



DETERMINANTS OF CONSUMPTION EXPENDITURE ON FISH IN BAGHDAD CITY

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Abstract

Consumption plays an important role in economy and its development and it is also considered one of the main determinants of the formation of national income and one of the most important constituents of total demand, the thing that gave it a distinguished and special importance. This study aims at analyzing the effect of social and economic features of fish consumers in Baghdad city on the consumption pattern of fish through estimating the relationship between the monthly consumption expenditure on fish as a dependent variable and its determinant factors as quantitative and qualitative independent variables. The descriptive approach was used giving a background on theories explaining consumption, also the standard analytic approach was used exploiting the least squares method and the variation analysis program (Eviews).

Key words : Consumption expenditure, fish, economic features.

Introduction

Fish are considered one of the most important animal resources for a number of necessary nutritive elements; in addition to protein which is a primary constituent of which fish provide a large percentage of the global need (about 18.5%) compared to other types of meat, It also contains a number of vitamins and minerals (Calcium and Phosphor), two important substances in treating Calcium deficiency and osteoporosis. The enhancement in educational and economic level of the consumers in the last years has led to a change of consumption styles where fish entered the food pyramid as a result of developed awareness of the its nutritive value being a healthy food, the thing that led to increased demand on fish consumption and to follow a healthy food regime (Arab Organization for Economic Development, 2005) as they are rich in amino acids and non-saturated fatty acids that prevent blood clotting; fish are being gradually put on menu to substitute red meat and poultry. This change in consumption style was accompanied with increased expenditure on fish and the search for sources of production and ways of marketing and preparing for consumption and the tending of consumers to their preparation. This tendency was supported by the multiplicity of choices due to the abundance of fish meat,

in the shape of new products, in most of the commercial shops as well as retail shops and general markets after they were limited to traditional fish markets. The spread of fish preparation and provisioning in most of districts and streets in different shapes allowed a wider range for increasing the demand on fish.

The Problem

In spite of the notably increased demand on fish meat consumption, only few researches focused on understanding the relationship between fish consumption and the differences in the pattern of life, despite the importance of understanding this integrative relation in giving the indications that help producers, distributors and marketers in targeting the consumptive segments according to their groups, in addition to its importance in finding indications or marks about the choices of consumer in general.

Aim of the research

The research aimed at analyzing the impact of the economic and social features of the fish consumers in Baghdad on the fish consumption style through the estimation of the relationship between fish's monthly consumption expenditure as a dependent variable and the determinant factors as independent variables via the use of quantitative and descriptive variables.

Research hypothesis

The research hypothesizes that there is a change in the fish consumption style and that qualitative factors affect the consumer spending more than the quantitative ones.

Materials and Methods

The requirements were met through a questionnaire form, distributed randomly to a number of consumers in Baghdad City, The sample included four areas: (Al Saidiyah, Al Dourah, Baghdad Al Jadeedah, Ur district), where 200 forms were collected from these areas. The research was based on both classic models represented by multiple linear regression models, and modern models represented by qualitative response models, including the Probit model.

Consumption and its Theories

Consumption is considered one of the basic factors of economic activity and it is considered one of its most important fundamental aspects, consumption is subject to a number of economic and social variables, it affects and is affected by those variable of which the most prominent are the income and its distribution, the price of the merchandise, the prices of alternative merchandises and their accessories, the population number and the taste of consumers. Theories varied in explaining the consumption; some are standard wise, explaining the behavior which the consumer should follow in consumption, others are descriptive that depicts the consumption behavior as it is; the most important theories are:

Absolute Income Theory (Keynes)

Relative Income Theory (Duesenberry)

Permanent Income Theory (Friedman)

The life cycle theory (Modigliani)

Absolute Income Theory (Keynes)

Within the assumption of absolute income, consumption is determined by the absolute and the current levels of income, that is, where C represents the current consumption, while Y_d represents the available income (i.e., personal income after tax), and this means that the basic relationship between consumption and income is that of short-term consumption and income, which is the consumption function reached by Keynes ($C=O=Y_d$), Consumption according to Keynes depends on two factors: Average consumer preference (APC), and income, also increased consumption associated with certain increased income depends on the marginal tendency to consume and this means that the change in

consumption is either due to the change in income with a constant tendency to consume, or to the change in the tendency to consume with stable income. It is known that the tendency to consume depends on two types of subjective and objective factors and as follows:

1. Subjective factors
 - Human nature
 - Customs and traditions
2. Objective factors
 - Income change
 - Interest rate change
 - Financial and monetary policies of the State
 - Unpredictable changes in the value of wealth

Not to forget to mention that Keynes noticed that subjective factors only change at the long term, so he considered them constant. Thus, the tendency to consume in the short term is only because of objective factors, and hence, Keynes concluded that the tendency for consumption is almost constant in the short term i.e. the proportion society allocates to consumption of present or current income is constant. In light of this, short-term consumption changes depend on income changes rather than on the changes of tendency to consume, so current income is generally considered to be the basis for short-term consumption. The other assumption of Keynes is that consumption increases as income increases, but the increase in consumption is lower than the increase in income, which is why Keynes assumed that the average tendency for consumption decreases as income increases. In order for the average tendency for consumption to decrease by higher income, the consumption function must intersect the vertical axis (consumption axis) at a point above the center of the origin. (Bakri, 2016).

Relative Income theory

Duesenberry considers the individual consumer spending is determined by the social environment in which the family lives (as the consumption style of the is influenced by the consumption pattern of their neighbors), so consumption expenditure is not determined by absolute income alone, but also by the relative income prevailing in the family's environment as well as the consumption rates and style of previous periods, i.e. consumption depends on the highest income earned in the previous period, he also assumes that it is easy for consumers to increase consumption rates as their income increases, but it is difficult to return to previous consumption levels when their income declines and therefore consumption rates in the short term are increasing continuously due to imitation and simulation. (Al Amro *et al.*, 2018).

Permanent Income Theory

The theory of permanent income by the scientist (Milton Friedman), which is consistent with the theory of simulation, suggests that consumption depends on the current income proportional to the previous maximum income, but adds that consumption also depends on the expected future income, therefore, a family which expects its income to increase in the future, consumes more than the level of its current income, the theory of permanent income is based on three basic assumptions:

1. The real income of the family is divided into two elements: Permanent income, which is characterized by continuity and stability, such as salary and monthly allowance, i.e. the amount of income that the family can spend without affecting its wealth (the current value of income expected to be earned by the family in the future), and transitional income which is the unexpected income such as rewards, gifts or aids, and it is either positive or negative. Now, according to the fact that income is either permanent or transitional, the actual consumption of the family is also divided into two parts: Permanent consumption and transitional consumption which is an unexpected consumption, such as the cost of unexpected treatment, a gift for a particular event, etc.

2. Permanent consumption is a constant percentage of permanent income.

3. There is no relationship between permanent income and transitional income; fluctuations in income do not affect permanent income and therefore there is no relationship between permanent consumption and transitional consumption (Guendouz, 2019).

Life Cycle Theory of Consumption of Modigliani & Ando

This theory assumes that consumption is influenced by psychological factors, unlike the income factor; the consumer makes his consumption decisions according to his future income expectations, so that he tries to maintain the consumption style or standard of living during his life years, so the average tendency to consume is low during the early stages of creating a savings basket that helps him enjoy and live in prosperity until the last stages of his life and one of the most prominent outcomes of life cycle theory is the relationship between consumption and changes in the prices of the stock market. The value of the securities held by individuals is a part of their wealth. For example, in salability, the rise in the prices of financial markets tends to maximize wealth and this leads to increased consumption and this is what happened in the United States at the end of the 1990s, where The financial markets' bubble in the United States and the huge price

risks of the shares of the telecommunications and information companies led to a big rise in the consumption volume because of the feeling of wealth and the accessibility of shareholders to borrow from the banking institutions to finance their consumption expenditure (Ali, 2005).

Results and Discussion

The first step in the standard economy is to characterize the model, as there are many factors that can affect consumer spending on fish in the governorate of Baghdad, but the research included several independent variables, however, some of them were excluded for not giving good results and the others were excluded for not achieving the research targets. The model was therefore described as follows:

Consumption expenditure's function including the following variables:

Y: The variable of consumption expenditure in (thousand Dinars)

X1: Fish price in (thousand Dinars)

X2: Education (thousand Dinars)

X4: Age in years

X5: Fish consumption in (kg)

X6: Fictional variable (zero for restaurant, one for home).

Using the ordinary least squares and the use of the Eviews program where many functional formulas were used; the linear formula, the double logarithmic formula and the reverse formula, the double logarithmic formula was the best formula in expressing the relationship between consumption expenditure and the determinants for its passing the statistical, economic and standard tests as shown in the following table.

When the estimated function is checked, we note that the price variable has reached the mark value of 1818.3, with a negative sign and this confirms the inverse relationship between the price and consumption expenditure, and this conforms to the logic of economic theory, i.e. by increasing the price 1%, Consumer spending declines by 1818.3%. The education mark which reached 2080% also shows that education does not affect consumer spending as it has negative effect contrary to the economic and food logic, keeping in mind that the consumer realizes the nutritive importance of fish by increasing his educational level, while the income mark reached 1748.9, with a positive sign, i.e. when income increases by 1%, the consumption expenditure on fish increases by 1748.9% and this is on line with the economic

Table 1: Consumption expenditure's determinants function in double logarithmic format (Table prepared by the researchers).

Dependent Variable: Y
Method: Least Squares
Date: 04/14/18 Time: 16:39
Sample: 1 200
Included observations: 200

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|--------|
| LN1 | -1818.376 | 3384.491 | -0.537267 | 0.5917 |
| LN2 | -2080.773 | 3002.106 | -0.693104 | 0.4891 |
| LN3 | 1748.942 | 2391.238 | 0.731396 | 0.4654 |
| LN4 | 34149.96 | 4334.512 | 7.878618 | 0.0000 |
| LN6 | 39002.79 | 1709.453 | 22.81595 | 0.0000 |
| X5 | 1769.100 | 3035.522 | 0.582799 | 0.5607 |
| C | -339879.1 | 43966.03 | -7.730494 | 0.0000 |

| | | | |
|--------------------|-----------|-----------------------|----------|
| R-squared | 0.750986 | Mean dependent var | 37027.50 |
| Adjusted R-squared | 0.743245 | S.D. dependent var | 25876.50 |
| S.E. of regression | 13111.88 | Akaike info criterion | 21.83480 |
| Sum squared resid | 3.32E+10 | Schwarz criterion | 21.95024 |
| Log likelihood | -2176.480 | Hannan-Quinn criter. | 21.88152 |
| F-statistic | 97.00970 | Durbin-Watson stat | 1.822023 |
| Prob(F-statistic) | 0.000000 | | |

Table 2: Standard Problem Tests.

| Heteroskedasticity Test: ARCH | | | |
|-------------------------------|----------|---------------------|--------|
| F-statistic | 0.016142 | Prob. F(1,197) | 0.8990 |
| Obs*R-squared | 0.016304 | Prob. Chi-Square(1) | 0.8984 |

| | LN1 | LN2 | LN3 | LN4 | LN6 | X5 |
|-----|-----------|-----------|----------|-----------|-----------|----------|
| LN1 | 1.000000 | -0.121286 | 0.057499 | 0.083529 | 0.131325 | 0.061139 |
| LN2 | -0.121286 | 1.000000 | 0.281437 | 0.063985 | 0.028958 | 0.022100 |
| LN3 | 0.057499 | 0.281437 | 1.000000 | 0.124990 | 0.214082 | 0.049547 |
| LN4 | 0.083529 | 0.063985 | 0.124990 | 1.000000 | -0.235430 | 0.030188 |
| LN6 | 0.131325 | 0.028958 | 0.214082 | -0.235430 | 1.000000 | 0.037993 |
| X5 | 0.061139 | 0.022100 | 0.049547 | 0.030188 | 0.037993 | 1.000000 |

| Breusch-Godfrey Serial Correlation LM Test | | | |
|--|----------|---------------------|--------|
| F-statistic | 0.823950 | Prob. F(2,191) | 0.4402 |
| Obs*R-squared | 1.710790 | Prob. Chi-Square(2) | 0.4251 |

logic, i.e. by income increase, the allotted money from income for fish consumption increases. The variable of the quantity consumed had a greater effect and was the most influential among the studied variables on the consumption expenditure, as its mark reached 39002.7, which is high, showing the effect of this variable on the consumption expenditure and is in line with the economic theory; increased fish quantity sale means increased expenditure on fish. Age variable's mark reached 34149 and this means that when life increases by 1%, consumption expenditure of fish will increase by 34149, and this is normal because with aging, the desire to consume fish increases due to the nutritional benefits of this commodity. Regarding the place where fish is exchanged (represented as a fictitious variable, it is zero in the case of fish trading in the restaurant, and is one where fish is exchanged at home), its mark reached 1769 and this is a positive effect on the increase of consumer spending. Statically speaking, the stability of the function,

the age variable and the quantity consumed was evidently significant whereas the other variables did not prove their significance, however, the overall function was significant on the level of 1% according to the f-test, its value was 97 and this indicates the reality of the function on the one hand and the importance of the studied variables on the other hand. The determination factor was 75% which indicates that the independent variables subject to study were able to interpret 75% of variation in consumption expenditure on fish, the remaining percentage (25%) is ascribed to many other factors not included in the form, some related to taste, season and others, and for the form to be accepted, we must demonstrate the standard problems as follows:

1. The problem of self-correlation checked by the LM test proved that the model was free of this problem.
2. The problem of non-stability of variation homogeneity, which often characterizes sectional data, has been detected via ARCH test, which suggests that

Table 3: Probit Model.

Dependent Variable: Y
Method: ML - Binary Probit (Quadratic hill climbing)
Date: 04/14/18 Time: 17:12
Sample: 1 200
Included observations: 200
Convergence achieved after 10 iterations
Covariance matrix computed using second derivatives

| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|-----------------------|-------------|-----------------------|-------------|--------|
| X1 | 0.000405 | 8.77E-05 | 4.619665 | 0.0000 |
| X2 | -0.226880 | 0.146780 | -1.545714 | 0.1222 |
| X3 | 5.76E-07 | 2.92E-07 | 1.973868 | 0.0484 |
| X4 | 0.007324 | 0.012340 | 0.593494 | 0.5529 |
| X5 | 0.196781 | 0.429497 | 0.458166 | 0.6468 |
| X6 | 0.506277 | 0.074539 | 6.792104 | 0.0000 |
| C | -6.391388 | 1.036661 | -6.165362 | 0.0000 |
| McFadden R-squared | 0.591039 | Mean dependent var | 0.330000 | |
| S.D. dependent var | 0.471393 | S.E. of regression | 0.275672 | |
| Akaike info criterion | 0.588708 | Sum squared resid | 14.66699 | |
| Schwarz criterion | 0.704149 | Log likelihood | -51.87084 | |
| Hannan-Quinn criter. | 0.635426 | Restr. log likelihood | -126.8357 | |
| LR statistic | 149.9298 | Avg. log likelihood | -0.259354 | |
| Prob(LR statistic) | 0.000000 | | | |
| Obs with Dep=0 | 134 | Total obs | 200 | |
| Obs with Dep=1 | 66 | | | |

the estimated model does not suffer from variation homogeneity.

3. The problem of linear multiplicity which was detected using association matrix, also indicated that there is no problem of linear duplication between the independent variables.

The PROBIT Model

A type of regression used in qualitative response models, this model is similar to the Logit model in the nature of the dependent variable since it is a qualitative variable that takes two characteristics, zero and one, and depends on the potential condensation function $f(XtB)$ and the cumulative distribution function $f(XTB)$, if it follows normal distribution and an average of 0 μ s and a contrast of 22 (Ali, 2016).

To evaluate the Probit model, the dependent variable must be a fictitious variable that takes two values (0, 1), the expenditure levels was set to two levels:

* The first level of expenditure: More than (40 thousand dinars) and it takes the value of 1.

* The second level: expenditure is less than (40 thousand dinars) and it takes the value of 0.

The explanatory variables are as described in the previous function; the Probit model was evaluated using the Eviews program and the maximum likelihood method (ML).

The regression index (bi) measures the effect of the independent variable on the prediction of the value of the dependent variable, and in the case of linear probability models, the prediction of the dependent variable value is only a probability, thus, the index of regression (bi) measures the effect of the variable (xi) in one unit. The number of views which acquired the value of 1 i.e. the occurrence of the event reached 66 views, whereas the views which acquired the value 0 (expenditure was less than 0) reached 134. When observing the results of the Probit model, we note that the independent factors (price, education, income, age, quantity consumed and place of consummation) came with positive effects (except the education level), by increasing these factors in one unit, the probability of efficiency is one increasing by (0.0004, 5.7, 0.00, 0.19, 0.5) units respectively, whereas the education level indicated inverse relationship with efficiency; by increasing it one unit, the probability of efficiency approaches zero with a value of 0.22 and this

might contradict with logic because by increasing the education level the consumer is supposed to be aware of the nutritive significance of fish and, hence, increases his spending on the consumed amounts. In terms of the importance and the most significant among variables that affect the probability of efficiency, it is the income variable, and this is in line with the economic logic, because income is one of the most important factors determining the expenditure. The variables studied managed to explain 59% of the variation in the probability of the dependent variable's efficiency while the remainder is due to other variables not included in the model and they are plenty because there are qualitative variables whose effect in expenditure cannot be measured, such as consumer taste, habits and even the season. Statistically speaking the model is good and has achieved good standards such as Hannan, Schwarz in addition to LR statistic which is equivalent to the f- test.

Conclusions

1. The research hypothesis that non-economic social factors affect spending such as age and level of education was verified.
2. One of the most influential factors on the possibility of increasing expenditure is the income, expenditure will increase when income increases.

Recommendations

1. Economic policy should limit the increase of prices

levels, fare orientation of income to marketing institutions and taking into consideration the price and its suitability to the consumer income.

2. The use of weekly expenditure data in the studies to avoid prices fluctuations in addition to the focus on non- quantitative factors.

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