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Analytical Study Demand for Poultry Meat in Egypt (A Case Study in Qaloubia Governorate)

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ABSTRACT

The change in food consumption considered as one of the most prominent problems facing Egypt in the last 20 year. Change in the food pattern led to an increase in consumption from some food groups at rates higher than domestic production. This led to the widening of the food gap in some food groups. The problem of the study is the rise in the prices of production requirements for poultry as a result of the high exchange rate and consequently the consumer price was affected until he became unable to buy the poultry commodity that works to reduce the gap in animal protein for individuals in rural and urban areas. A cross-sectional survey to find out whether the food is a necessary commodity or a luxury commodity for the income groups in urban and rural areas. 200 questionnaire forms were collected for the income groups (less than 2000 pounds) (2000-6000 pounds) (more than 6000 pounds) using Google for text from. A study of the equations of the general time trend of the consumed quantity of poultry during the period (2005-2020) revealed that there is a statistically significant annual increase representing 4.1% of the average poultry production of about 1113 thousand tons, while the annual growth rate in poultry consumption represents about 4.96% of the average Of the domestic consumption of about 1518 thousand tons, while the annual rate of increase per person represents about 3.03% of the average per person per year of 14 kilograms. As for self-sufficiency, the annual rate decreases by about 0.92% of the average self-sufficiency rate of 95% for the average period. It was found from the results of the price elasticity's of demand that it is negative, that is, it reflects the inverse relationship between the quantity of poultry consumed and its price, and that it is greater than the correct one for the first category (individual income is less than 2000 Egyptian pounds), which means that the relative change in price is greater than the relative change in quantity, while it was found that the elasticity of demand The price per capita consumption of poultry for the second and third categories of individual income (2000-6000 EGP), (more than 6000 EGP) Less than the correct one, which indicates that the demand for the consumed quantity of poultry is inelastic. While the internal elasticity of demand for poultry shows that it is less than one, which means that demand is inelastic and that poultry is a necessary commodity for all groups in the urban and rural areas of the sample and that the sign is positive and this means that the poultry commodity is a normal commodity. As for the cross elasticity, which is the relationship between the change in quantity Consumed poultry and the change in the price of red meat The study recommends the provision of animal protein at prices suitable for the income of the Egyptian consumer. Attention should be paid to providing the requirements of the poultry industry locally, while upgrading the establishment of farms with modern technologies and capacity effluents that reduce production costs and work on overflowing and improving the marketing property, which positively affects the ability of individuals to provide cheap and good animal protein

Keywords: The demand elasticity, the income elasticity, the cross elasticity

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Introduction

At present, interest is increasing in the development and diversification of meat production sources in the Arab Republic of Egypt, where the problem of providing food is an important aspect in the issue of food security due to the increasing demand for meat and the inability of local production to meet the needs of the consumer in Egypt. The most important elements that must be available in the human diet, as the Joint Committee (FAO-WHO) in 1974 recommended that the adult individual needs protein at a rate of 33-40 g / day

The change in food consumption considers an one of the most prominent problems facing Egypt in the last 20 year. Change in the food pattern led to an increase in consumption from some food groups at rates higher than domestic production, which led to the widening of the food gap in some food groups.

The problem of the study

Problem of the study lies in the increase of food commodity prices. especially after the exchange rate appreciation rate exceeds the increase in income ., as their prices are currently close to the prices of imported Or since the vast majority of poultry production requirements are imported from abroad and are affected by international prices, so it has become difficult to stabilize poultry prices for the consumer red meat this led to a change in the food pattern in rural and urban in addition to increasing the support of the state to provide food commodities at prices commensurate with the economic conditions of individuals.

Objective of the Study

In general the study aims to characterize and analyze Egypt food situation by measuring the different elasticity on poultry meat. And thus clarifying which area is (rural –urban) more affected.

Methodology of the and Data Sources

The study used the Descriptive and Quantitative Analysis using some different measurements such as General Trend, as well as step with Regression It was also based on the primary data collected by means of a random sample questionnaire of 200 faimilies from Qalyubia Governorate.

The Development of some Productive and Consumer for Poultry in the Arab Republic of Egypt

Through studying the amount of poultry production at the national level during the period (2005-2020),it becomes obviously clear that it ranged between a minimum and a maximum of about 661,1413 thousand ton in 2005, 2020, respectively, with an increase rat estimated 114% of the minimum ,Besides , through estimating the general time trend equation for the production amount during the study period , the statistically significant annual increase represented about of 4.1%of the average of the production amount, Consequently, the Determination Coefficient was 0.89, as is evident from equation (1)in table (1)of the study. By studying the consumption of poultry meat at the national level , it ranged between a minimum and a maximum of about 660,1589 thousand ton in 2005, 2020, respectively, with an increase rat estimated 141% of the minimum ,Besides , through estimating the general time trend equation for the production amount during the study period , the statistically significant annual increase represented about of 4.96%of the average of the consumption amount the Determination Coefficient was 0.92 as shown equation (2)with the same table, while it became clear that the per capita of the poultry meat at the national level ranged between minimum and a maximum of about 9.3,17.2kg/year during the year 2005and 2020, respectively, with an increase representing about 84.9% of the minimum . Moreover, through estimating the general time trend equation of the individual of poultry meat during the study period, the annual statistically significant increase is estimated 14kg/year. This Determination Coefficient reached 0.79, as shown by equation (3) in the same table. Additionally, it becomes obviously clear that the percentage of self-sufficiency in poultry meat ranged between a minimum and a maximum of about100.2%, 89%% in 2005 and 2020, with an decrease of about 11.2% over the minimum. Through estimating the general time trend equation of self-sufficiency of poultry meat during the study period, we found statistically significant annual deficiency estimated at 0.877%representing about 0.92% of the average estimated at about .0.95%. This Determination Coefficient reached 0.74, as shown by the equation (3) in the same table

Table 1: General Time Trend Equations for the Quantity Of Production, Consumption Self-sufficiency of Poultry during the Period (2005-2020)

Number	Variable	Equation	R2	Average	Annual Changing Rate
1	Quantity of Production Poultry (Thousand ten)	$\hat{Y}i$ =726.8 + 45.4 Xi ** (10.6)	0.89	1113	4.1
2	Quantity of Consumption Poultry (Thousand ten)	$\hat{Y}i$ =684.3+58.89 Xi ** (12.3)	0.92	1518	4.96
3	What Concerns the individual Kg/year	$\hat{Y}i$ = 10.9+0.424Xi ** (7.3)	0.79	14	3.03
4	Self-sufficiency%	$\hat{Y}i$ = 102.5-0.877Xi ** (6.3)	0.74	95	-0.92

Where $\hat{Y}i$ indicates the estimated value of the dependent variable and Xi refers to the element of time as an independent variable where i (1, 2, 3, 4..... 15.)
** Significant at the level of 1%. * Significant at the level of 5%.
Source: Ministry of Agriculture and Land Reclamation, Economic Affairs Sector, Agricultural Economics Publications, Miscellaneous Editions.

Factors Affecting Consumption Quantity Poultry in Urban and Rural Areas

The relationship between consumption Quantity on Poultry (Y)was studied as dependent factor, and the independent factors affecting it is are the number of family members (x1), The price of paltry meat (x2), the price per of red meat (x3), and the price of fish meat (x4), the monthly income of the head of the household (x5), The stage regression was used by the double logarithmic approach to determine the most important factors affecting consumption quantity on the different types of meat among the study sample in rural urban areas of the different income groups.

Estimate of the function No. (1) shown in table (2) refer to statistically significant and positive relationship between quantity on poultry meat in Qaloubia Urban and Rural areas The first category is (less than 2000pounds) of the study sample , which considers poultry as a luxury commodity between the price poultry (x2), monthly income by pound (x5), where price elasticity was estimated by about -1.65, 0.20 for urban the inverse relationship become clear between thy quantity poultry and price as an increase in this variable by 1% leads to a decrease in the average per capita share of poultry meat By 1.65%, and the coefficient of determination confirms that 44% Changes in the per capita share of poultry are due to the previous factors, while function No (2) increase monthly income by pound, increase thy quantity on poultry.0.20% which considers poultry as a luxury commodity between the price poultry(x2), the price red meat (x3), where price elasticity was estimated by about -1.73, 0.409 for rural the inverse relationship become clear between thy quantity poultry and price as an increase in this variable by 1% leads to a decrease in the average per capita share of poultry meat by 1.73%, the equation indicates that there is a direct relationship between the average per capita share of poultry meat and the price red meat (x3), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.409 %, and the coefficient of determination confirms that 68% Changes in the per capita share of poultry are due to the previous factors.

Estimate of the function No. (3) shows in table (2) From studying the relationship between the average per capita share of poultry meat and the factors affecting the second category(2000- 6000 pounds), it was found that there is an inverse relationship between the average per capita share of poultry meat and The number of family members(x1) the average price per kilogram of poultry meat (x2), monthly income by pound (x5), whereby an increase in this variable (x1) by 1% leads to an increase in the average per capita share of poultry meat by 0.185%, as an increase in this variable (2) by 1% leads to a decrease in the average per capita share of poultry meat by 0.707%, the equation indicates that there is a direct relationship between the average per capita share of poultry meat and the monthly income (x5), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.247%, and the coefficient of determination confirms that 54% Changes in the per capita share of poultry are due to the previous factors.

Estimate of the function No. (4) shows in table (2) From studying the relationship between the average per capita share of poultry meat and the factors affecting the second category (2000- 6000 pounds), it was found that there is an inverse relationship between the average per capita share of poultry meat and The number of family members (x1) the average price per kilogram of poultry meat (x2),

monthly income by pound (x5), whereby an increase in this variable (x1) by 1% leads to an increase in the average per capita share of poultry meat by 0. 248%, as an increase in this variable (2) by 1% leads to a decrease in the average per capita share of poultry meat by 0.829%, the equation indicates that there is a direct relationship between the average per capita share of poultry meat and the monthly income (x5), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.314%, and the coefficient of determination confirms that 54% Changes in the per capita share of poultry are due to the previous factors.

Estimate of the function No. (5) shows in table (2) from studying the relationship between the average per capita share of poultry meat and the factors affecting the third category (more than 6000 pounds), it was found that there is an inverse relationship between the average per capita share of poultry meat and the average price per kilogram of poultry meat (x2), as an increase in this variable by 1% leads to a decrease in the average per capita share of poultry meat by 0.671%, the equation indicates that there is a direct relationship between the average per capita share of poultry meat and the monthly income (x5), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.450%, and the coefficient of determination confirms that 66% Changes in the per capita share of poultry are due to the previous factors.

Estimate of the function No. (6) shows in table (2) from studying the relationship between the average per capita share of poultry meat and the factors affecting the third category(more than 6000 pounds), it was found that there is an inverse relationship between the average per capita share of poultry meat and the average price per kilogram of poultry meat (x2), price as an increase in this variable by 1% leads to a decrease in the average per capita share of poultry meat By 0.8123%, the price red meat (x3), where price elasticity was estimated by about 0.590 for rural the inverse relationship become clear between thy quantity poultry and the equation indicates that there is a direct relationship between the average per capita share of poultry meat and the price red meat (x3), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.590%, the monthly income (x5), whereby an increase in this variable by 1% leads to an increase in the average per capita share of poultry meat by 0.249%, and the coefficient of determination confirms that 70% Changes in the per capita share of poultry are due to the previous factors.

Table 2: Stepwise Regression Equation for the Most Important Affecting Factors on Expenditure for Poultry in the Urban and Rural Areas of Qaloubia among the three Study Categories in 2020

Categories	Equation No	Statement	Equation	R^2	F
First Category	1	Urben	$\ln \hat{Y}i = 6.79 - 1.65 \ln Xi2 + 0.20 \ln Xi5$ **(4.9) ** (3)	0.44	14.5
	2	Rural	$\ln \hat{Y}i = 6.4 - 1.73 \ln Xi2 + 0.409 \ln Xi3$ **(6.9) *(2.1)	0.68	35.6
Second Category	3	Urben	$\ln \hat{Y}i = 3.03 + 0.185 \ln Xi1 - 0.707 \ln Xi2 + 0.274 \ln Xi5$ **(2.71) **(6.3) **(4.31	0.54	14
	4	Rural	$\ln \hat{Y}i = 0.303 + 0.248 \ln Xi1 - 0.829 \ln Xi2 + 0.314 \ln Xi5$ **(3.2) ** (3.8) **(5.1)	0.54	22.2
Third Category	5	Urben	$\ln \hat{Y}i = 2.4 - 0.671 \ln Xi2 + 0.450 \ln Xi5$ *(2.4) ** (3.1)	0.66	23.6
	6	Rural	$\ln \hat{Y}i = 0.513 - 0.812 \ln Xi2 + 0.590 \ln Xi3 + 0.2497 \ln i5$ *(2.37) ** (2.5) *(2.3)	0.70	20.6

Where $\hat{Y}i$ = the estimated quantity of the year expenditure on meat by kg quantity poultry.
Xi_1 = the number of family members.
Xi_2 = the price per kilogram of paltry meat by pound
Xi3 = the price per kilogram of red meat by pound
Xi_4 = the price per kilogram of fish meat by pound).
Xi_5 = Average of the monthly household income by pound
** Significant at the level of 1%. * Significant at the level of 5%.
Source: Collected and calculated from the study sampled in Qaloubia governorate in 2020

It was found from the results of the price elasticity's of demand that it is negative, that is, it reflects the inverse relationship between the quantity of poultry consumed and its price, and that it is greater than the correct one for the first category (individual income is less than 2000 Egyptian pounds),

which means that the relative change in price is greater than the relative change in quantity, while it was found that the elasticity of demand The price per capita consumption of poultry for the second and third categories of individual income (2000-6000 EGP), (more than 6000 EGP) Less than the correct one, which indicates that the demand for the consumed quantity of poultry is inelastic.

While the internal elasticity of demand for poultry shows that it is less than one, which means that demand is inelastic and that poultry is a necessary commodity for all groups in the urban and rural areas of the sample and that the sign is positive and this means that the poultry commodity is a normal commodity. As for the cross elasticity, which is the relationship between the change in quantity consumed poultry and the change in the price of red meat.

The study recommends the provision of animal protein at prices suitable for the income of the Egyptian consumer. Attention should be paid to providing the requirements of the poultry industry locally, while upgrading the establishment of farms with modern technologies and capacity effluents that reduce production costs and work on overflowing and improving the marketing property, which positively affects the ability of individuals to provide cheap and good animal protein.

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