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Management Theory and Studies for Rural Business and Infrastructure Development
eISSN 2345-0355. 2024. Vol. 46. No. 3: 346-353
Article DOI: https://doi.org/10.15544/mts.2024.32

ASSESSMENT OF THE INFLUENCE OF SOCIO-ECONOMIC FACTORS ON THE LEVEL OF AGRO-FOOD PRODUCTS

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Received 23 01 2024; Accepted 27 01 2024

Abstract
Using the methodology of correlation and regression analysis and statistical data of indicators of development of regions of Ukraine, the influence of socio-economic factors (as a factor variable) on the level of consumption of agro-food products (effective variable) is studied. Correlations between the level of consumption of agro-food products (poultry meat) and socio-economic factors in the regions of Ukraine have been established. An assessment of the quality of a multifactorial regression model between socio-economic factors and the volume of consumption of agro-food products (poultry meat) was carried out. The percentage range of fluctuations between the influence of socio-economic and other factors on the volume of consumption of agro-food products has been determined. It is proposed on the basis of assessment of the quality of the multifactorial regression model and the calculated coefficient of determination of the grouping of regions according to methodological approaches to clustering. As the main parameters for grouping, the value of the coefficient of determination is allocated and grouped into five models of regional development. The results of the conducted research are quite important for the processes of ensuring socio-economic security and the formation and implementation of regional development programs.

Keywords: *agro-food products, agricultural enterprises, consumption, model, multifactorial regression model, regions, socio-economic factors.*

JEL Codes: *D13, Q13, R58.*

Introduction

Trends in the consumption of agro-food products by the population of a certain territory (both a separate country and a separate region) are an urgent issue of the world level. This is due to many reasons, first of all, the question arises about the possibilities of covering the needs of the country and ensuring its own food and socio-economic security, as well as the quality of life of the country population. Therefore, on the one hand, the object of research is the ratio of production and consumption of agro-food products within a particular country or region, and on the other hand, the socio-economic situation in a particular region, which characterizes the availability of a full-fledged consumer basket from a set of food products for each resident of

this region. Thus, an urgent task in modern conditions is to establish a list of socio-economic factors and their degree of influence on the consumption of agro-food products in the regions of Ukraine.

The aim of the article is to assess the impact of socio-economic factors of regional development on the level of consumption of agro-food products in the regions of Ukraine.

The main objectives of the study are to analyze the socio-economic factors that have the greatest impact on the consumption of agro-food products in different regions of Ukraine; formation of a multifactorial linear regression model to establish the degree of influence of socio-economic factors on the consumption of agro-food products in different regions of Ukraine; ranking the results obtained and providing recommendations for taking them into account in the formation of management decisions for the further development of regions.

The object of the study is the processes of assessing the level of influence of socio-economic factors on the level of consumption of agro-food products. The subject of the study is the dependence of the level of consumption of agro-food products on socio-economic factors inherent in the regional markets of agro-food products of Ukraine. The results of the conducted research are quite important for the processes of ensuring socio-economic security and the formation and implementation of regional development programs.

Literature review

First of all, the study of the influence of socio-economic factors is carried out in order to assess the level of development of individual regions, to identify the causes that negatively affect these processes, as well as to find ways to eliminate them in order to accelerate the process of development of the region and, as a result, gradually improve the standard of living of the population (Chehabeddine, et al., 2020). Depending on the situation in different regions, the factors that affect the level of food consumption can be both stimulants and destimulants of the consumption of a certain type of product (Kolokolchikova, 2019).

Socio-economic factors influencing the level of food consumption include: the level of inflation, the level and ratio of prices, the level and structure of monetary income, the size and growth of savings, the level of employment or unemployment, pensions and social security (Savytska, et al., 2016).

But the role of limiting factors on the consumption of certain types of food can be played not only by socio-economic factors, but also by medical, biological, psychological, religious, and other factors (Savchenko, 2016).

The categories of both supply and demand can be more objectively considered within a specific regional market (Savchenko, et. al. 2022), (Korman, et. al., 2021), which is part of the national market, but due to the historical and economic development of the productive forces of a particular region, experiences a different degree of influence of socio-economic factors.

The main lever, in addition to covering priority nutritional needs, is the price of food. And as a reflection of this factor, there is a solvent demand for food, which is formed under the influence of socio-economic factors of a particular region (Bilan, et al., 2020), (Beylot, et al., 2019), (Popovych, 2023).

Of course, there have been positive trends in the nutrition of Ukrainians in recent years, namely a decrease in the consumption of bakery products and sugar, and vice versa an increase in the consumption of meat, fish, dairy products, but even such an increase does not meet the recommended rational consumption rates. Since this situation cannot be explained by the dietary traditions inherent in Ukrainians (the traditions of Ukrainian cuisine, on the contrary, encourage the consumption of such products), this state of affairs can be caused by the financial constraints of the Ukrainian consumer.

But even such trends are typical for the entire territory of Ukraine and have certain differences in its different regions. This is what caused the need to determine the weight and strength of the influence of socio-economic factors on the level of food consumption. Ensuring an appropriate standard of living and opportunities for adequate nutrition of the country population is the key to the development of a healthy gene pool of the country, and therefore a priority national strategy. Therefore, poultry meat was chosen for a more detailed study among other types of agro-food products,

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because it is this product that is the cheapest and, accordingly, the most popular to meet the needs for the consumption of animal protein. The obtained results of the research will allow a more objective and balanced approach to making appropriate management decisions in the formation of regional development programs.

Method

Socio-economic factors not only characterize the state of the region, but also have a well-known impact on the development of regional product markets, which we will check by conducting a correlation and regression analysis and establishing correlations between such socio-economic factors as: x_1 – the number of population living in the region (thousand people); x_2 – the disposable income of the population per capita in the region (UAH); x_2 – the expenditure of the population per capita per year in the region (UAH); and the effective variable (Y) – poultry meat consumption in the region. To calculate the assessment of the impact of socio-economic factors on the level of consumption of agro-food products in the regions of Ukraine, statistical data from the official website of the State Statistics Service were used (State, 2024).

Data processing and calculation of correlation and regression analysis were carried out using the MS Excel software product, the Data Analysis add-in.

The regression analysis will be carried out in the following sequence:

1. Estimation of the parameters of the equation – assessment of the strength and nature of the connection through the calculation of the correlation coefficient;

2. Assessment of the quality of the regression equation – assessment of the statistical significance of the regression parameters, general assessment of the quality of the model (coefficient of determination), assessment of the economic significance of the regression model, determination of the level of confidence.

The regression analysis will be performed in the following sequence:

1. F-test (Fisher test):

– if $F_f > F_c$ the regression equation as a whole has statistical significance and a high level of confidence;

– if $F_f < F_c$ the regression equation has no statistical significance.

2. t-test (Student test):

– if $t_f > t_c$ – it is necessary to accept the hypothesis about the statistical significance of the regression coefficient;

– if $t_f < t_c$ – it is necessary to accept the hypothesis about the statistical insignificance of the regression coefficient.

3. Confidence interval (if the lower limit is negative and the upper limit is positive, then the regression parameters are statistically insignificant) (Calculation, 2021).

The assessment of the parameters of the equation was carried out through the assessment of the strength and nature of the correlation between socio-economic factors and the explanatory feature according to the generally accepted classification. The power and nature of correlations are estimated in accordance with the generally accepted methodology, when the correlation coefficient can have such a value $-1 \le r \le +1$, and the strength of correlations can characterize the following impact (Table 1) (Vasylieva, et. al., 2017).

Table 1. The power and nature of the correlation connection

Abbreviation	The power of connection	The nature of the connection	
		Direct (r^+)	Reverse (r^-)
r_f	Full	$r_f^+ = 1.0$	$r_f^- = -1.0$
r_{sv}	Very strong	$0.90 \le r_{sv}^+ \le 0.99$	$-0.90 \le r_{sv}^- \le -0.99$
r_s	Tight (Strong)	$0.70 \le r_s^+ \le 0.90$	$-0.70 \le r_s^- \le -0.90$
r_a	Average	$0.50 \le r_a^+ \le 0.70$	$-0.50 \le r_a^- \le -0.70$
r_m	Moderate	$0.30 \le r_m^+ \le 0.50$	$-0.30 \le r_m^- \le -0.50$
r_w	Weak	$0.20 \le r_w^+ \le 0.30$	$-0.20 \le r_w^- \le -0.30$
r_{wv}	Very weak	$0.01 \le r_{wv}^+ \le 0.19$	$-0.01 \le r_{wv}^- \le -0.19$
r_{nc}	No line connection	$r_{nc}^+ = 0.0$	$r_{nc}^- = 0.0$

**Source (Vasylieva, et. al., 2017).*

The general parameters of the multivariate linear regression model are as follows (formula 1) (Vasylieva, et. al., 2017):

$$y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 \quad (1)$$

where, a_0 - computed value of explanatory variable y;

a_1, a_2, a_3 - calculation of the values of the parameters of the factor variable model.

In its content, the coefficient of determination (R^2) explains the part of the total variance of a variable, which is explained by regression and is determined by formula 2 (Calculation, 2021):

$$R^2 = \frac{\sum_{t=1}^{T}(\hat{Y}_t - \bar{Y})^2}{\sum_{t=1}^{T}(Y_t - \bar{Y})^2} \quad (2)$$

Based on the assessment of the quality of the multivariate regression model and the value of the calculated coefficient of determination (R^2), it is proposed to group the regions of Ukraine as follows:

– *Model 1* (M_1) from 1,00 to 0,80 – a high quality model and a strong level of relationship between factor variables;

– *Model 2* (M_2) from 0,799 to 0,50 – an accepted quality model and a normal level of relationship between factor variables;

– *Model 3* (M_3) from 0,499 to 0,30 – a moderate quality model and an average level of association between factor variables;

Model 4 (M_4) from 0,299 to 0,15 – a low-quality model and a low level of relationship between factor variables;

– *Model 5* (M_5) from 0,149 to 0,00 – the model is of very poor quality and there is no relationship between the factor variables.

In turn, for indicators of $0.00 \le R^2 \ge 0.50$, that is, when the quality of the model is very low, low and moderate, it is not possible to use it for forecasting due to the low values of R^2, which are the least reliable. Such values do not allow you to make a qualitative forecast and do not make economic sense (Calculation, 2021).

Thus, on the basis of the assessment of the quality of the multifactor regression model, a grouping of regions according to methodological approaches to clustering has been proposed, the values of the calculated coefficient of determination have been selected as the main parameters for grouping.

Results

The results of the regression analysis and the consequences of correlations between the level of consumption of agro-food products (poultry meat) and socio-economic factors in the regions of Ukraine are presented in Table 2.

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Table 2. The results of regression analysis and consequences of correlations between the level of consumption of agro-food products (poultry meat) and socio-economic factors in the regions of Ukraine

Regions	Power and nature of the correlation connection						F-test	t-test
	$y(x_1)$		$y(x_2)$		$y(x_3)$			
	power	nature	power	nature	power	nature		
Volyn	-0.51	r_a^-	0.56	r_a^+	0.55	r_a^+	0.94>0.49[1]	-0.45<0.67[4]
Rivne	-0.15	r_{wv}^-	0.19	r_{wv}^+	0.23	r_w^+	0.58<0.65[2]	0.83>0.44[3]
Lviv	-0.32	r_m^-	0.23	r_w^+	0.23	r_w^+	0.67>0.60[1]	1.29>0.25[3]
Ternopil	-0.04	r_{wv}^-	0.05	r_{wv}^+	0.05	r_{wv}^+	0.02<0.99[2]	-0.05<0.96[4]
Khmelnytskiy	0.01	r_{wv}^+	-0.03	r_{wv}^-	0.04	r_{wv}^+	0.07<0.97[2]	0.44<0.68[4]
Ivano-Frankivsk	0.09	r_{wv}^+	0.00	r_{nc}^+	-0.03	r_{wv}^-	0.76>0.56[1]	-0.22<0.83[4]
Zakarpattya	0.08	r_{wv}^+	0.06	r_{wv}^+	0.05	r_{wv}^+	2.92>0.14[1]	-2.93<0.03[4]
Chernivtsi	0.09	r_{wv}^+	0.00	r_{nc}^+	-0.03	r_{wv}^-	0.99>0.46[1]	-1.65<0.15[4]
Chernihiv	0.00	r_{nc}^+	-0.02	r_{wv}^-	0.01	r_{wv}^+	0.17<0.91[2]	-0.15<0.88[4]
Poltava	0.55	r_a^+	-0.48	r_m^-	-0.49	r_m^-	2.26>0.20[1]	-1.67<0.05[4]
Sumy	0.09	r_{wv}^+	-0.09	r_{wv}^-	-0.13	r_{wv}^-	0.28<0.83[2]	0.03<0.97[4]
Kharkiv	0.18	r_{wv}^+	-0.19	r_{wv}^+	-0.22	r_w^-	0.15<0.92[2]	0.13<0.90[4]
Vinnytsya	-0.43	r_m^-	0.44	r_m^+	0.44	r_m^+	0.41<0.75[2]	-0.06<0.95[4]
Zhutomyr	-0.07	r_{wv}^-	0.11	r_{wv}^+	0.13	r_{wv}^+	0.24<0.86[2]	2.39>0/25[3]
Kyiv	-0.30	r_m^-	-0.05	r_{wv}^-	-0.00	r_{nc}^-	0.32<0.81[2]	3.47>0.02[3]
Kirovohrad	0.27	r_w^+	0.22	r_w^+	-0.28	r_w^-	2.91>0.14[1]	-1.15<0.30[4]
Cherkasy	0.25	r_w^+	-0.22	r_w^-	-0.28	r_w^-	0.83>0.53[1]	-0.46<0.66[4]
Dnipro	0.04	r_{wv}^+	-0.00	r_{nc}^-	0.00	r_{nc}^+	0.62>0.63[1]	-1.26<0.26[4]
Zaporizhzya	0.04	r_{wv}^+	-0.02	r_{wv}^-	-0.06	r_{wv}^-	0.19<0.90[2]	0.16<0.88[4]
Donetsk	0.44	r_m^+	-0.03	r_{wv}^-	-0.02	r_{wv}^-	1.67>0.29[1]	-2.11<0.08[4]
Luhansk	0.29	r_{wv}^+	-0.03	r_{wv}^-	0.48	r_m^+	2.49>0.17[1]	-1.93<0.11[4]
Odessa	-0.12	r_{wv}^-	0.15	r_{wv}^+	0.07	r_{wv}^+	0.23<0.88[2]	0.10<0.92[4]
Mikolayiv	-0.04	r_{wv}^-	0.05	r_{wv}^+	0.09	r_{wv}^+	0.44<0.73[2]	-0.56<0.59[4]
Kherson	-0.07	r_{wv}^-	0.11	r_{wv}^+	0.04	r_{wv}^+	0.07<0.97[2]	0.14<0.89[4]

**Note: [1]if $F_f > F_c$ the regression equation as a whole has statistical significance and a high level of confidence; [2]if $F_f < F_c$ the regression equation has no statistical significance; [3]if $t_f > t_c$ – it is necessary to accept the hypothesis about the statistical significance of the regression coefficient; [4]if $t_f < t_c$ – it is necessary to accept the hypothesis about the statistical insignificance of the regression coefficient.*

The assessment of correlations showed a significant variation between the strength and nature of the relationship between the level of consumption of agro-food products (poultry meat) and socio-economic factors in the regions of Ukraine. In particular, regions that have an average (r_a) direct (r^+) or inverse (r^-) correlation for the selected factor variables $y(x_1)$, $y(x_2)$, $y(x_3)$ – Volyn region; y(x1) – Poltava region.

Regions that have a moderate (r_m) direct (r^+) or inverse (r^-) correlation for the selected factor variables $y(x_1)$, $y(x_2)$, $y(x_3)$ – Vinnysya region; $y(x_1)$ – Lviv, Donetsk, Kyiv regions; $y(x_2)$, $y(x_3)$ - Poltava region; $y(x_3)$ – Luhansk region.

Regions that have a weak (r_w) direct (r^+) or inverse (r^-) correlation for the selected factor variables $y(x_1)$, $y(x_2)$, $y(x_3)$ – Kirovohrad, Cherkasy regions; $y(x_2)$, $y(x_3)$ - Lviv region; $y(x_3)$ – Kharkiv region.

Regions that have a very weak (r_{wv}) direct (r^+) or inverse (r^-) correlation for the selected factor variables $y(x_1)$, $y(x_2)$, $y(x_3)$ – Ternopil, Khmelnytskiy, Zakarpattya, Sumy, Zhutomyr, Zaporizhzya, Odessa, Mikolayiv, Kherson regions; $y(x_1)$, $y(x_3)$ – Ivano-Frankivsk, Chernivtsi regions; $y(x_2)$, $y(x_3)$ - Chernigiv, Donetsk regions; $y(x_2)$ – Kyiv region; $y(x_1)$, $y(x_2)$, - Rivne, Kharkiv, Luhansk regions; $y(x_1)$ – Dnipro region.

Regions in which there is no direct (r^+) or inverse (r^-)correlation for the selected factor variables (r_{nc}) $y(x_1)$ – Kyiv region; $y(x_2)$ – Ivano-Frankivsk, Chernivtsi regions; $y(x_2)$, $y(x_3)$ - Dnipro region; $y(x_1)$ – Chernigiv region.

Results of the general assessment of the quality of the multifactor regression model between the factor variables x_1 – the number of population living in the region (thousand people); x_2 – the disposable income of the population per capita in the region (UAH); x_2 – the expenditure of the population per capita per year in the region (UAH); and the effective variable (Y) – poultry meat consumption in the region (kg) is presented in Table 3. The results are based of assessing the quality of the multivariate regression model and the coefficient of determination on the basis of the proposed clustering, the regions were grouped into five models.

Table 3. Results of clustering of regions of Ukraine according to the data of the calculated coefficient of determination and assessment of the quality of the multifactor regression model

Regions	Coefficient of determination (R^2)	Multiple regression equation	Model quality assessment	Assessment of the influence of socio-economic factors (F_{se}) on the level of consumption of agro-food products
Model 1 (M_1) a high quality model and a strong level of relationship between factor variables				
There are no regions that have a sufficient value of the coefficient of determination, which shows strong level of relationship between factor variables				
Model 2 (M_2) an accepted quality model and a normal level of relationship between factor variables				
Zakarpattya	0.64[2]	$y = -9895{,}7 + 7{,}84x_1 + 0{,}01x_2 - 0{,}01x_3$ (3)	M_2	F_{se}=64%, F_{other}=36%
Kirovohrad	0.63[2]	$y = -80{,}81 + 0{,}10x_1 + 0{,}00x_2 - 0{,}00x_3$ (3)	M_2	F_{se}=63%, F_{other}=37%
Poltava	0.58[2]	$y = -428{,}77 + 0{,}31x_1 + 0{,}00x_2 - 9{,}29281E-05x_3$ (3)	M_2	F_{se}=58%, F_{other}=42%
Donetsk	0.50[2]	$y = -1685{,}69 + 0{,}41x_1 + 0{,}00x_2 - 0{,}00x_3$ (3)	M_2	F_{se}=50%, F_{other}=50%
Luhansk	0.60[2]	$y = -262{,}09 + 0{,}13x_1 + 0{,}00x_2 - 3{,}00962E-05x_3$ (3)	M_2	F_{se}=60%, F_{other}=40%
Model 3 (M_3) a moderate quality model and an average level of association between factor variables				
Volyn	0.36[1]	$y = -123{,}06 + 0{,}14x_1 + 0{,}00x_2 + 0{,}00x_3$ (3)	M_3	F_{se}=36%, F_{other}=64%
Ivano-Frankivsk	0.31[1]	$y = -352{,}95 + 0{,}27x_1 - 0{,}00x_2 + 0{,}00x_3$ (3)	M_3	F_{se}=31%, F_{other}=69%
Chernivtsi	0.37[1]	$y = -2081{,}68 + 2{,}28x_1 + 0{,}00x_2 - 0{,}00x_3$ (3)	M_3	F_{se}=37%, F_{other}=67%
Cherkasy	0.33[1]	$y = -144{,}08 - 0{,}14x_1 + 0{,}00x_2 - 0{,}00x_3$ (3)	M_3	F_{se}=33%, F_{other}=67%
Model 4 (M_4) a low-quality model and a low level of relationship between factor variables				
Rivne	0.26[1]	$y = 159{,}68 - 0{,}11x_1 - 0{,}00x_2 + 0{,}00x_3$	M_4	F_{se}=26%, F_{other}=74%
Lviv	0.29[1]	$y = 4299{,}26 - 1{,}26x_1 + 0{,}01x_2 + 0{,}00x_3$	M_4	F_{se}=29%, F_{other}=71%
Vinnytsya	0.20[1]	$y = -20{,}04 + 0{,}04x_1 + 6{,}3973E-05x_2 + 2{,}37707E-05x_3$ (3)	M_4	F_{se}=20%, F_{other}=80%
Dnipro	0.27[1]	$y = -2816{,}28 + 0{,}87x_1 - 0{,}00x_2 + 0{,}00x_3$ (3)	M_4	F_{se}=27%, F_{other}=73%
Mikolayiv	0.21[1]	$y = -1246{,}36 + 1{,}06x_1 - 0{,}00x_2 + 0{,}00x_3$ (3)	M_4	F_{se}=21%, F_{other}=79%
Kyiv	0.16[1]	$y = 170{,}08 - 0{,}01x_1 - 0{,}00x_2 + 0{,}00x_3$	M_4	F_{se}=16%, F_{other}=84%
Model 5 (M_5) the model is of very poor quality and there is no relationship between the factor variables				
Ternopil	0.02[1]	$y = -6{,}98 + 0{,}03x_1 + 2{,}33x_2 + 62361E-06x_3$ (3)	M_5	F_{se}=2%, F_{other}=98%
Khmelnytskiy	0.04[1]	$y = 4149{,}09 - 3{,}07x_1 - 0{,}00x_2 - 0{,}00x_3$	M_5	F_{se}=4%, F_{other}=96%
Chernihiv	0.09[1]	$y = -217{,}74 + 0{,}23x_1 - 0{,}00x_2 + 0{,}00x_3$ (3)	M_5	F_{se}=9%, F_{other}=91%
Kharkiv	0.08[1]	$y = 208{,}38 - 0{,}05x_1 + 0{,}00x_2 - 0{,}00x_3$	M_5	F_{se}=8%, F_{other}=92%
Zaporizhzya	0.10[1]	$y = 155{,}11 - 0{,}06x_1 + 0{,}00x_2 - 0{,}00x_3$	M_5	F_{se}=10%, F_{other}=90%
Kherson	0.04[1]	$y = 30{,}01 - 0{,}00x_1 + 5{,}11925E-05x_2 - 3{,}66169E-05x_3$	M_5	F_{se}=4%, F_{other}=96%
Sumy	0.14[1]	$y = 10{,}50 - 0{,}01x_1 + 0{,}00x_2 + 0{,}00x_3$	M_5	F_{se}=14%, F_{other}=86%

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Zhutomyr	0.13[1]	$y = -222{,}68 + 0{,}20x_1 + 0{,}00x_2 + 0{,}00x_3$ [(3)]	M_5	F_{se}=13%, F_{other}=87%
Odessa	0.12[1]	$y = 235{,}77 - 0{,}08x_1 + 0{,}00x_2 - 0{,}00x_3$	M_4	F_{se}=12%, F_{other}=88%

**Note: [1]a parameters of model cannot be used for forecasting; [2] the parameters of the model can be used for forecasting; [3] parameter a_0 does not make economic sense.*

Then as, R^2 is explain the influence of the selected socio-economic factor variables, and the rest is due to the influence of other factor variables that are not included in the model.

The results of the overall assessment of the impact of the selected socio-economic factors on the level of consumption of agro-food products (poultry meat) are demonstrated in Fig. 1.

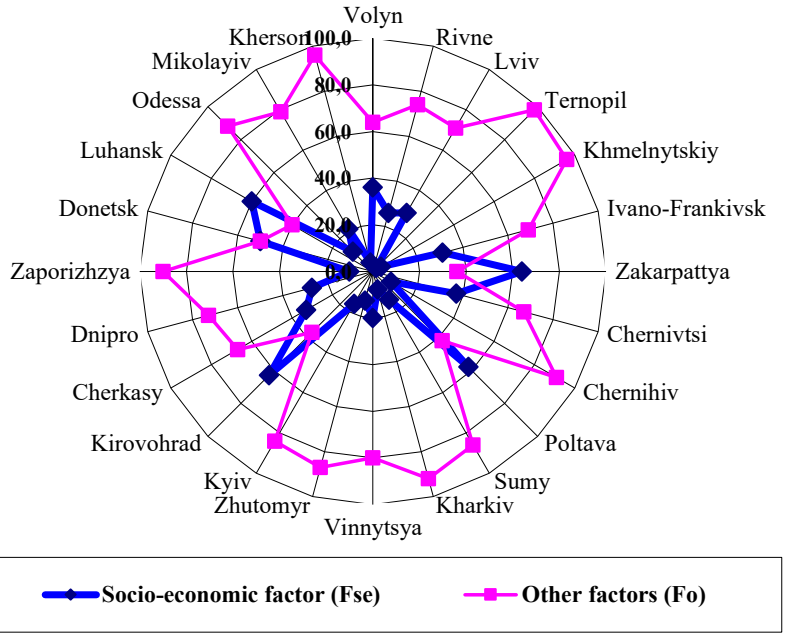

Figure 1. Results of the general assessment of the impact of the selected socio-economic factors on the level of consumption of agro-food products (poultry meat) in the regions of Ukraine

To clarify the results obtained, an assessment of the quality of the multivariate regression model was carried out, which made it possible to determine how many percent are influenced by socio-economic factors, and how many percent are due to the influence of other factor variables that are not included in the model. On the basis of the proposed clustering, the regions were grouped into five models, respectively: none of the 24 regions of Ukraine meets the quality of Model 1; the quality of Model 2 corresponds to five regions of Ukraine (Zakarpattya region 64%/36%; Kirovohrad region 63%/37%; Luhansk region 60%/40%; Poltava region 58%/42%; Donetsk region 50%/50%); the quality of Model 3 corresponds to four regions of Ukraine (Chernivtsi region 37%/63%; Volyn region 36%/64%; Ivano-Frankivsk region 31%/69%; Cherkasy region 33%/67%); the quality of Model 4 corresponds to six regions of Ukraine (Lviv region 29%/71%; Dnipro region 27%/73%; Rivne region 26%/74%; Mikolayiv region 21%/79%; Vinnysya region 20%/80%; Kyiv region 16%/84%); The quality of Model 5 corresponds to nine regions of Ukraine (Kherson region 4%/96%; Zhutomyr region 13%/87%; Sumy region 14%/86%; Odessa region 12%/78%; Chernigiv region 9%/91%; Zaporizhzya region 10%/90%; Khmelnytskiy region 4%/96%; Ternopil region 2%/98%; Kharkiv region 8%/92%).

Thus, between the volumes of poultry meat consumption in the regions of Ukraine and

the selected socio-economic factors, a more direct or inverse weak relationship has been identified. Also, in some areas, such linear connections are absent.

Conclusion

Taking into account the importance of food security issues and the importance of the tasks of providing the population of the regions of Ukraine with affordable meat, an assessment of the dependence of the level of poultry meat consumption on the socio-economic indicators of individual regions is carried out on the basis of the results of correlation and regression analysis. The results of the research showed a different nature and strength of the relationship between socio-economic indicators and the level of poultry meat consumption in different regions of Ukraine.

It is proposed on the basis of assessment of the quality of the multifactorial regression model and the calculated coefficient of determination of the grouping of regions according to methodological approaches to clustering. As the main parameters for grouping, the value of the coefficient of determination is allocated and grouped into five models of regional development.

According to the results of the assessment of the quality of the multivariate regression model and the data of the calculated coefficient of determination, the regions of Ukraine are grouped into five models. The results of the research proved that in different regions of Ukraine socio-economic factors have a different degree of influence on the consumption of poultry meat in the regions: the percentage of dependence of the influence varies from 2% to 64%. This means that in order to make a high-quality forecast and determine the prospects for the development of individual regions of Ukraine, it is not enough to take into account the influence of these factors alone, and the problem of creating conditions for stimulating good nutrition of the population of Ukraine requires further study.

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