Determinants of Food Categories Expenditure of the Refugees: Case of Samsun Urban Districts, Turkey

Mültecilerin Gıda Kategorilerine Yönelik Harcamalarını Etkileyen Faktörler: Samsun Kentsel İlçeler Örneği, Türkiye

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DETERMINANTS OF FOOD CATEGORIES EXPENDITURE OF THE REFUGEES: CASE OF SAMSUN URBAN DISTRICTS, TURKEY

ABSTRACT:

Household expenditure on food categories is affected by cultural, socio-demographic, and economic factors. The aim of this study is to examine the determinants influencing the refugee households' total food expenditure for vegetables, fruit, dairy products, meat products, and cereals. The primary data were gathered from the surveys conducted with 252 Syrian and Iraqi refugee households residing in Samsun province in the period of October 2019 - March 2020. Multiple linear regression analysis was carried out to estimate the determinants for food expenditure of the refugee households. The results indicated that the weekly food expenditure of refugee households was 311 TL which represents 38% of the household income. The food expenditure was dominated by meat, vegetables, fruit, dairy products, and cereals, respectively. The model results revealed that socio-demographic variables as household size, length of stay in Samsun province, economic variables as a level of income, and behavioral variables as purchasing out of season and the wasted amount had significant effects on the food expenditure of refugee households.

Keywords: *Refugee household, Food expenditure, Determinants, Multiple Linear Regression, Samsun, Turkey*

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MÜLTECİLERİN GIDA KATEGORİLERİNE YÖNELİK HARCAMALARINI ETKİLEYEN FAKTÖRLER: SAMSUN KENTSEL İLÇELER ÖRNEĞİ, TÜRKİYE

ÖZ:

Gıda kategorilerine ilişkin hane halkı harcamaları kültürel, sosyo-demografik ve ekonomik faktörlerden etkilenmektedir. Bu çalışmanın amacı, sığınmacı hane halklarının sebze, meyve, süt ürünleri, et ürünleri ve tahıllar kategorilerine ait toplam gıda harcamalarını etkileyen faktörlerin belirlenmesidir. Araştırmanın birincil verileri, Samsun İlinde ikamet eden 252 Suriyeli ve Iraklı sığınmacı hane halkı ile Ekim 2019-Mart 2020 döneminde yapılan anketlerden elde edilmiştir. Sığınmacı hanelerin gıda harcama kategorilerinin belirleyicilerini tahmin etmek için çoklu doğrusal regresyon analizinden yararlanılmıştır. Sonuçlar, sığınmacı hane halklarının haftalık ortalama gıda harcaması 311 TL olup, bu hanehalkı gelirinin %38'ina tekabül ettiğini göstermektedir. Gıda harcamalarında en yüksek payı sırasıyla et, sebze, meyve, süt ürünleri ve tahıllar almaktadır. Model sonuçlarına göre sığınmacı hanehalklarının gıda harcamalarını; sosyo-demografik değişkenlerden hane

halkı büyüklüğü ve Samsun İlinde ikamet süresi, ekonomik değişkenlerden gelir düzeyi ile davranışsal değişkenlerden sezon dışı satın alma ve israf edilen gıda miktar değişkenlerinin istatistiki olarak önemli etkileri söz konusudur.

Anahtar Kelimeler: *Sığınmacı hane halkı, Gıda harcaması, Belirleyiciler, Çoklu Doğrusal Regresyon, Samsun, Türkiye*

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1. INTRODUCTION

In the world, the number of immigrants and refugees has increased gradually due to war, internal conflicts, and poverty during the last two decades. Globally, Turkey is known as the biggest country hosting Middle Eastern refugees. The number of refugees in Turkey increased from 0.7 to 3.9 million in the period of 2013-2019 (Anonymous, 2019). Syrian and Iraqi refugees are the largest immigrant groups in Turkey. Migration to another country has an important impact on consumer behavior due to a new society and culture. Many factors influence food consumption behavior, including culture, social, values, and economic factors (Ramya and Ali, 2016). Therefore, marketers have tried to understand the new consumption behavior of immigrants as the most powerful determinant of consumer behavior (Cleveland and Chang, 2009).

Consumer behavior can be defined as the process involved when individuals or groups select, purchase, evaluate, acquire, use or dispose of products, services, ideas or experiences to satisfy needs and desires and to fulfil consumers' wants and desires (Solomon et al., 2006; Schiffman and Kanuk, 2007; Noel, 2009; Khan, 2007; Ramya and Ali; 2016). There is no single theory of consumer behavior interpreting consumer behavior. Instead, there are various theories, models, and concepts making up this field (Peter and Donnelly, 2007). Different factors such as social, personal, cultural, psychological and economic influence purchasing behavior whereas each type of these factors can be divided into sub-factors (Kotler and Armstrong, 2012; Schiffman and Kanuk, 2007; Noel, 2009; Khan, 2007; Ramya and Ali; 2016).

Food consumption behaviors and influencing factors have been examined by the researchers. Thus, Kotler and Armstrong (2012) examined the effects of the demographic factors on consumer behavior and found that many factors such as income, age, occupation, gender, race, level of education, religion, social class, family size and nationality could influence buying behavior of the consumers. Pilgrim (1957) stated that food perception includes three factors as psychological effects, sensory attributes, and environmental effects. More specially, the different studies were conducted to understand the factors influencing the households' fruit

and vegetable consumption. Dibsdall et al. (2003) stated that age, employment, gender, smoking, and marital status affected consumers' attitudes towards access, affordability, and motivation to eat fruit and vegetables. Baker and Wardle (2003) conducted a study on the factors influencing fruit and vegetable consumption and confirmed the differences in fruit and vegetable consumption based on gender. While Cox et al. (1998) reported that consumers could increase their fruit and vegetable consumption, this was only weakly associated with intention to do so. Balasubramaniyam (2015) examined the heterogeneity of food consumption patterns among different ethnic groups in Ontario (Canada) and found that there was heterogeneity among different ethnic groups on fruit and vegetable consumption and duration of residence and type of residence had a significant impact on a few categories of food.

Determinants of household food expenditures are still essential in most studies on consumer purchasing behavior. In Turkish studies, household size and composition, education, age and gender of the household head, seasonal and regional differences were determined as important determinants for food expenditure (Akbay et al. 2007). Moreover, food consumption patterns change considerably as long as the level of education and welfare increase. Bilgic and Yen (2013) found that age influences food expenditure positively; better educated households demanded more protein products (meat) and married consumers demanded more dairy products. Jacobson et al. (2010) suggested that there is a significant relationship between household income, household size, and age regarding food expenditure. Venn et al. (2018) identified that income has a higher impact on food expenditure than education. Ball et al. (2006) also found that education level significantly and positively influenced vegetable and fruit intake.

Immigrants and refugees have different desires, buying methods, and product preferences. Therefore, understanding the food consumption behaviors of immigrants has become one of the potential issues in marketing fields. Dustmann et al. (2017) revealed that the legalization programs may increase the level of immigrant consumption in the host country, where this process will affect positively both the host country's economy and the immigrants' degree of socioeconomic integration. Aljaroudi (2018) revealed that immigrants tend to balance the maintenance of their traditional habits and the variables of household income, level of education, profession of parents, and age of children, which have statistically positive impacts on consumption. Mbombo-Dweba et al. (2017) stated that traditional food plays a significant role in the dietary patterns of sub-Saharan immigrants in South Africa.

The current study could contribute to the literature in a number of ways. Firstly, this study investigated the factors influencing food expenditure for five categories, whereas most studies focus on one or two food categories. Secondly, the cur-

rent study focused on the refugee household population hosting in Turkey. Several studies have examined Turkish people's food expenditure; however, no studies have addressed the food expenditures of refugees in Turkey. The aim of this study was to examine the determinants influencing the refugee households' expenditures on foods. The main research questions of this study are given as follows: (i) How much do the refugee households spend on food categories? (ii) What are the factors influencing their food expenditure?

The purpose of the study was to test the following hypothesis:

H_1. There are differences among Syrian and Iraqi refugee households' food expenditures.

H_2. Socio-demographic variables have a significant influence on food expenditure.

H_3. Economic variables have a significant influence on food expenditure.

H_4. Behavioral variables have a significant influence on food expenditure.

2. Material and Methods

2.1 Research Area, Sampling and Data Collection

The research area was chosen as the central urban districts (Canik, Ilkadım, and Atakum) of Samsun province of Turkey to explore the factors influencing food expenditure of Syrian and Iraqi refugees There were about 680 Syrian and Iraqi families residing in the selected districts. All of the refugees came from Syria and Iraq after 2011 when the conflict had started.

The level of accuracy is an important determinant of sample size. The larger the sample size, the more accurate your estimates are (Kumar, 2009). The sample household size from the refugee population was determined as 252 using a random sampling design given in Formula 1 (Tejada and Punzalan, 2012):

$$n = \frac{N}{1+Ne^2} \tag{1}$$

Where

n : sample size

N : 680

Z : 1.96 for the confidence level 95%

e : 0.05 acceptance level of sampling error

n= 680 / 1+680 $(0,05)^2$

Face-to-face semi-structured interviews and structured questionnaires were used to collect research data from refugee households between October 2019 and February 2020. The sample respondents from the refugee households were above 18 years old and responsible for buying food.

2.2 Data Analysis Method

The data were collected, edited, coded, and became ready to be analyzed. In addition, the data were analyzed using the software programs EXCEL and SPSS 25. Different methods were used to achieve the objectives of the research. The descriptive analysis was used to explain variables and multiple linear regression analysis was carried out to estimate the relationship between dependent variable and independent variables. Linear multiple regression (LMR) analysis is a statistical technique for understanding the impact of independents variables on dependent variable(s). Also, multiple linear regression analysis is an appropriate technique to obtain our objectives because all the variables in this model are metric. Multicollinearity test refers to the correlations among three or more independent variables. Multicollinearity refers to the correlations among three or more independent variables. There must be no correlation among the independent variables. The relationship between the food expenditure of the refugee households and a set of variables such as socio-demographic, economic, and behavioral variables was investigated.

In this section, the relationship between the total weekly food expenditures of the refugee households and a set of socio-demographic, economic, and behavioral variables were estimated using a multiple linear regression model to obtain the research objectives.

$$ExpSharefi = \beta + \alpha SocDem_i + \theta\ Eco_i + \delta\ Beh_i + \varepsilon i \qquad (2)$$

Where *ExpSharefi* represents the food expenditure of refugee households *i* weekly. *SocDem_i* is a vector of socio-demographic variables including nationality, gender, marital status, household size, age, education level and, length of stay in Samsun province. *Eco_i* denotes a vector of economic variables including job status, number of workers per household, income, and cash assistance providing by the Turkish government. *Beh_i* is a vector of behavioral variables including the number of meals daily, buyer, purchasing out of season, listing through shopping,

payment method, and waste food. *β* refers to a constant value. *α, θ and,* δ represent regression coefficients for socio-demographic, economic, and behavioral variables, respectively. *εi* denotes the error terms.

Table 1 shows the definition and description of all variables used in the model (multiple linear regression). The current study used eight socio-demographic variables.

Table 1. Definition of variables and sample means

Çizelge 1. Değişkenlerin ve örnek ortalamaların tanımı

Variable	Definition and Description
Dependent variable	
Food expenditure	Total weekly expenditure on five food categories (TL)
Dummy Independent variables	
Nationality	1 Iraqi, 0 otherwise
Gender	1 male, 0 otherwise
Marital status	
Married	1 married, 0 otherwise
Single	1 single, 0 otherwise
Divorced	1 divorced, 0 otherwise
Level of education	
Illiterate	1 illiterate, 0 otherwise
Primary	1 primary, 0 otherwise
Secondary	1 secondary, 0 otherwise
High school	1 high school, 0 otherwise
University	1 graduate, 0 otherwise
Postgraduate	1 postgraduate, 0 otherwise
District	
Canik	1 Canik, 0 otherwise
Ilkadim	1 Ilkadim, 0 otherwise
Atakum	1 Atakum, 0 otherwise
Job status	
Unemployed	1 unemployed, 0 otherwise
Employed	1 employed, 0 otherwise
Student	1 student, 0 otherwise
Cash assistance	1 if take assistance, 0 otherwise
Buyer	
Father or mother	1 father or mother, 0 otherwise
Father and mother	1 father and mother, 0 otherwise
Children	1 children, 0 otherwise

Number of meals	
Two meals	1 two meals, 0 otherwise
Three meals	1 three meals, 0 otherwise
Four meals	1 four meals, 0 otherwise
Purchasing offseason	
Never	1 never, 0 otherwise
Very Rarely	1 very rarely, 0 otherwise
Rarely	1 rarely, 0 otherwise
Occasionally	1 occasionally, 0 otherwise
Frequently	1 frequently, 0 otherwise
Always	1 always, 0 otherwise
Doing list for shopping	
Never	1 never, 0 otherwise
Very Rarely	1 very rarely, 0 otherwise
Rarely	1 rarely, 0 otherwise
Occasionally	1 occasionally, 0 otherwise
Frequently	1 frequently, 0 otherwise
Always	1 always, 0 otherwise
Type of payment	1 cash way, 0 otherwise

Continuous Independent variables	
Age	Age in years
Household size	Number of individuals in the household
Length of stay in Samsun	Number of years residing at Samsun
Workers per household	Number of workers in the household
Income	Monthly income (TL)
Waste food	Amount of weekly wasted food (TL)

3. Results and Discussion

3.1 Descriptive Results and Definition of Variables

Descriptive statistics for the respondents' socio-demographic characteristics were given in Table 2. The results show that 44.8% and 55.2% of the refugee respondents were Syrian and Iraqi, respectively. The Iraqi population in Samsun was greater than the Syrian population. The share of male and female respondents was 62.3% and 37.7%, respectively. While 51.2% of the respondents were married, 47.2% and 1.6% were single and divorced, respectively. The average age of the respondents was 30 years. The average household size was 5. Relative to the educational level, the majority of respondents (47.2%) had bachelor's degrees, 21.8% and 14.3% of the respondents completed high school and postgraduate, respectively. Only 5.2% had no formal education, and 5.2% had formal education. The majority of the respondents (61.1%) settled in the central district of Ilkadim, 20.6%, and 18.3% were settled in Atakum and Canik districts, respectively. About half of the

respondents (47.2%) have lived in Samsun province for about 3 years, 28.6% for 3-4 years, 22.2% for 5-6 years, and 2% for more than 6 years. The great wave of migration started after 2014.

Considering the economic characteristics of the respondents, while 38.5% were employed, 35.7% and 25.8% were students and unemployed, respectively. While 51.2% of refugee households had no employee, 32.9% had one worker, 13.5% had two workers and 2.4% had three workers. About 36.1% of refugee households reported that their monthly income was above TL 3000, 29% had monthly income between TL 2000 and 3000, 18.7% had between TL 1500 and 2000 and, 16.3% reported that their monthly income was below TL 1500. The majority of respondents 84.9% did not benefit from cash assistance, while only 15.1% of them received it. The number of household members must be at least 5 to achieve cash assistance.

About 75.8% of respondents, 7.9% of father and mother, and 16.3% of children were in charge of purchasing. The half of respondents (49.6%) had daily three meals, 43.7%, and 6.7% had two and four meals, respectively. According to the results, 27.8% of the respondents bought rarely and occasionally off-season foods. The results show that 21.4% of respondents do shopping list occasionally, 19.4% never, and 8.7% rarely do them. Finally, the majority of respondents (22.1%) used credit/bank cards for shopping, whereas 77.9% paid cash. 41.3% of the refugee households had food waste, whereas 58.7% did not.

Table 2. Descriptive statistics for socio-demographic, economic, and behavioral variables

Çizelge 2. Sosyo-demografik, ekonomik ve davranışsal değişkenler için tanımlayıcı istatistikler

Variables			No. of Respondents	Percent (%)
Socio-demographic	Nationality	Syrian	113	44.8
		Iraqi	139	55.2
	Gender	Male	157	62.3
		Female	95	37.7
	Marital status	Married	129	51.2
		Single	119	47.2
		Divorced	4	1.6
	Age group	18 – 25 years	100	39.8
		26 – 35 years	79	31.5
		36 – 45 years	44	17.5
		More than 45	29	11.2
	Household size	Less than 3	29	11.5
		From 3 to 4	64	25.4
		From 5 to 6	95	37.7
		More than 6	64	25.4
	Level of education	Illiterate	13	5.2
		Primary	13	5.2
		Secondary	16	6.3
		High school	55	21.8
		University	119	47.2
		Postgraduate	36	14.3
	District of residence	Canik	46	18.3
		Ilkadim	154	61.1
		Atakum	52	20.6
	Length of stay in Samsun	Less than 3 years	119	47.2
		From 3 to 4 years	72	28.6
		From 5 to 6 years	56	22.2
		Above of 6 years	5	2.0
Economic	Job-status	Unemployed	65	25.8
		Employed	97	38.5
		Student	90	35.7
	Number of workers	None	129	51.2
		1 worker	83	32.9
		2 workers	34	13.5
		3 workers	6	2.4
	Monthly household income	Less than 1500 TL	41	16.3
		1500 -2000 TL	47	18.7
		2000-3000 TL	73	29.0
		More than 3000 TL	91	36.1
	Benefit from cash assistance	Yes	38	15.1
		No	214	84.9

	Who makes a purchase?	Father or mother	182	75.8
		Father and mother	19	7.9
		Children	39	16.3
Behavioral	Number of meals eaten	Two meals	110	43.7
		Three meals	125	49.6
		Four meals	17	6.7
	Purchasing off-season foods	Never	42	16.7
		Very Rarely	41	16.3
		Rarely	70	27.8
		Occasionally	70	27.8
		Frequently	19	7.5
		Always	0	0.0
	Doing a list of food purchase	Never	49	19.4
		Very Rarely	34	13.5
		Rarely	22	8.7
		Occasionally	54	21.4
		Frequently	46	18.3
		Always	30	11.9
	Payment type in food shopping	Cash	183	77.9
		ATM card	52	22.1
	Food waste	Yes	104	41.3
		No	148	58.7

Table 3 shows the weekly food expenditures of the refugee households. The weekly expenditure on five food categories was 311 TL, accounting for 38% of the total household income. The distribution of food expenditure was as follows; 28% on meat, 26% on vegetables, 18% on fruit, 14% on dairy products, and 13% on cereals.

Table 3. The refugee households' weekly food expenditure by food categories

Çizelge 3. Hanelerin gıda kategorilerine göre haftalık gıda harcamaları

Food categories	Average expenditure (TL/week)	Percent (%) from food expenditure	Percent (%) from the total income
Vegetables	82	26.0	10.0
Fruit	57	18.0	7.0
Dairy products	45	15.0	6.0
Meat	87	28.0	11.0
Cereals	40	13.0	5.0
Total	311	100.0	38.0

Table 4 shows the differences in food expenditure between Syrian and Iraqi refugees for each food category. The average weekly food expenditure was TL 296 by Syrian and TL 325 by Iraqi. There are statistically significant differences in total food expenditure of the refugee groups ($p < 0.05$). The average weekly vegetable expenditure Syrian was TL 81 by and by was TL 83. The average weekly fruit expenditure by Syrian and Iraqi and Iraqi were TL 58 and 56, respectively. The average

weekly dairy products expenditure was 43 and 46 TL, respectively. The average weekly meat expenditure was TL 77 by Syrian and TL 99 by Iraqi, respectively and there are statistically significant differences in their meat expenditures ($p<0.05$). The average cereal expenditure was TL 36 by Syrian and TL 43 by Iraqi, respectively and there are statistically significant differences in their fruit expenditures ($p<0.05$). Therefore, the hypotheses H1 as there are differences among Syrian and Iraqi refugees' food expenditures can be accepted partly.

Table 4. Food expenditure by Syrian versus Iraqi refugees

Çizelge 4. Suriyeli ve Iraklı mültecilerin gıda harcamaları

Food categories	Syrian refugees		Iraqi refugees		p-value
	Mean	Std. Dev.	Mean	Std. Dev.	
Vegetables	81	33.68	83	35.77	0.63
Fruit	58	28.10	56	24.20	0.55
Dairy products	43	20.94	46	18.65	0.15
Meat	77	38.81	99	36.55	0.00*
Cereals	36	17.66	43	16.04	0.00*
Total	296	108.12	325	100.78	0.02**

*, **, *** *mean that significant difference at 1%, 5%, and 10%, respectively.*

3.2 Food Expenditure Model Results

The Multiple Linear Regression (MLR) model was used to investigate the factors influencing the weekly food expenditure of the refugee households. Before estimating the regression model, multicollinearity among the independent variables was tested. Multicollinearity was tested by using VIF values. If variance inflation factor (VIF) is greater than 10, then there is multicollinearity and vice versa. All VIF values are less than 10 and this refers that there is no multicollinearity among the independent variables.

Table 5 shows ANOVA results and includes two main values as F test and its significance level. F test equals 7.346 and the significance level ($p<0,01$) show that there is a significant linear relationship between the dependent and independent variables. The R adjusted equals 0.480 and it means that 48% of the variation in the total food expenditure was explained by variation in the independent socio-demographic, economic, and behavioral variables.

The model results show that the constant value is 43.142 and this means if all independent variables of the model are zero, the weekly food expenditure of the households equals 43.142 TL.

The findings show that various variables had significant effects on food expenditure. In general, the variable of household size had a statistically positive influence on the food expenditure (p<0.01). As the household increases one member, the weekly food expenditure increases by 17.726 TL. These findings were supported by Jacobson et al. (2010). However, Deaton and Paxson (1998) found different results as food expenditure decreases as household size increases. We also found that income level had a statistically positive effect on the refugee households' weekly food expenditure (p<0.01). One TL increase in the monthly income leads to an increase in weekly food expenditure by 0.021 TL. These results were consistent with the results of other studies (Akbay et al., 2007; Venn et al., 2018; Kirkpatrick and Tarasuk, 2003; Abdel-Ghany et al., 2002). In addition, the findings ensure the importance of income in the food expenditure. Different studies support our findings, and how low incomes limit access to adequate food and increase the level of poverty (Dharmasena et al., 2016). The findings revealed that the waste amount of food had a statistically positive effect on the refugee households' weekly food expenditure (p<0.01). One TL increase in the waste food leads to an increase in weekly food expenditure by 0.941 TL. Gob status and cash assistance were not statistically significant on the food expenditure. Our results are inconsistent with Antelo et al. (2017) whereas, unemployment status had a negative impact on Spanish households' food consumption. Dharmasena et al. (2016) also, indicated that unemployment increases level of food insecurity and poverty. These findings can be explained that some researchers had another resource of the income. On the other hand, cash aids are seen as insufficient according to the needs of the refugees.

The variable of the length of stay in Samsun province had a statistically negative effect on the refugee households' weekly food expenditure (p<0.05). One year increase in the duration of stay in Samsun leads to a decrease in the weekly food expenditure by 6.325 TL. Moreover, the variable of purchasing off-season had a statistically significant positive effect on the weekly food expenditure (p<0.05). The households who purchase occasionally off-season foods expended weekly more by TL 31.993. However, the households who purchase off-season foods frequently expended weekly more by TL 47.556.

However, the variables of nationality, gender, marital status, age, education level, district, job status, number of workers in the household, cash assistance, number of meals daily, buyer, listing before shopping, and payment method did not have a statistically significant influence on the weekly food expenditure of the refugee households.

According to the findings, household size and length of stay in Samsun had statistically significant associations on food expenditure. Therefore, H2. Hypothesis as socio-demographic variables have a significant influence on food expenditure

can be partly accepted. Level of income had statistically significant associations on food expenditure. Therefore, H3. Hypothesis as economic variables have a significant influence on food expenditure, can be partly accepted. Finally, the variables of purchasing food products off-season and food waste had statistically significant associations on food expenditure. Therefore, H4. Hypothesis as behavioral variables have a significant influence on food expenditure can be partly accepted.

The refugees left their countries and moved to Turkey. This crisis can influence the food expenditure negatively. The refugees in Turkey are facing different crises such as, economic, social, and other crises. The economic crises have negative impact on the food consumption and expenditure. The food expenditure of the refugees has been influenced by these crises. Brinkman et al. (2009) indicated that the economic crisis reduces both the quantity and quality of food consumed.

Table 5. Regression results of weekly food expenditure model

Çizelge 5. Haftalık gıda harcama modelinin regresyon sonuçları

Independent Variables	Coefficients	Std. Error	t-test	*p-value*
(Constant)	43.142	41.735	1.034	.303
Nationality	-.071	11.509	-.006	.995
Gender	18.295	11.078	1.651	.100
Single	4.314	16.015	.269	.788
Divorced	8.696	46.590	.187	.852
Age	.881	.652	1.350	.178
Household size	17.726	2.661	6.660	.000*
Primary	19.644	34.292	.573	.567
Intermediate	-18.993	32.577	-.583	.561
High	-5.314	27.108	-.196	.845
Bachelor	.821	25.365	.032	.974
Graduate	12.022	27.750	.433	.665
Atakum	10.369	18.428	.563	.574
lkadim	20.545	18.705	1.098	.273
Length of stay	-6.325	3.125	-2.024	.044**
Employment	22.892	13.910	1.646	.101
Student	17.562	14.865	1.181	.239
N. of workers	12.470	7.537	1.655	.100
Income	.021	.003	6.273	.000*
Cash assistance	-21.210	16.178	-1.311	.191
Father And mother	-3.537	20.203	-.175	.861
Children	-11.864	15.637	-.759	.449
Three Meals	12.562	10.907	1.152	.251
Four Meals	-2.953	22.973	-.129	.898
Very Rarely	20.335	17.627	1.154	.250
Rarely	21.347	16.703	1.278	.203
Occasionally	31.993	17.415	1.837	.068***
Frequently	47.556	23.469	2.026	.044**
Very rarely list	12.830	18.218	.704	.482
Rarely list	-6.266	21.328	-.294	.769
Occasionally list	8.965	16.995	.528	.598
Frequently list	-.091	17.617	-.005	.996
Always list	7.845	19.785	.397	.692
Payment Way	9.041	13.689	.660	.510

Waste amount	.941	.356	2.639	.009*
Model summary	$R^2 = 0.555$, Adjusted $R^2 = 0.480$			
ANOVA results	F= 7.346, Sig = 0.000			

a. Dependent Variable: Food Expenditure Weekly

*, **, *** mean that significant at 1%, 5%, and 10% levels, respectively.

4. CONCLUSION

In this paper, we aimed to estimate the food expenditure of Syrian and Iraqi refugees in Samsun province of Turkey. Food expenditure of Syrian and Iraqi refugee households was analyzed using LMR. This paper included expenditure on eaten food at home. It is difficult to comprise all food categories in one study. Therefore, the current study included expenditure on five food categories as vegetables, fruit, dairy products, meat products, and cereals. This study is one of few studies conducting on the food expenditure of refugees in Turkey. This study is based on three groups of variables such as socio-demographic, economic, and behavioral variables to examine the influencing factors on the weekly food expenditure.

The first step was to estimate expenditure on food weekly. According to the results, the total food expenditure of refugees' households was 311 TL representing 38% of the total household income. These results showed high expenditure comparing with total income. There were significant differences in both total food expenditure and grouped food expenditure between Syrian and Iraqi refugees. Weekly food expenditure of Iraqi households was greater than Syrian households. It was concluded that the economic status of Iraqi was better than Syrian refugees. Except for fruit, the expenditure by Iraqi refugees was greater than Syrians for the remaining categories. Despite Syrian and Iraqi refugees descend from near areas and speak the same language, their food expenditure behaviors were different. There were statistically significant differences in the food expenditure patterns of Syrian and Iraqi refugees. Iraqis provide the most consideration to meat products, whereas Syrians provide the most consideration to vegetable products.

The research concluded that household size, length of stay in Samsun province, level of income, purchasing off-season foods and wasted food amount had statistically significant impacts on the food expenditure of the refugee households. The surprising finding was that educational level was not an influential factor. This is explained by the fact that the refugees in the host country (Turkey) do not take salaries aligned with the educational levels. These results are consistent with other studies suggesting that food expenditure was associated with financial resources such as household income (Venn et al., 2018).

The share of food expenditure in the budget for refugee households was high compared with the total income. Therefore, the refugee households should decrease the share of food expenditures in their budgets regarding to their incomes and food patterns. The refugees should pay attention to expend more on fruit and cereals to decrease the expenditure of meat products. The food policies should be established based on understanding the factors influencing their food expenditure. Therefore, it is necessary to evaluate the status of food consumption and expenditure of refugees.

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Authorship contribution statement

The authors declare that they have contributed equally to the article.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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