

THE FACTORS AFFECTING FISH CONSUMPTION OF THE CONSUMERS IN KESAN TOWNSHIP IN EDIRNE

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Abstract

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In this study, surveys have been conducted to 271 people in order to determine fish consumption habit and preferences of the people in Kesan Province Centre in Edirne. In the study, it has been determined that 98.8% percent of the consumers consume fish. According to the research findings it has been determined that annual fish consumption amount for per capita is 23.02 kg. In the study, in order to analyze the factors affecting families' fish consumption amount, logit model has been used. According to the logit model results; it has been identified that age, gender and the number of individuals in the family variables effect families' fish consumption amount statistically.

Key words: fish consumption, consumer decisions, logit model, Kesan

Introduction

In order people to be fed adequately and balanced; it is necessary them to consume 70 g protein and 47 g of it must be animally origin (Seçer and Rad, 1993). To meet the need for animally protein, cheaper and protein rich fishery products (water products) is the basic industry meeting an important part of food requirement of the world. Thanks to the training and technology, it has shown a surprising development particularly in the last 50 years (Dagtekin and Ak, 2007). Fish is a very important food in terms of its nutrition value and protein. Beside them, it is also rich with fat-soluble vitamins such as iodine, phosphorus and zinc.

At the beginning of common diseases; cancer, cardiovascular diseases, high-blood pressure, diabetes and cholesterol come. Based on these diseases feeding regime has an important place other than hereditary factors. It is reported that studies have been made about fish meat treating these diseases and protecting and positive results have been obtained (Turan et al., 2006; Atar and Alçiçek, 2009)

Turkey has a significant potential in terms of its fishery products (water products) with its lakes, dams and streams as well as being a country surrounded by sea on three sides. In fact, approximately 25 million hectare land is suitable for the

protection of fishery products (water products) in our country having 8333 km coastline (Anonymous, 2001). According to the year 2011 Meat and Fish Institution sector evaluation report, fish consumption of per capita in USA is average 20 kg/year. When it comes to Turkey, it is about 8 kg/year. This value in EU countries is average 24 kg (Anonymous, 2011).

In this study, fish consumption patterns of households have been determined in Kesan Province Centre in Edirne; the factors affecting the amount of fish consumption have been examined. So that the factors affecting the consumers fish consumption preference and the importance of fish in household's nutrition profile will be determined.

Material and Method

The main material of the study, is the data obtained from the survey applied to the families in 2012 Edirne's Kesan Province Centre. For the determination of the number of the families to whom survey will be applied, first total population of the central district have been identified from the official records. In the determination of the sample volume, study was performed in 90% confidence limit with 5% error margin. In the result of the calculation made, sample volume has been determined as 271.

Sample size was determined by the following equation (Baş, 2008):

$$n = \frac{N \cdot t^2 \cdot p \cdot q}{d^2 \cdot (N - 1) + t^2 \cdot p \cdot q}$$

where: n: The number of individuals sampled; N: Number of individual target group (57195); p: Examined the probability of occurrence of the event (0.50); q: Examined the probability of not occurrence of the event(0.50); t: The value of the standard normal distribution (1.65); d: Sampling error (0.05)

Logit model has been used to identify the factors affecting families' fish consumption amount in Kesan Province Centre in Edirne. Logit model describing the logistic distribution function can be written as below (Greene, 2000).

In the study in order to describe the increase possibility in fish consumption amount; annual average fish consumption (8 kg) amount for per capita in Turkey has been taken into account as a criteria. In this case the probability of fish consumption over 8 kg for per capita in a family will be (P_i), when it comes to the probability of fish consumption in 8 kg and under will be (1- P_i). Accordingly; $P_i / (1 - P_i)$ is the ratio of the probability of consuming fish of a family more than average (8 kg) to the probability of consuming less fish. Then; when Logit model is written as: $\hat{\alpha}_2$ will define the coefficient slope; X_i will define independent variables. According to them, it can be guessed that how a unit more fish consumption probability in X changes logarithmic rate to less fish consumption.

Research Findings and Discussion

20.6% of the consumers are in the age group 18-25; after them 19.6% are in the age group 26-30; 28.0% are in the age group 31-40; 16.6 % are in the age group 41-50; 12.2% are in the age group 51-60; 3.0% are in the age group 60 and over. 48% of the respondents are male and 52% are females. 33.3% of the consumers are single; 61.5% are married, 5.2% are divorced. When educational status of the family members have been analyzed; it has been determined that 1.1% are not literate, 5.5% are literate ,14% are graduated from primary school and 8.1% are graduated from secondary school, 39.5% are graduated from high school, 31.4% are graduated from university, 0.4% of them are graduated from post graduate.

Among the consumers according to their occupation groups; 17.4% of them are civil servant, 20.3% are workers, 23.2% are homemakers, 19.2% are other, 10.7% are self-employed, 9.2% are unemployed. When looking at the annual incomes of the consumers it is seen that 6.3 % of them receive 0-1000 Turkish Liras, 21.8% receive 1001-1500 Turkish Liras, 29.9% receive 1501-2000 Turkish Liras, 26.9% receive

2001-2500 Turkish Liras, 11.4% receive 2501-3500 Turkish Liras, 3.7% of them receive 3501 Turkish Liras and over.

In the studies associated with the consumption of fish that Purcell and Raunikar (1968), Nash and Bell (1969), Pippin and Morrison (1975), Hu (1985), Rodolfo et al. (1995) studied on the effects on overall fish products consumption of socio-economic factors.

In the research, while 98.8% of the consumers consume fish; 1.2% of them do not consume fish. When the quantities of fish consumption of households are analyzed; it has been determined that annual fish consumption amount for per capita is 23.02 kg in overall average. In the study, Ceylan et al. (2008) have performed; it has been indicated that seasonal fish consumption amount for each household is 28.33 kg in urban areas maximum in spring season and 17 kg in rural areas in summer season. In Table 1 when consumed fish species are examined; it has been determined that 73.8% of anchovies, 55.0% bonitos, 46.9% flour mackerel, 31.4 % sea bass, 29.9% bluefish, 29.2% trout, 26.6 % bream, 22.5% haddock, 13.7% mullet, 12.2% carp, 10.0% canned fish, 6.3% salmon are consumed.

Varieties of fish consumed are seen in Table 1. When it comes to the reason of choosing the types of fish, 83.8% have stated that they are delicious, 64.6% have stated they like, and 27.3% have stated they find cheap, 18.5% have stated they are easy to eat. 70.1 % of the consumers have stated that if the expensive fish gets cheaper they consume; when it comes to 29.96% they have stated they do not consume.

97% of consumers consume fish at dinner, 17.7% at lunch, and 2.2% at breakfast. In the study, Pansly and Saygy (2001) have found that the factors affecting fishery products (wa-

Table 1
Varieties of fish consumed

	Frequency	%
Anchovies	200	73.8
Bonitos	149	55.0
Flour mackerel	127	46.9
Sea bass	85	31.9
Blue Fish	81	29.9
Trout	79	29.2
Bream	72	26.6
Haddock	61	22.5
Mullet	37	13.7
Carp	33	12.2
Canned fish	27	10.0
Salmon	17	6.3
Total	271	*-

*Totals exceed 100% because there are preferences more than one.

ter products) consumption are mothers to be graduated from high school, families' red meat consumption choice, and changes in fish prices.

In the study, fish consumption type has been found maximum in pan (78.6%). It has been determined that is followed in its order in oven (53.5), grills (49.8), steamed (37.6) and brine (5.9). While 91.9% of the consumers consume fish at home, 8.1 % do not consume at home. The ones (68.1) not consuming fish at home have stated as the most important reason that fish emit odours at home.

In the examined families 36.5% of them consume fish in the winter month, 3% spring, %4.4 summer, %11.8 autumn; when it comes to 44.3% part; they underestimate seasonal constrains. Erdal and Esengün (2008) in their study have found out that consumers consume fish meat maximum in winter seasons.

In Table 2 consumers (83.8%) as the most significant reason of fish consumption have stated that it is delicious. Also in many studies, it has been determined that consumers prefer fish meat because it is delicious (Sayili et al., 1999; Karakas, 2010).

In the study 81.5% of consumers have stated that they understand whether fish is fresh or not when they buy; 18.5%

Table 2
Fish consumption reasons

	Frequency	%
Delicious	227	83.8
Nutritive value	169	62.4
To taste	149	55.0
Be cheaper	17	17.0
Habit	75	27.7
Easy of digestion	34	12.5
Lower cholesterol	49	18.1
Total	271	*-

*Totals exceed 100% because there are preferences more than one.

Table 3
Understanding whether fish is fresh or not

	Frequency	%
Gill and eye	145	53.5
General view of	93	34.3
Breath	80	29.5
Color	76	28.0
Hardness of flesh	31	11.4
Fish stamps	69	25.5
Total	271	*-

*Totals exceed 100% because there are preferences more than one.

of them have stated they do not understand. In Table 3 it has been determined that consumers (53.4) understand whether fish is fresh or not via looking at their gill and eyes.

In Table 4 it has been determined that when families purchase fish; they prefer to buy from stable sellers (68.3%) the most, in the second place from the travelling salesmen (36.2%), in the third place from the supermarket (28.0%), in the fourth place from the ones holding himself/herself (17.3%) own, in the fifth place from the suppliers of street (15.5%); in the last place; from fish breeders (11.1%). In the study as the reason to prefer, them to be fresh (77.5%), to bound easily (44.6%), ease of transportation (27.7%), to be cheap (26.2%), number of types to be more (22.5%).

In the study, fish consumption amount was predicated on as the dependent variable in Logit model, which was provided in order to determine the factors affecting families' fish consumption amount in Kesan province centre in province of Edirne. Accordingly to describe the increase likelihood in the amount of fish consumption;

Fish consumption amount = "0", (if the person consumes fish 8kg and below per year)

Fish consumption amount = "1", (if the person consumes fish over 8 kg per year) variables have been identified.

In Table 5 McFadden R² value representing the explanatory power of the model has been determined as 0.603; its likelihood volume has been determined as 274.162 respectively.

In the study; in order to determine the most appropriate model; for variables described in Table 5; different model tests have been applied; it has been tested whether it is at 5% significance level statistically. From among the independent variables, age, gender, the number of members in the family have been found meaningful at 5% significance level in multi-model statistically.

The results of Logit model are shown in Table 3.

In the research, the age variable has been found significant at 5% level statistically. The coefficient of age variable took

Table 4
Fish providing types

	Frequency	%
Peddler	98	36.2
Hard dealer	185	68.3
Holds its own	47	17.3
Fish farmer	30	11.1
Street vendor	42	15.5
Supermarket	76	28.0
Total	271	*-

*Totals exceed 100% because there are preferences more than one.

Table 5
The results of Logit model

	B (Coefficient of explanatory variables)	Standard Error	Z- statistics	Severity Rating	Betting odds
Age	.497	.193	2,568	.010**	1,643
Gender	-.715	.357	-2,003	.045**	.489
Education	.187	.186	1,004	.315	1,205
Marital status	-.144	.400	-.360	.719	.866
Family income	-.078	.150	-.519	.604	.925
Number of family members	.337	.139	2,425	.015**	1,401
Consumption season	.111	.163	.677	.498	1,117

positive value. When the age increases a unit, fish consumption amount probability increases 1.643.

The coefficient of gender variable takes negative value. In this case, it has been determined that females consume fish more than males. Females consume more fish in 0.489 rates more than males.

In the study, the variable of the individual number in the family takes positive value. A unit increase in the number of family members; increases the probability of consumers' consumption at 1.401.

Conclusion

In the performed research, it has been aimed to determine the factors effecting fish prefers of the consumer, consuming types and consumers' decisions. 98.8% of the consumers consume fish. According to the obtained findings, it has been found out that the families have fish consumption habits and fish consumption amount per year for per capita is average 23.02 kg. This number is over (8 kg) than Turkey average. The reason of it is, it to be close to seacoast.

It has been determined that the fish variety that the families consume most is anchovy. It has been found out that consumers consume fish maximum in the evening and do not care seasonal constraints. It has been determined that the shape of fish consumption is maximum in pan.

Conclusion

In the study, the factors affecting the change in fish consumption amount have been analyzed with the help of logit model. According to model results; the variables affecting the probability in statistically meaning of the families to prefer consuming fish below 8 kg or over 8 kg ; has been found out as age, gender and number of family members. It has been determined that when age and the number of family member increase; fish consumption amount increases.

Increasing fish consumption habit should be considered as a case of essential fact for having healthier generations. Consumers should be made aware about fishery products (water products), fishery product(water product) should be introduced; its consumption should be supported. Fish consumption should be increased via giving information by educational institutions, government agencies and non-governmental organizations. Fishery products (water products) production and culture fishing should be supported.

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