

ANALYSIS OF THE STRUCTURE OF FOOD CONSUMPTION BY THE POPULATION OF UZBEKISTAN AND ITS MAIN DETERMINING FACTORS

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ABSTRACT

This article provides a comprehensive analysis of the structure of food consumption by the population of Uzbekistan and the main factors determining it. The primary objective of the study is to identify the structural characteristics of food consumption and to assess the economic, social, and demographic factors influencing it. In the course of the research, population income levels, household composition, and regional differences are considered as key determinants affecting the structure of consumption. The analysis is based on official statistical data and employs economic-statistical and econometric methods. The obtained results are expected to have practical significance in ensuring food security, improving consumption policies, and developing socio-economic development strategies.

Keywords: food consumption, consumption structure, food sufficiency, food security, population income, caloric intake, nutritional standards, agricultural products, food market, socio-economic factors, standard of living.

INTRODUCTION

In the context of globalization and economic integration, ensuring food security and organizing high-quality and balanced nutrition for the population has become one of the priority tasks facing every country. The structure of food consumption is not only an indicator of the level of economic development but also a key determinant of social welfare, public health, and the quality of human capital. Therefore, studying the structure of food consumption and identifying its determining factors is considered a relevant area in economic research.

In recent years, as a result of economic reforms in the Republic of Uzbekistan, the income levels and living standards of the population have been gradually increasing. However, significant differences still exist in the structure of food consumption, depending on income levels, regional location, and household characteristics. This necessitates a comprehensive study of food consumption and its adequacy.

The demand for food has specific characteristics, as it represents a constant and essential need that distinguishes it from other types of consumption. At the same time, the volume and structure of consumption are shaped by various factors, including price levels, income, demographic characteristics, social conditions, and regional features. In particular, the study of price and income elasticity of demand for food products plays an important role in gaining a deeper understanding of consumption processes. The main objective of this research is to analyze the structure of food consumption by the population of Uzbekistan and to identify the key economic, social, and demographic factors influencing this consumption.

The study of the structure of food consumption and its adequacy level is one of the important scientific areas at the intersection of economics, nutrition, and social policy. Numerous studies on this issue have been conducted by both foreign and domestic scholars.

The “capability and welfare” concept proposed by A. Sen provides an important theoretical framework for assessing access to food. According to this approach, food insufficiency is not only determined by production levels but is also directly related to the population’s ability to purchase food. In the economic analysis of consumption structure, Engel’s Law, developed by E. Engel, is of particular importance. It demonstrates that as income increases, the proportion of expenditure on food decreases. This law is widely applied in evaluating living standards and changes in consumption patterns. Issues related to food consumption and its adequacy are also extensively covered in national economic literature. In particular:

In the works of A. Vahobov and Sh. Shodmonov, the relationship between living standards, income, and consumption, as well as the theoretical foundations of the consumption basket and its composition, are examined; B. Khodiev studies the analysis of consumption processes using econometric methods, including the identification of the functional relationship between income and consumption; Additionally, studies based on data from the State Statistics Committee of the Republic of Uzbekistan analyze the volume, structure, and regional differences in food consumption.

However, in most existing studies, the structure of food consumption and its adequacy are examined separately. The interrelationship between them—particularly the comprehensive assessment of adequacy through consumption structure—has not been sufficiently explored.

The novelty of this research lies in the following aspects:

the structure of food consumption and its adequacy are analyzed in an integrated and interrelated manner; the consumption structure of the population is examined in connection with income, prices, and other socio-economic factors; food adequacy is assessed not only quantitatively (in terms of calories) but also qualitatively;

trends in consumption processes are identified using modern statistical and econometric methods.

As a result, this study proposes a new approach to evaluating the structure of food consumption and its adequacy, while systematically enriching existing scientific research.

Research methodology: The study employs a range of methods, including scientific approaches, comparative analysis, analysis and synthesis, sampling techniques, economic-statistical analysis, econometric modeling, and forecasting based on the developed models.

Analysis and results: Analyzing the factors and trends influencing the consumption of basic food products is a highly relevant task. The study of the dynamics of food consumption by the population of Uzbekistan makes it possible to identify key trends and patterns. At the same time, identifying the main determinants of consumption enables the development of predictive models of food demand, which are essential for producers in planning production and economic activities.

First, it should be noted that food consumption is determined by the physiological needs of the human body. Food needs differ from other types of needs in that they are essential and must be satisfied; they cannot be substituted by other means, they arise continuously, and they cannot be satisfied in advance. Human physiological limits define the boundaries of food consumption.

Taking into account the specific characteristics of food needs, it is evident that the demand for food has existed and will continue to exist throughout the entire history of human development. Although demand for food products is relatively stable, the volume and structure of consumption may vary depending on various factors.

These include food prices, consumer preferences and tastes, demographic and socio-economic indicators, geographical and climatic conditions, as well as advertising and marketing activities.

Studying the specific features of food consumption in Uzbekistan requires not only analyzing average per capita consumption trends but also identifying and quantifying the factors influencing consumer behavior. It is well known that consumer demand for food depends on both price and non-price factors. To assess the impact of price changes on the quantity demanded for a particular food product, price elasticity coefficients are calculated. It should be emphasized that price elasticity of demand measures the percentage change in the quantity demanded resulting from a one-percent change in price.

The price elasticity of demand is calculated using the following formula:

$$E_p = \frac{\Delta Q, \%}{\Delta P, \%} \tag{1}$$

In this context, E_p – the coefficient of price elasticity of demand; ΔQ – the change in the quantity demanded; ΔP – the change in the price of goods.

Analyzing the results of price elasticity calculations, it should first be noted that economists recommend ignoring the negative sign of the elasticity coefficient to avoid misinterpretation and focusing only on its absolute value.

Price elasticity of demand is interpreted as follows: if demand is elastic, the percentage change in quantity demanded exceeds the percentage change in price; if demand is unit elastic, the percentage change in quantity demanded is equal to the percentage change in price; conversely, if demand is inelastic, the percentage change in quantity demanded is less than the percentage change in price.

The calculation results of the price elasticity coefficients for the main types of food products are presented in tables 1 and 2.

Table 1. Price elasticity of consumption of basic food products of the population of Uzbekistan.

Years	Meat and meat products			Bread and bakery products			egg		
	$\Delta P, \%$	$\Delta Q, \%$	E_p	$\Delta P, \%$	$\Delta Q, \%$	E_p	$\Delta P, \%$	$\Delta Q, \%$	E_p
2020	0,23	-0,18	-0,78	0,17	-0,05	-0,29	0,11	-0,06	0,55
2021	0,26	-0,11	-0,42	0,29	-0,04	-0,14	0,32	-0,13	-0,13
2022	0,17	-0,07	-0,41	0,30	-0,19	-0,63	0,17	-0,10	-0,59
2023	-0,16	0,10	-0,63	-1,14	0,13	-0,11	-14,25	0,80	-0,06
Mean value			-0,56			-0,29			-0,33

In our analysis, a negative relationship between price and demand was observed. However, for the products presented in Table 1, price changes did not have a strong impact, as these goods are consumed on a daily basis. Even in the case of price increases, consumers cannot easily forgo these products. In other words, since these are essential goods for consumption, they continue to be purchased despite rising prices.

Table 2. Price elasticity of consumption of basic food products of the population of Uzbekistan.

Years	Vegetable oil			Sugar			Potatoes		
	$\Delta P, \%$	$\Delta Q, \%$	E_p	$\Delta P, \%$	$\Delta Q, \%$	E_p	$\Delta P, \%$	$\Delta Q, \%$	E_p
2020	0,33	-0,10	-0,30	-0,25	0,08	-0,32	-0,60	0,28	-0,47
2021	0,25	-0,08	-0,32	0,14	-0,04	-0,29	0,69	-0,20	-0,29
2022	-0,04	0,05	-1,25	0,27	-0,07	-0,26	0,26	-0,08	-0,31
2023	-0,28	0,10	-0,36	-1,48	0,14	-0,09	-0,16	0,06	0,38
Mean value			-0,56			-0,24			-0,36

Based on this approach, the demand for the products studied above is inelastic, as their elasticity coefficients are less than one. Thus, changes in the prices of meat and meat products, bread and bakery products, eggs, sugar, vegetable oil, and potatoes do not lead to significant changes in consumption volumes.

However, we consider that this interpretation is not entirely accurate, since a positive value of the price elasticity coefficient for food products indicates that demand increases as prices rise, which implies that the law of demand does not hold, or that the Giffen paradox may occur.

The analysis of the obtained elasticity coefficients shows that despite rising prices, demand for meat products, eggs, and sugar continues to increase. However, for vegetables and vegetable oil, price increases lead to a decrease in demand.

We therefore refer to non-price factors that determine individual consumer demand for food products, in particular: Household income level. As household incomes increase, the share of food expenditures in total household spending decreases .

Place of residence (rural or urban areas). Rural households spend less on food compared to urban households. Thus, in 2024, the share of cash expenditures on food per household in rural areas accounted for 41.7%, whereas this indicator for urban households was 49.4%. The place of residence also affects the structure of food expenditures (Table 3).

Table 3. Structure of cash expenditures on food of urban and rural households in 2024, %.

Food products	Urban households	Rural households	Urban households. %
Flour and flour products	17,3	25,5	68 %
Meat and meat products	26,7	23,3	114,6 %
Vegetable oil	6,4	5,7	112,3 %
Milk and dairy products	12,6	9,7	129,9 %
Fruits and berries	9,4	7,7	122,1 %
Vegetables and potatoes	7,1	6,5	109,2 %
Sugar and confectionery products	7,4	9,8	75 %
Other food products	6,4	6,7	95,5 %
Eggs	3,1	2,3	134,8 %
Eating out	3,6	2,8	128,6 %
Total value of food consumption	100	100	

The data in the table above show that, within the structure of food expenditures, urban households spend more than rural households on meat and meat products by 14.6%, on milk and dairy products by 29.9%, on fruits and berries by 22.1%, on vegetables and potatoes by 9.2%, on eggs by 34.8%, and on eating out by 28.6%.

However, expenditures on bread and bakery products, sugar, jam, honey, confectionery products, and other food items are lower compared to rural households. The main reason for lower food expenditures among rural households is the presence of personal subsidiary farming. Regional characteristics have a significant impact on the structure of food consumption. In urban areas, the food basket is characterized by a relatively higher share of meat products, eggs, and butter. In contrast, households in rural areas tend to consume more bread and flour products, milk, vegetables, potatoes, and sugar.

Thus, depending on the place of residence, the structure of food demand and preferences varies significantly.

Household size and composition. The number of household members is also an important factor. As the number of household members increases, per capita food consumption and calorie intake tend to decrease. A regression model was constructed, and the corresponding coefficients of determination were estimated (Table 4).

Table 4. Results of correlation and regression analysis of the dependence of changes in food consumption on changes in household size.

Food products	Regression equation	Coefficient of determination
Bread and bakery products	$Y=14.11-0.577X$	0.8841
Meat and meat products	$Y= 7.397143 -0.6382143X$	0.9366
Milk	$Y= 2.985714 -0.1642857X$	0.6573
Fruits and berries	$Y=8.382857 -0.6525X$	0.9937
Potatoes	$Y= 22.46 -1.472143X$	0.9613
Sugar	$Y=4.379-0.308X$	0.9632

We found that as the number of household members per capita increases, the consumption of food products (per person per month) decreases as follows: bread and bakery products by an average of 0.577 kg, meat and meat products by 0.9366 kg, milk by 0.1642 kg, fruits and berries by 0.994 kg, potatoes by 1.47 kg, and sugar by 0.31 kg (Table 5).

Table 5. Results of correlation and regression analysis of the dependence of changes in the caloric composition of household daily diets on household size.

Caloric composition of the diet	Regressiya tenglamasi	Determinatsiya koeffitsiyenti
Energy value (kcal)	$Y=3380,16-171,04X$	0.96
Protein (g)	$Y= 125,43 -8,64X$	0.978
Fats (g)	$Y= 122,043-4,611X$	0.964
Carbohydrates (g)	$Y=660,14-40.64X$	0.9937

At the same time, the intake of nutrients also decreases: protein by 8.64 g, fat by 4.61 g, and carbohydrates by 40.64 g. With an increase in the number of household members per capita, the caloric content of consumption decreases by an average of 171.04 kcal per person per day.

Main source of household income. The highest level of consumption is observed in households whose main source of income is entrepreneurial activity and wages. The average level of consumption is lower in households where the main income comes from transfers and property income, while the lowest levels of consumption are observed in households whose main source of income is self-employment.

At the same time, it should be noted that as income decreases, the structure of consumption also changes significantly.

CONCLUSION

The results of this study enabled a comprehensive analysis of the structure of food consumption by the population of Uzbekistan and the factors influencing it. Based on economic-statistical and econometric analyses, the following main conclusions were drawn:

First, it was found that the structure of food consumption is closely related to income levels. As income increases, the share of food expenditures in total household expenditures decreases, which confirms Engel's Law in practice. At the same time, higher income leads to an improvement in the

quality of food consumption, namely an increase in the share of high-calorie and protein-rich food products.

Second, the analysis of price elasticity of demand for basic food products showed that demand for most products is inelastic. This means that changes in prices do not significantly affect consumption volumes, as these goods are considered essential daily necessities. In some cases, observed positive elasticity values can be explained by specific consumer behavior patterns.

Third, regional factors have a significant impact on the structure of food consumption. It was observed that urban households tend to consume a higher proportion of meat, dairy products, fruits, and other relatively expensive goods, whereas rural households show a higher share of bread, potatoes, and other relatively cheaper products. This situation is explained by the presence of household farming activities in rural areas and differences in income levels.

Fourth, household size and composition directly affect food consumption. It was found that as the number of household members increases, per capita food consumption and calorie intake decrease. This is associated with the distribution of resources among a larger number of household members.

Fifth, the source of household income also influences both the volume and structure of food consumption. Households with stable and higher income sources tend to have higher and better-quality food consumption patterns.

Overall, the results of the study indicate that the structure of food consumption in Uzbekistan is shaped by economic, social, and demographic factors, and this process is complex and multi-factorial.

From a practical perspective, the following recommendations can be proposed:

ensure food sufficiency for low-income population groups through social support mechanisms;

stabilize food prices and further develop the domestic food market;

reduce consumption disparities between rural and urban areas; expand programs aimed at promoting balanced nutrition culture among the population.

Thus, the conducted research demonstrates that a deep analysis of food consumption structure has significant scientific and practical importance for improving living standards and strengthening food security.

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