 1%, this can lead to change consumption of red meat by the Republic of 0.444%, 0.914%, 0.453%, while the price of red meat, 1% would lead to lack of quantity consumed by 0.357%, and this function is statistically significant at the level (0.01) and consistent with economic logic. However, the fourth part has made it clear that the rate of the annual increase for the price of the product and a wholesaler and retailer was about 4.49, 1.59, 1.7 pounds / kg during the study period. While, addressing the fifth port of the study the distribution of pounds spent during the period (1995-2009), where indicated a low efficiency marketing decline in the share pounds of consumer product where low to less than half years 1998.1999, 2008, while the rest of the half-year exceeds the time series for the period (1995-2009), but it is not beyond the 61.99% in 2003.

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### Introduction:

There is no doubt that animal production is of great importance in economic activity of the Egyptian agricultural. It represents an important part of the gross national agricultural output, and uses the product's key to the human diet as a major source of animal protein. The red meat represents the cornerstone in the style of food protein to humans in Egypt as the Average individual consumption of or the number of calories you give the person a year is one of the criteria for development and a measure of difference between progress and backwardness, the lack of availability to the extent equivalent to the standard prices of the request it is a burden and population pressure.

Emanating from this problem, many of the major problems and sub-such as the low average per capita consumption of red meat and high levels of price in general, and sour in the problem of high price levels in the light of the decrease of most individual incomes the real Egyptian and increasing slow to enter the individual cash, and the increasing population on the same farmland almost affects the problem of competing between agriculture and animal farming for human food and the inflation problem of red meat, especially when compared to the rate of consumption of individual counterpart at the global level or the level of developing countries or the level of developed countries and in light of the deficit is manifest and clear in the production of red meat and the difficulty of substitution between the

available alternatives for animal protein, especially in light of not convinced many Egyptians the usefulness of consumption of a good alternative on the table eating habits by using your favorite red meat.

### **Problem of the study**

Since red meat is the cornerstone in the style of food protein to humans in Egypt, as the average capita consumption of or the number of calories you give to a person is one of the criteria of development and a measure of progress and backwardness. The lack of availability to the extent that equivalent to the calories of standard requests, is a burden and population pressure affect the declining in production of fleshy red as a general problem in Egypt. There are some problems and deficiencies that each one representing a cause and consequence at the same time as the high price of red meat and alternatives and low awareness of food, with a lack of niche markets for red meat animals.

### **Objectives of the study:**

This study aims to achieve a sustainable development in the field of animal production and red meat, including the production and marketing on the overall level. This requires targeted investigation methods; techniques and procedures for the characterization and analysis empowered to contribute to the increased production of red meat, methods and techniques of scientific and technical on the ground through the investigation, by achieving the sustainable development for production of fleshy red on the bases of standard criterion with studying the reasons for the low production of red meat, and stand on the most important economic and social factors affecting the natural production of red meat, and also factors influencing the consumption and marketing of red meat.

### **Sources of data and analysis method**

The study relied on published and unpublished data from the governmental agencies such as Ministry of Agriculture and the Central Agency for Public Mobilization and Statistics, in addition to the studies done in this area and the study used methods of descriptive analysis and quantitative analysis of the data and the achievement of the objectives of the study, using statistical methods and economic terms use the method of analysis of simple regression, stepwise regression with different mathematical forms.

### **Results and Discussion**

This study is represented in five parts, Part I, discusses the development of production and consumption, the gap and imports of red meat, while

Part II deals with the most important factors affecting the products of red meat, while Part III deals with the most important factors affecting the consumption of red meat, and interested in Part IV the evolution of producer prices and wholesale and retail red meat, while interested in the distribution of Part V consumer pounds of red meat during the study period.

### **I: A Study of the evolution of production and consumption, the gap and imports of red meat**

Examining, the development of domestic production of meat in Egypt during the period (1995-2009), it is clear that, it was about 606 thousand tons at the beginning of the study period in 1995 and continued to increase to about 882.7 thousand tons in 2009. While, the domestic consumption of meat estimated at 773 thousand tons, and thus estimated the size of the gap by about 167 thousand tons in 1995 and increased the amount consumed for nearly 1328 thousand tons and become a food gap of red meats for nearly 445.6 thousand tons in 2009. As for the imports of red meat hare increased from about 144 thousand tons in 1995 to about 305.1 thousand tons, an increase rate was estimated at 111.9%. It is clear from the general time trend equation (1) table (1) domestic production of red meat is growing annually by about 19.62 thousand tons, with an average of 12.6%, and the value of a coefficient of determination to 0.70, while setting out of the equation (2) in the same table that the domestic consumption of red meat is growing annually by about 39.04 thousand tons, representing about 3.87%, and estimated the value of the coefficient of determination around 0.85.

As for the size of the gap of red meat, emerges from the equation (3) of the same table that the size of the gap is growing annually by 19.4 thousand tons, representing about 7.76%, and the estimated value of the coefficient of determination around 0.48. As for imports, emerges from the equation of time trend-General (4), table (1) that, imports of red meat is growing annually by about 12.55 thousand tons, with an average of 5.82% of the average quantity of imports of red meat during the study period, amounting to around 215 630 tons, and amounted to the value of the coefficient of determination to 0.67.

**Table (1) equations, overall time trend of the evolution equations of the time trend of the development of production and consumption and the size of the gap of red meat and the quantity of imports during the period (1995-2009)**

No.	Statement	The Equations	R2	F
1	Red meat production	$\hat{Y}_i = 601.4 + 19.62X_i$ ( 25.5 ) ( 7.57)	0.96	57.3
2	Red meat consumption	$\hat{Y}_i = 696.2 + 39.04 X_i$ ( 16.9 ) ( 8.6 )	0.85	73.9
3	Size of the gap	$\hat{Y}_i = 94.78 + 19.4 X_i$ ( 1.84 ) ( 3.4 )	0.48	11.87
4	Imports	$\hat{Y}_i = 115.17 + 12.55 X_i$ ( 5.28 ) ( 5.24)	0.67	27.45

Where:

$\hat{Y}_i$  = the estimated value of total production and consumption and the size of the gap and imports of red meat, thousand tons.

$X_i$  = variable time 1, 2,3 ,....., 15 (1995-2009)

$R^2$  = coefficient of determination.

F= degree of freedom.

- Value between the brackets reflects the value of (T) calculated.

Source: Ministry of Agriculture and Land Reclamation, the Central Department of Agricultural Economics, the balance of food, various issues.

**II: The most important factors affecting the products of red meat.**

Study the impact of changes in the most important factors affecting a combined production of red meat and of the number of units of animal (x1), the amount of alfalfa sustained (x2), the amount of straw (x3), the amount of dry feed (x4), and loans of livestock (x5) and by using multiple regression it seems that there is a strong correlation between the factors affecting the production of red meat each other at the level of the Republic, which confirms the existence of the problem of linear correlation. In order to alleviate that the correlation matrix has been done and remedy the problem by deleting some factors associated with each other and then use the regression progress Step Wise, which was clear from the results that, the linear regression is the best equation of the economic and statistical analysis. As indicated form the equation in table (2) that, the most important of those factors combined impact on the production of red meat in Arab Republic of Egypt is the amount of alfalfa sustained Ton (x2), the amount of straw (x3), the amount of dry feed (x4), as an increase in each factor separately by the unit, this can lead to changes in the production of red meat increased by 0.0076, 0.064, 0.0063 tons, and this function is significant statistically at the level (0.01) and consistent with economic logic, the total coefficient of determination 0.86, which means that 86 % of the changes in red meat due to the impact of these factors mentioned function.

**Table (2) the most important factors affecting the production of red meat in Msrkhalal period (1995-2009)**

Statement	Model type	The Equations	R <sup>2</sup>	F
Red meat production	Linear	$\hat{Y}_i = 91.31 + 0.0076 X_{2i} + 0.064 X_{3i} + 0.0063 X_{4i}$ (2.8)** (3.98)** (2.12)*	25.8	0.86
	Logarithmic	$\text{Ln}\hat{Y}_i = 5.22 + 0.580 \ln X_{2i} + 0.681 \ln X_{3i} + 0.065 \ln X_{4i}$ (2.4)** (3.5)** (2.9)**	23.2	0.83

Where:

$\hat{Y}_i$ : the amount of production estimated one thousand tons.

$X_{1i}$ : the preparation of animal units.  $X_{2i}$ : the amount of alfalfa sustained.

$X_{3i}$ : the amount of straw.  $X_{4i}$ : the amount of dry feed.

$X_{5i}$ : the value of livestock loans. i = time period (1995-2009),

(\*\*) significant at the abstract level of 0.01.(\*) Significant at the abstract level 0.05,

the value between brackets refers to the value of (T) calculated.

**Source: Ministry of Agriculture and Land Reclamation, the Central Department of Agricultural Economics, the balance of food, various issues.**

**III: The most important factors affecting the consumption of red meat**

Studying the impact of the change in the most important factors affecting the combined consumption of red meat and represented in the population (x1), average per capita income (x2), price of red meat (x3), the price of goods and alternative represented in the price of poultry (x4), and the price of fish (x5), using multiple regression found, a strong correlation between the factors affecting the consumption of red meat each other at the level of the Republic, which confirms the existence of the problem of linear correlation, so was the correlation matrix implemented and remedy the problem by deleting some of the factors associated with each other and then use the regression progress Step Wise, which was clear from the results that is the logarithmic form is the best images from the economic and statistical analysis. As indicated from equation in table (3) that the most important of those factors combined impact on the consumption of red meat is the average per capita income (x2), and the price of poultry (x4), and the price of fish (x5), as an increase in each factor separately by 1%. This can lead to change consumption of red meat Republic by 0.444%, 0.914%, 0.453%, while the price of red meat, 1% would lead to lack of quantity consumed by 0.357%, and this function is significant statistically at the level ( 0.01) and consistent with economic logic, and the selection coefficient, 0.92; means that 92% of the changes in the production of red meat due to the impact of these factors mentioned function.

**Table (3) the most important factors influencing the consumption of red meat in Egypt during the period (1995-2009).**

Statement	Model type	The Equations	R <sup>2</sup>	F
Red meat consumption	Linear	$\hat{Y}_i = 586.1 + 0.223X_{2i} + 60.9 X_{4i} + 36.5 X_{5i}$ (2.5)** (3.7)** (2.1)*	0.89	34.4
	Logarithmic	$\ln \hat{Y}_i = 8.41 + 0.444 \ln X_{2i} - 0.357 \ln X_{3i} + 0.914 \ln X_{4i} + 0.453 \ln X_{5i}$ (2.76)** (2.68)** (4.9)** (2.66)**	0.92	44.1

**Where:**

$\hat{Y}_i$ : the amount of consumption of red meat.  $X_{1i}$ : the number of the population.

$X_{2i}$ : Average annual income per capita.  $X_{3i}$ : the retail price of red meat

$X_{4i}$ : the retail price of white meat,  $X_{5i}$ : the retail price of fish.

i = time period (1995-2009), (\*\*) significant at the abstract level of 0.01,

(\*) Significant at the abstract level 0.05, the value between brackets refers to the value of (T) calculated.

**Source:** Ministry of Agriculture and Land Reclamation, the Central Department of Agricultural Economics, the balance of food, various issues.

**IV: the evolution of product price and wholesale and retail of red meat during the period (1995-2009).**

Examine the development of producer price of red meat in Egypt during the period (1995-2009), it is clear that, it reached about 7.3 pounds / kg at the beginning of the study period in 1995 and continued to increase that amounted to about 17.14 pounds / kilograms in 2009 at the rate increase was estimated at 134.8%. While, showing that the price wholesaler of red meat was estimated at 10.54 pounds / kg at the beginning of the study period was estimated at the end of about 31.43 pounds / kg and estimated to increase by about 198.3%, while the retail price of red meat has increased from about 13.09 pounds / kilograms in 1995 to about 36.49 pounds / kg increase rate was estimated at 178.8%. It is clear from the equation of time trend-General (1) table (4) that, the price of a product red meat is growing annually by about 0.844 pounds / kilograms of any rate increase represents 7.52% of the average price of the product during the study period and estimated at 11.23 pounds / kilograms, and the value factor, specifically about 0.91. While setting out of the equation (2) in the same table that the price wholesaler of red meat is growing annually by about 1.59 pounds / kg represents about 9.11%% of the average price wholesaler during the study period and estimated at 17.56 pounds / kilograms, with an estimated value of the coefficient of determination around 0.88. As for price retailer of red meat emerges from the equation (3) in the same table that the price of the retailer is increasing annually by about 1.71 pounds / kg represents about 8.12% of the average retail price during the study period and estimated at 21.03 pounds / kg, and estimated the value of the coefficient of determination about 0.89.

**Table No. (4) Equations of the overall time trend for the price of the product and a wholesaler and retailer of red meat during the period (1995-2009).**

No.	Statement	The Equations	R2	F
1	Price of red meat	$\hat{Y}_i = 4.47 + 4.49X_i$ ( 6.7) ( 11.6)	0.91	135.04
2	Price of red meat wholesale	$\hat{Y}_i = 4.76 + 1.59 X_i$ ( 3.2) ( 9.82 )	0.88	96.4
3	Price retailer	$\hat{Y}_i = 7.37 + 1.7 X_i$ ( 4.83) ( 10.2 )	0.89	103.6

**Where:**

$\hat{Y}_i$  = the estimated value for the price of the product and a wholesaler and retailer of red meat per kilogram pound

$X_i$  = variable time 1, 2, 3 ,....., 15 (1998-5-2009).  $R^2$  = coefficient of determination

F= degree of freedom, - Value between the brackets reflects the value of (T) calculated

**Source:** Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Central Department of Agricultural Economics, Bulletin of Agricultural Prices, various issues.

**V: Distribution of the Consumer pounds of red meat during the study period**

Data of Table (5) indicated that, the difference's marketing absolute wholesale price of the product with an average absolute difference about 6.1 pounds during the study period, fluctuating between a minimum of around 2.66 pounds per kilogram in 2000, and a maximum at about 12.42 pounds in 2008. While, the average relative difference of the sentence for the product to 33.57%, and fluctuating between a minimum was about 23.04% in 2000, and a maximum of around 42.10% in 2008.

The data also indicate that difference's marketing absolute retail price of the sentence, as the average absolute difference about 3.4 pounds during the study period, fluctuating between a minimum of around 2.54 pounds per kilogram in 1995, and a maximum at about 4.69 pounds in 2008. While, the average relative difference of the sentence for the product to 17.75%, fluctuating between a minimum was about 11.01% in 2006, and a maximum of around 25.66% in 2001.

Data from the same table shows that the margin catalog of the difference's marketing the absolute price of farm of the retail price, with an average absolute difference about 9.49 pounds during the study period, fluctuating between a minimum of around 5.79 pounds per kilogram in 1995, and a maximum at about 17.10 pounds in 2008. While, the average relative difference of the sentence for the product to 54.44%, and fluctuating between a minimum was about 38.01% in 2003, and a maximum of around 54.90% in 1999. While, the share of the product from pounds spent about 54.44% on average for the study period and reached a minimum of about 45.10% in 1999, while the maximum about 61.99% in 2003, while the share of a wholesaler of pounds spent about 33.57% on average for the study period and reached unity near about 23.45% in 2000 and reached a maximum of about 42.10% in 2008 and, finally, the share of the retailer than one pound, the consumer towards the 17.75% average for the study period, while the minimum about 11.01% in 2006, while the maximum about 25.66% in 2001.

From the abovementioned, it has clearly seen that, the low efficiency marketing decline in the share pounds of consumer product where low to less than half years 1998.1999, 2008, while the rest of the half-year exceeds the time series for the period (1995-2009), but not beyond the 61.99% in 2003.

**Table (5) the development of farm price and wholesale price and retail margins, marketing and distribution of consumer for the total pounds of red meat during the period (1995-2009).**

statements years	Farm price	whole sale price	Retail price	Inter-Producer		Inter-retail		Marketing margin		The distribution of consumer pounds %		
				Absolute difference	Relative difference	Absolute difference	Relative difference	Absolute difference	Relative difference	Share product	Share Wholesaler	Per retailer
1995	7.3	10.54	13.09	3.24	30.76	2.54	19.42	5.79	44.21	55.79	30.76	19.42
1996	7.54	10.74	13.80	3.20	29.81	3.06	22.14	6.26	45.35	54.65	29.81	22.14
1997	7.7	11.01	13.	3.25	29.49	2.79	20.22	6.03	43.74	56.2	29.49	20.2

	6		79							6		2
1998	6.84	10.88	14.00	4.04	37.14	3.12	22.26	7.16	51.13	48.87	37.14	22.26
1999	6.73	11.44	14.92	4.71	41.17	3.48	23.33	8.19	54.90	45.10	41.17	23.33
2000	8.87	11.53	15.36	2.66	23.04	3.83	24.96	6.49	42.25	57.75	23.04	24.96
2001	9.18	11.99	16.13	2.81	23.45	4.14	25.66	6.95	43.10	56.90	23.45	25.66
2002	9.97	13.91	17.05	3.94	28.34	3.13	18.38	7.08	41.51	58.49	28.34	18.38
2003	11.71	15.98	18.89	4.27	26.73	2.91	15.40	7.18	38.01	61.99	26.73	15.40
2004	11.98	19.22	22.00	7.24	37.66	2.78	12.64	10.02	45.54	54.46	37.66	12.64
2005	14.24	24.06	27.22	9.82	40.82	3.16	11.60	12.98	47.69	52.31	40.82	11.60
2006	15.07	25.46	28.61	10.39	40.81	3.15	11.01	13.54	47.33	52.67	40.81	11.01
2007	17	25.68	29.89	8.68	33.81	4.21	14.08	12.89	43.13	56.87	33.81	14.08
2008	17.08	29.50	34.18	12.42	42.10	4.69	13.71	17.10	50.03	49.97	42.10	13.71
2009	17.14	31.2	36.56	10.76	38.16	3.96	11.45	14.72	45.54	54.46	38.46	11.45
<b>Average</b>	<b>11.23</b>	<b>17.56</b>	<b>21.03</b>	<b>6.1</b>	<b>33.57</b>	<b>3.4</b>	<b>17.75</b>	<b>9.49</b>	<b>54.44</b>	<b>54.44</b>	<b>33.57</b>	<b>17.75</b>

**Source:** compiled and calculated from the data- : Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Central Department of Agricultural Economics, Bulletin of Agricultural Prices, various issues.

**Conclusion:**

Red meat represents the cornerstone in the style of food protein for human in Egypt, as the average capita consumption of /or the number of calories per person a year is one of the developmental criteria and a measure of difference between progress and backwardness. The lack of availability to the extent the equivalent of the calories of the standard requests it is a burden and population pressure. The problem of the study in Egypt difficult for the individual on the animal protein needed for good health because of the high prices of meat in general and in particular, the high prices of red and their substitutes and low awareness of food, with a lack of niche markets for red meat animals. The study aims to achieve sustainable development of production fleshy red meat on a standard method with the study of sound reasons for the low production of red meat, and stand on the most important economic and social factors affecting the natural production of red meat, and also factors influencing the red meat consumption and marketing of red meat. The study relied on published and unpublished data; the study used methods of descriptive analysis and quantitative

analysis of the data and the achievement of the objectives of the study, using statistical methods and economic analysis of the style where I use the simple regression, and stepwise regression staging more than one way sports. The study in the first part of the annual increase in the production of red meat during the study period (1995-2009) was estimated at 19.62 thousand tons, while the estimation of the annual growth in consumption of red meat at about 39.04 thousand tons, thus achieving an annual rate of the increase of the gap adenoids to 19.4 thousand tons and the rate of the increase in the red meat imports at 12.5 thousand tons. The second part illustrated that the most influential factor on the production of red meat in Arab Republic of Egypt is the amount of alfalfa sustained ton (x2), the amount of straw (x3), the amount of dry feed (x4), as an increase in each factor separately by the Unit this leads to change the production of red meat increased by 0.0076, 0.064, 0.0063 tons. The third part was among the most important influential factor on the consumption of red meat is the average per capita income (x2), and the price of poultry (x4), and the price of fish (x5). As an increase in each factor separately by 1%, this can

lead to change consumption of red meat by the Republic of 0.444%, 0.914%, 0.453%, while the price of red meat, 1% would lead to lack of quantity consumed by 0.357%, and this function is statistically significant at the level (0.01) and consistent with economic logic. The fourth part, has made it clear that the rate of the annual increase for the price of the product and a wholesaler and retailer was about 4.49, 1.59, 1.7 pounds / kg during the study period. While, addressing the fifth portion of the study of the distribution of pounds spent during the period (1995-2009), where indicated the low efficiency marketing decline in the share pounds of consumer product where low to less than half years 1998.1999, 2008, while the rest of the half-year exceeds the time series for the period (1995-2009), but it is not beyond the 61.99% in 2003.

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