Estimating the functions of food expenditures in the light of the economic fragility of Syrian families
"Case study of the coastal region of Syria"

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Abstract

This research was carried out in the coastal region of Syria in 2021 and targeted both rural and urban areas with the aim of measuring the level of food expenditure, its characteristics, and the flexibility of income expenditures for families residing in it. Especially under the conditions of the stifling economic crisis that Syria suffers from which is reflected in the food security situation.

The research relied on primary data collected from field surveys targeted a random sample of consumer families amounted to 384 families, distributed throughout 45% of rural areas.

The research results shows that the flexibility of food consumption of each sample is less than one in general, where doubling the income will lead to direct 57% of it to the food group, and the remaining 43%, to the rest of the non-food commodity groups. It is noted that the amount allocated to food expenditure for rural families is 38% higher compared to urban families, which indicates a low nutritional status of the sample level in general, and for rural families in particular.

Keywords: expenditure function, food expenditure flexibility, food security in Syria, elasticity, Urban/Rural areas.

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

29

* Introduction

For several decades, the main objective of food and agricultural policies in Syria has been achieving food security at the national level by focusing on self-sufficiency in the main food crops (Bakour and others, 2009). It has achieved great successes in this field, which are generally reflected in the improvement of food security indicators in terms of total and available per capita, access to food, improvement of income and its distribution, food trade, utilization, quality and safety (Jarad, 2013).

In the past, this success was expressed by the relatively high level of consumption of macro and micro food components, which indicates a high level of food security compared to the daily need and the level of consumption in other countries (Garnegie Center, 2015).

However, the recent Syrian crisis and its armed conflict destroyed the strategy of the progressive transformation and aborted the previous efforts by the government to stimulate economic development. This led to a sharp and rapid decline in the main economic and social indicators in Syria as of 2011. The international sanctions imposed on Syria constituted an additional factor that contributed to the weakening of the Syrian economy (State Planning Commission, 2016). According to the World Food Program, the prices of wheat and rice have increased significantly since the beginning of the conflict in 2011. The retail price of wheat flour has increased about three times, while rice has increased 6 times since 2011, and after a period of relative stability in 2014, the increase in prices resumed in 2015, as food subsidies has decreased. The highest recorded price levels for these commodities were noted in May 2015. The food expenditure percentage of households increased to 55% compared to 45-47% in 2011 (FAO & WFP, 2016). Private consumption (which is the main component of economic demand, and a direct measure of household well-being) in Syria witnessed a contraction of 41.7% in 2014 compared to 2010 (Syrian Center for Studies Research, 2015).

* Research problem

The importance of the research lies in the analysis of consumer spending for Syrian families within the framework of modern consumption theories that unanimously agree on the existence of income and non-income factors that play the role of determinant

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

30

of family consumption spending. Depending especially on the current economic, social and cultural developments, in addition to the lack of studies that deal with the issue of food spending in Syria. Knowing the changes in consumption patterns is an indicator that reflects developments in the standard of living, and an important element in the field of consumption planning and putting production and price policies, and contributing to achieving a balance between supply and demand in the commodity market to improve the level of economic well-being for the members of society.

* Research Gap

The impact of the Syrian Crisis on the food Security Situation is acute and deep , especially by observing its direct consequences on families who suffer from insecurity food. Many previous studies , particularly international institutions and organizations reports on the Syrian Crisis , aim to study and appreciate the state of Syrian Security Food in order to steer relief programs according to identified priorities. However, most of these studies concentrated on constituting security food indicators, measuring them at the household level and estimating the resulting losses at the macroeconomic level , but they practically ignored the impact of the crisis on the main factors which determine the food security, the most important of them are income and consumption expenditure, so they focused on the end of the chain that causes the food security, and they didn't study the chain as an integrated unit.

Therefore, the research will concentrate on the relationship between expenditure and the prices of food commodities by constituting a food commodity price index, and calculating the value of the basic food basket. The demand on food commodities is estimated by the relationship among the quantity of required food commodities, the index of food basket price, substitutes and other factors. This leads to determine price elasticity and spending elasticity on different types of food commodities, in addition to basic non-food commodities like education, health housing, clothing and others. This is useful in estimating the consumption flexibility of these commodities, in defining the consumer's priorities by moving among different elements of the food basket on one hand, and on the other

hand among the non-food elements. As a result, the change in consumption expenditure's directions will be simultaneously a cause/ or a result for changing the styles of family living, and its impact on productive and non-productive assets, and on family ability to adapt and move to recovery strategies and so the sustainability of the effects.

* Research Methodology

* Research time frame

The primary data for the research was collected during September 2021, to ensure obtaining time-homogeneous consumption data among the studied families, in addition to focusing on the second ten days of the month, where monthly expenses tend to be more stable and solid, and this is what is required by the food consumption index (Eyob, 2012).

* The research sample

The statistical community of the sample includes the families residing in the two governorates of Lattakia and Tartous, which were chosen due to the relative security stability there compared to the rest of the governorates.

They also represent a mixed population group that includes the displaced from other governorates in addition to the indigenous population.

Official estimates indicates that the population of Syria in 2019 was about 22,146,000. 2,471,000 of it (11.2%) is distributed among the coastal area that includes Lattakia and Tartus. Where Lattakia contributed the largest part, estimated at 6%, compared to 5.2% in Tartous (Central Bureau of Statistics, 2020). By calculating the average family size, estimated at about 5 individuals at the level of the two governorates, the total number of families in the coastal region is nearly 494,200 families, representing the general framework of the statistical population for the study sample.

The sample size was determined based on the statistical determinants of Morgan's law (Krejci & Morgan, 1970), at a confidence level of 95%:-

$$S = \frac{\times^2 \ NP(1-P)}{d^2(N-1) + \times^2 \ P(1-P)}$$

Whereas:-

S: Sample size.

P: The proportion of the community and equal to (0.50).

N: The size of the studied population.

d: Standard error ratio = 0.05.

$\times^2$: The value of the degree of freedom constant at the required level, which equals 3.841.

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

32

Therefore, the results of determining the size of the research sample were as follows:-

$$S = \frac{(3.841)^2(441259)(0.5)(1-0.5)}{(0.05)^2(441250-1)+(3.841)^2(0.5)(1-0.5)} = 384$$

The sample size was about 384 families, which were distributed according to a set of the following criteria and bases in order to be as representative as possible for the target community:-

The sample was distributed between rural and urban areas according to the relative weight of the total population, where the rural population constituted about 45% of the total population of Syria for the year 2020 (World Bank, 2021). Thus, the sample size in rural areas reached 173 families, while the sample size in urban areas amounted to 211 families.

The sample was distributed according to the main administrative regions in both rural and urban, correlatively to the proportion of each region's representation of the total number of rural or urban families.

Choosing a random sample using the random number table method from villages in each administrative region in the countryside, and a random sample from neighborhoods in the city, based on the records held by the local authorities within the administrative regions in both governorates. Then a random sample with a fixed size of 5 items (households) was drawn from the villages or neighborhoods that were selected in the previous stage.

* Research results:
* Installing household consumption expenditures

Consumer spending includes the total expenditure of the family (cash, debt, self-production and food aid) on food and non-food commodities during the past month. In light of the weak savings in the study sample, the majority of household income (99.4%) is spent directly, as the average consumer spending in the study sample amounted to about 273,250.5 SP/family, with a standard deviation of 122,963 SP. This expenditure varied between rural and urban areas, as it rose to 294,606.4 SP/family in urban areas compared to 247,215.3 SP/family in rural areas. In general, this expenditure was distributed at the level of the total sample by 58.4% for foodstuffs and 41.6% for other goods and services.

Food expenditure in the study sample ranged between 55,780.2 SP and 202,986.1 SP with an average of 159,578.3 SP/month and a standard

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

33

deviation of 75,271.6. It appeared that the average food expenditure increased to 170,510.7 SP/family in urban areas compared to about 146,254.9 SP/family in rural areas. It is clear that there is a difference in the distribution of this expenditure among food commodities as shown in Table (1).

Table (1). Distribution of food expenditure according to the basic food groups of the Syrian family in the study sample.

ITEM	Rural Families (SP)	Urban Families (SP)	Total Families (SP)
Fresh vegetables	28718.6	31632.9	30319.9
Dairy products (milk, yoghurt, ghee, butter, etc.)	23958.8	27984.4	26170.8
Bread, flour, wheat, and grains	17868.4	19328.6	18670.7
Fruits	14752.8	17527.9	16277.0
Cooking oils	12159.4	17329.7	15000.4
Poultry meat	11839.3	14397.6	13245.0
Egg	8142.7	9587.2	8936.4
Legumes (beans, lentils, peas, etc.)	7161.6	8075.3	7659.8
Sugar	6545.3	6831	6702.3
Red meat (sheep, cows, etc.)	2422.6	3241.2	2872.4
Fish	2209.2	2835.5	2553.3
Coffee	2401.9	2386.9	2393.7
Tea	2318.6	2164.8	2234.1
Mate´	2221.4	1954.1	2074.5
Sweets	1825.5	1988.2	1914.9
Meals and fast food outside houses	1549.5	2214.3	1914.8
Drinking water	159.3	1031.1	638.3
Total nutrients	146254.9	170510.7	159578.3

Source: study sample (2021).

The relative importance of expenditure on different groups of food commodities was calculated at the level of the total sample as well as the comparison between rural and urban areas as shown in Figure (1).
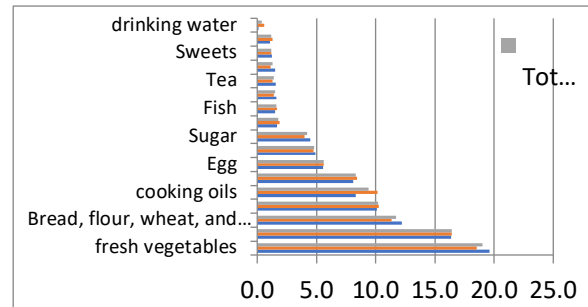

Figure (1): Expenditure on major food commodity groups out of total food expenditure.

It was found that about 35.4% of household food expenditure in the study sample is based on two main groups, fresh vegetables and dairy products. While we note a decrease in the percentage of expenditure on meat (fish, poultry and red meat) to only 11.7%, with a focus especially on poultry meat by 8.3%.

As for comparing rural and urban areas, we notice a slight difference in the distribution of food expenditure among the main food commodities groups, and we note that most of this difference is concentrated in cooking oils, which constitute 10.3% of the food expenditure of urban families compared to only 8.3% of rural families. Although the expenditure value on fresh vegetables and grains is higher in urban families compared to rural ones, their percentage of total expenditure is higher among rural families. While the

percentage of expenditure on fruits is equal among these families, and is similar in the rest of the items.

* Calculating the marginal propensity to spend on food in general

Linear regression analysis was used in order to determine the value of the marginal propensity to consume and the spending Elasticity as shown in Table No. (2).

Table (2). Linear regression results: estimating the effect of monthly income per capita on monthly food expenditure per capita (at the whole sample)

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Total sample	(Constant)	24416.1	674.4		36.202	.000	23090.0	25742.2
	Monthly income per capita	0.331	.021	.623	15.762	.000	.317	.350
	R= 0.623				Adjusted R Square = 0.387			
	F= 242.394**				N=384			
a. Dependent Variable: Monthly food expenditure per capita								

It is clear from the table that there is a positive significant relationship between income and expenditure on food at the level of the total sample, where the value of the marginal propensity for consumer spending on food was 0.331, i.e., less than the correct one, and this is consistent with the economic theory which indicates that spending on food increases with the increase Income but

at a lower rate (Engel, 1857). The estimated model indicates that income is responsible for 38.7% of changes in food expenditure, and the remaining percentage is due to non-income factors.

The marginal propensity to consume was calculated in comparison between rural and urban households using the previous regression method, where it was found that its value is higher in rural areas compared to urban areas as shown in Tables (3) and (4).

Table (3). Linear regression results: estimating the effect of monthly income per capita on monthly food expenditure per capita (for the Urban sample)

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Urban	(Constant)	25798.7	596.816		43.227	.000	24621.5	26975.8
	Monthly income per capita	0.250	.023	.580	10.870	.000	.175	.319
	R= 0.610				Adjusted R Square = .369			
	F= 113.871**				N=211			
a. Dependent Variable: Monthly food expenditure per capita								

Table (4). Linear regression results: estimating the effect of monthly income per capita on monthly food expenditure per capita (for the Rural sample)

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Rural	(Constant)	24488.5	1141.494		21.453	.000	22236.7	26740.3
	Monthly income per capita	0.511	0.043	.641	11.884	.000	.424	.675
	R= 0.641				Adjusted R Square = .407			
	F= 130.929**				N=173			
a. Dependent Variable: Monthly food expenditure per capita								

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

35

The regression results shown in the previous two tables showed that the marginal propensity to consume food in rural areas was 0.51 compared to 0.25 in urban areas. In the same way, the impact of income on food spending in rural areas was higher than in urban areas, as monthly income is responsible for 40.7% of changes in food consumption expenditure in rural areas compared to 36.9% in urban areas. Where the value of Beta also indicates a high correlation coefficient of income with food expenditure to 0.64 in rural areas compared to about 0.58 in urban areas.

* Calculating the income expenditure elasticity on food in general

Linear regression analysis was used in order to determine the value of the expenditure elasticity on food in the study sample, as shown in Table (5).

Table (5): D.L Regression results (power model). Estimating income elasticity for food expenditure (for the Total sample)

Coefficients^a								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Total sample	(Constant)	3.669	.534		6.871	.000	2.619	4.719
	Ln_Monthly income per capita	.571	.043	.562	13.283	.000	.487	.656
	R= 0.562				Adjusted R Square = .314			
	F= 176.440**				N=384			

Table (6): D.L Regression results (power model). Estimating the income elasticity for food expenditure (Rural sample)

Dependent Variable: Ln Monthly food expenditure per capita.

The table indicates that the income elasticity of food expenditure amounted to about (0.57) for a group of foodstuffs (less than one). Therefore, food expenditure in the study sample is inelastic, and this matter is agreed upon according to economic theory, because expenditure on food resources should not be largely influenced by changes in income. These changes should lead to the individual's altering inferior food commodities to better commodities within the same group, meaning that its impact on the group in general is small, and does not match the changes in income. According to the elasticity factor, it can be said that an increase in per capita income by 100% will lead to 57% of it being directed to the food group, while the remaining 43% will be directed to the rest of the non-food commodity groups.

The elasticity of food expenditure was also estimated in comparison between rural and urban households using the previous regression method, where it was shown that this elasticity is higher in rural

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

36

areas compared to urban areas as shown in Tables (6) and (7).

Coefficients[a]							95.0% Confidence Interval for B	
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.		
		B	Std. Error	Beta			Lower Bound	Upper Bound
Rural sample	(Constant)	.361	.988		.366	.715	-1.587	2.309
	Ln_Monthly income per capita	.831	.079	.606	10.552	.000	.675	.986
	R= 0.606			Adjusted R Square = .364				
	F= 111.336[**]			N=173				
	Dependent Variable: Ln Monthly food expenditure per capita.							

Table (7): D.L Regression results (power model); Estimating the income elasticity for food expenditure (Urban sample)

Coefficients[a]							95.0% Confidence Interval for B	
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.		
		B	Std. Error	Beta			Lower Bound	Upper Bound
Urban sample	(Constant)	5.239	.569		9.208	.000	4.116	6.361
	Ln_Monthly income per capita	.448	.046	.576	9.673	.000	.356	.539
	R= 0.576			Adjusted R Square = .329				
	F= 93.572[**]			N=211				
	Dependent Variable: Ln Monthly food expenditure per capita.							

The regression results shown in the previous two tables showed a higher income elasticity of food expenditure in rural areas than in urban areas, as any increase in income by 100% will lead to an increase in food expenditure by 83% in rural areas compared to 45% in urban areas. Which indicates a lower food saturation for the rural consumer more than the consumer in urban areas, and this is consistent with the majority of studies such as (Dawoud, 2014), (Bopape, Myers, 2007) and (Yassin, 2008). Which can be explained by the low consumption of food associated with low income in rural areas, and family farming expresses a weak effect in light of the weakness of agricultural holdings, whether of agricultural land or animals.

The study area is characterized by its mountainous nature, which makes agriculture a secondary and not a primary source of income.

* Estimating the expenditure elasticity on total food commodities in the study sample

In this part of the study, the income elasticity of expenditure was estimated on each of the main food commodity groups separately, in both rural and urban areas, based on the simple form of the mathematical equation of the Engel curve:-

$$LY_i = b_0 + bLX + \varepsilon$$

Y_i: average per capita monthly consumption food expenditure groups

b: Expenditure elasticity (the slope of the regression) for the food group under study

X: average individual monthly income

ε: stochastic error term

First: Estimating the expenditure elasticity on total food commodities at the level of rural households.

Table (8) shows the results of the regression analysis of the dependent

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

37

variable represented in the value of expenditure per capita (within rural households) on the food group under study, and the independent variable represented by the individual's monthly income.

Table (8). Linear regression results: estimating the income elasticity for food expenditure due to the main food groups (Rural Sample).

Regression equation	Coefficient*	Std. error	T (Df=172)	P value	95.0% Confidence Interval for B		f (383, I)	Adjusted R²
					Lower Bound	Upper Bound		
Fresh vegetables	.217	.043	5.086	.000	.133	.301	25.868	.061
Dairy products	.522	.066	7.852	.000	.391	.652	61.654	.137
Cereals	.258	.052	4.957	0	.155	0.361	24.576	.111
Fruits	1.119	.262	4.271	.001	.603	2.195	21.948	.074
Legumes	.791	.082	9.646	.000	.608	0.974	91.754	.242
Food Oils	.417	.045	9.208	.000	.328	.506	84.781	.179
Poultry meat	1.729	.092	18.869	.000	1.459	1.799	355.913	.653
Eggs	0.304	.054	5.588	0	0.197	0.412	31.221	.138
Meat	2.069	.272	7.607	.000	2.202	1.936	74.958	14.2
Fishes	2.553	1.185	2.154	.032	.216	4.891	4.641	.019
Sugar	0.663	.086	7.678	.000	.492	0.833	58.956	.235
Coffee	1.250	.236	5.413	.000	1.159	1.340	29.298	.069
Tea	.326	.057	5.696	.000	.214	.439	32.444	.076
Mate´	1.218	.759	1.606	.110	-.278	2.714	2.578	.008
Sweets	1.421	.148	9.576	.000	1.335	1.508	91.569	.191
Fast food	.101	.062	1.622	.106	-.022	.223	2.632	.009
Drinking water	1.372	1.066	1.287	.200	-.731	3.475	1.656	.003

* Attention was paid to verifying the significance of the regression parameter (b) and neglecting the intersection (a), due to its lack of importance in economic analysis in such studies.

The results shows that income positively affects the consumption of all food commodities except for three commodities, which are mate´, fast food and drinking water, which showed a non-significant decline of income over the value of spending on them. While this regression was significant at the level of 1% for all other commodities. The adjusted R2 value indicates that the percentage of income contribution to changes in food expenditure reached a maximum of 24.2% in the legume group, while it reached a minimum of only 2% for fish.

Based on the value of the expenditure elasticity of rural households, the food commodities presented in the table can be divided into three groups:-

1- Basic commodities: These are commodities with expenditure elasticity of less than 0.5, which included, in order, vegetables, grains, eggs, tea, oils, and dairy. These commodities can be considered the most important commodities for rural commodities, as their saturation rises significantly compared to the rest of the commodities. Any increase in income by 100% will lead to an increase in spending on these goods, but by less than 50%.

2- Semi-essential goods: they are goods of elasticity ranges between (0.5-1). Which included, respectively, sugar and legumes. The consumption

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

38

of these goods in rural areas reached the level of partial saturation, to the extent that any increase in income by 100% will lead to an increase in spending on these commodities by 50-100%, depending on the type of commodity.

3- Luxurious goods: The flexibility of these goods is more than one, and they include respectively, fruits, broiler meat, coffee, sweets, red meat and fish. The consumption of these commodities is characterized by being below the required saturation, so that any increase in income by 100% will lead to an increase in the current expenditure on these commodities by more than 100% according to each commodity, as the saturation level for these commodities is usually related to the level of income.

Some commodities are supposed to be among the basic commodities within the group of luxury commodities, such as chicken meat as due to its high price that exceeds the rate of increase in incomes, which indicates the depth of the food crisis experienced by rural families in the study area. These families are forced to dispense a group of basic commodities, especially the high-priced ones, and replace them with cheaper ones, as we

note that eggs are the main source of animal protein for rural families, as they occupy an advanced rank in the necessary commodities.

* Estimating the expenditure elasticity on total food commodities in urban households:

Table (9) shows the results of the regression analysis of the dependent variable represented in the value of the individual's spending (within urban families) on the food group under study and the independent variable represented by the individual's monthly income.

Table (9). Linear regression results: estimating the income elasticity for food expenditure due to the main food groups (Urban Sample).

Regression equation	Coefficient*	Std. error	T (Df=210)	P value	95.0% Confidence Interval for B		f (383, 1)	Adjusted R²
					Lower Bound	Upper Bound		
Fresh vegetables	.389	.057	6.864	.000	.278	.500	47.112	.107
Dairy products	.565	.086	6.595	.000	.396	.733	43.489	.180
Cereals	.242	.048	5.036	.000	.147	.336	25.363	.112
Fruits	.927	.058	16.042	.000	.813	1.041	257.332	.576
Lequims	.692	.089	7.789	.000	.576	.808	88.363	.174
Food Oils	.858	.082	10.491	.000	.697	1.020	110.061	.363
Poultry meat	1.205	.269	4.474	.000	.915	1.495	19.981	.047
Eggs	.394	.076	5.207	.000	.245	.544	27.109	.121
Meat	1.814	.260	6.971	.000	1.483	2.146	47.256	.108
Fishes	1.961	.682	2.875	.004	.616	3.306	8.266	.036
Sugar	.501	0.052	9.631	.000	.319	.683	73.470	.171
Coffe	1.063	.151	7.022	.000	.765	1.362	49.307	.204
Tea	.410	.056	7.357	0.000	.301	.520	54.119	.122
Mate´	1.296	1.049	1.236	.218	-.772	3.364	1.572	.003
Sweets	1.336	.083	16.109	.000	1.173	1.500	259.490	.578
Fast food	2.225	0.621	3.583	.000	2.114	2.388	12.996	.030
Drinking water	2.593	.262	9.822	.000	2.471	2.715	96.682	.193

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

39

* Attention was paid to verifying the significance of the regression parameter (b) and neglecting the intersection (a), due to its lack of importance in economic analysis in such studies.

It is clear from the table (9) that income significantly affects the value of food expenditure for the urban consumer as well, for most types of food groups with the exception of maté only, which showed a non-significant decline in income as a result of spending on it. We note that all previous regression models are statistically acceptable in view of the significance of the (f) value at the level of 1% or 5%. The adjusted R2 value also indicates an increase in the income responsibility for changes in expenditure to reach its maximum estimated at 57.8% in the case of sweets, while this effect decreased to 3% only for fast food. The signs of elasticity were consistent with economic theory in terms of the positive effect of income on food consumption.

We note that there is a clear difference in the values of food expenditure elasticity between rural and urban families, and therefore the classification of these commodities for urban families is different compared to rural families. Where the food commodities consumed by urban families can be classified into three groups:-

1- Basic commodities: they included respectively, cereals, vegetables, eggs, tea and sugar, as these commodities are the most important for urban families and can be characterized by a high level of saturation.

2- Semi-essential commodities: they included respectively, dairy, legumes, oils and fruits, and they are characterized by a lower level of saturation than the previous group.

3- Luxury goods: they included respectively, coffee, broiler meat, sweets, red meat, fish, fast food and drinking water. As the expenditure on drinking water is almost insignificant due to the availability of domestic drinking water services that are delivered through the government's fresh water networks.

These commodities are characterized by a very low level of saturation, despite their importance from the nutritional point of view, but the income deficit is the main determinant of consumption of these commodities even in light of the high nutritional awareness of individuals.

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

40

In comparison between rural and urban families, the level of saturation of urban families with luxury goods despite their insufficiency is higher than the level of saturation of rural families from most of these commodities, especially for broiler meat and red meat. The expenditure flexibility on these two commodities rose to 1.7 and 2.1 respectively in the countryside, compared to about 1.2 and 1.8 for urban households. These results are generally consistent with the results of (Bopape, Myers, 2007) in South Africa and (Dawoud, 2014) in Egypt. It shows that the expenditure flexibility on fish and meat of all kinds is higher for rural families and low-income families compared to urban families and high-income families. It also agrees with the results of (Yassin, 2008), which targeted Iraqi families under the siege, conditions that are similar to the Syrian crisis. While this result differs with the study of (Mafuru and Marsh, 2003), and the study of (Al-Hajj, 2015). The first study was conducted in Tanzania and showed that meat is a basic commodity in both rural and urban areas, while the latter was conducted in Yemen and showed that meat is considered an almost necessary commodity for right-wing families in general. According to this comparison, it is clear that the saturation of Syrian families with meat has decreased in light of the current crisis.

As for fruits, which are considered a luxury commodity in the countryside, they have become a semi-necessary commodity in urban areas due to the decrease in their elasticity from 1.1 in the countryside to 0.9 in the urban areas. This result also indicates a decline in the quality of food in both rural and urban areas alike. Considering fruits as a necessary commodity according to health considerations.

As for edible oils, it's noted that their classification has changed from essential commodities for rural families to semi-essential commodities for urban families.

Which reflects the low saturation of urban families with food oils due to their high flexibility up to 0.85 compared to about 0.42 only in the countryside.

This could be resulted to the increased consumption in rural families of self-produced olive oil, as the study area is considered one of the main areas for olive oil production.

* Conclusions

The results of the research showed that the flexibility of food consumption at the sample level is generally less than one, as an increase in per capita income by 100% will lead to 57% of it being directed to the food group, while the remaining 43% will be directed to the rest of the non-food commodity groups. We note that this amount allocated to food expenditure in rural families is 38% higher compared to urban families, which indicates a low nutritional status at the sample level in general and for rural families in particular. On the other hand, the low expenditure flexibility on foodstuffs below one reflects the vulnerability of food consumption to income changes.

Any decrease in family income or an increase in commodity prices will increase the inability of these families to cover their food needs due to the inability of reducing the demand for food to cope with the change of income or prices.

This will also be reflected in a decrease in the level of welfare because these families are forced to sacrifice again part of the non-food necessities to meet basic food needs.

We note by comparing between the totals of food commodities, that food expenditures focus on commodities with a relatively low nutritional value such as vegetables, grains and legumes. While this expenditure decreases for more rich commodities such as meat of all kinds and is replaced by alternative commodities that are relatively cheaper, such as eggs and dairy as the main source of animal protein in the study sample.

There is a clear difference between rural and urban families in the food spending flexibility values, but they remain within the previous general trend, with a greater variation in the consumption of fruits and vegetable oils, as fruits have become a luxury commodity for rural families, while they are considered a basic commodity for urban families. As for oils, they are less saturated in urban families compared to rural families.

* Suggestions

The results of the research showed that there is an urgent need to improve food consumption in the research area by working to provide food at reasonable prices and to improve incomes to increase the families' ability to access food. We

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

42

note that the increase in food expenditure among rural families is a dangerous indicator that indicates the inability of families to produce food for self-consumption, which requires direct attention to family farming.

As a form of food security, through the activation of the targeted lending process and other supportive strategies. The results of the study also point to the importance of directing government support through a subsidized food basket that takes into account basic food commodities that are characterized by a lack of satiation, such as meat and oils, or subsidizing other basic commodities in order to direct the abundance of expenditure towards nutritious commodities.

* References

Bakur Yahya, Atiya Al-Hindi, George Soumi and Hassan Katna (2009). The Food Security Crisis in Syria in the Face of Drought, Syrian Economic Science Association.

Jarad Samir (2013). Food security and its development prospects in Syria, The National Center for Agricultural Policies, Damascus, Syria.

Carnegie Center (2015). Food insecurity in war-torn Syria— from decades of self-sufficiency to dependence on food imports - Carnegie Endowment for International Peace.

Syrian Center for Policy Research (2015). Alienation and Violence in Syria. Damascus, Syria.

State Planning Commission (2016). A report on the problems of food security in Syria before and during the crisis. Presidency of Ministers Council, Damascus, Syria.

Mahboub Adel Abdel Ghani (1982). Econometrics. Dar Al-Kutub for Printing and Publishing, University of Mosul.

Saleh Rabie Khalaf (1989). Analysis of household consumption reactions in the light of the family budget research in 984-985. Master Thesis, College of Administration and Economics, Al-Mustansiriya University, Baghdad, Iraq.

Yassin, Faeq Jazaa (2008). Estimating the expenditure elasticity of food demand in rural and urban environments in the Iraq. Anbar University Journal of Economic and Administrative Sciences. Volume One, Second Issue.

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

43

http://search.mandumah.com/Record/171186

Al-Hajj Khaled Nasser Mohammed (2015). An economic analysis of food consumption expenditure functions in the Republic of Yemen. The Egyptian Journal of Agricultural Economics - 25th - Second Issue

Food and Agricultural Organization FAO (2016). Plan of Action for Syria: Towards Resilient Livelihoods for Sustainable Agriculture, Food Security and Nutrition. FAO Representation in Syria. Cairo,

Food and Agricultural Organization (FAO)، World Food Program (WFO) (2019). *Special Report - FAO/WFP Crop and Food Security Assessment Mission to the Syrian Arab Republic.* Rome.

World Bang (2021). Data Bank, https://data.worldbank.org/indicator/SP.DYN.AMRT.MA.

Engel, Ernst. 1857. "Die Produktions- und Consumtionsverhältnisse des Königreichs Sachsen." *Zeitschrift des Statistischen Büreaus des Königlich Sächischen Ministeriums des Innern*, 8 and

9. (Reprinted in Engel (1895). Appendix I, pp.1–54.).

Eyob Bekele Juhar (2012). Food Security and Vulnerability Analysis at Household Level. Case Study, Rural Areas of Tigray Region, Ethiopia. A Master Thesis, Department of Economics, College of Business and Economics, Mekelle University.

Krejcie RV, Morgan DW (1970). Determining sample size for research activities - Journal of Education and Psychological Measurement. No (30), PP: 607-610.

Chesher A, Rees H (1987). Income elasticity of Demands for Foods in Great Britain. J. Agric. Econ. 38(3):435-448.

Delgado, M and Miles, D. (1997). Household characteristics and consumption behavior. Empirical economics, 22, 409-29

El-Eraky, M. and Al-Muhairi T (2004). Consumer demand for food in the United Arab Emirates: A Pilot Study", Proceedings of the Fifth Annual UAE University Research Conference, Volume 2, Al-Ain.

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

44

Ragab MAS, Ghoneim SM, Al Mahalawai SMA (2008). Demand for Fish in Egypt. Egyptian J. Agric. Econ. 18(3).

Soliman I (1994). Impacts of GATT Implication on Animal Protein Food System in Egypt. Egypt. J. Agric. Econ. 4(2):172-192.

Holcomb Rodney B., Park John L. and Capps Oral (1995). Revisiting Engel's Law: Examining Expenditure Patterns for Food at Home and Away from Home. Journal of Food Distribution Research. September 1995.

Bopape Lesiba and Myers Robert (2007). Analysis of Household Demand for Food in South Africa: Model Selection, Expenditure Endogeneity, and the Influence of Socio-Demographic Effects. Conference paper prepared for presentation at the African Econometrics Society Annual Conference, Cape Town, South Africa, July 4-6, 2007.

Ahmed N, Safdar S, Sher F (2012). Analysis of Income and Economies of Scale Effect on Household Demand in Pakistan Using PSLM Data. Interdisciplinary J. Contemp. Res. Bus. 3(12):117-124

Estimating the functions of food expenditures in the light of the economic fragility of Syrian families "Case study of the coastal region of Syria"

45