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## THE INFLUENCE OF PEOPLE INCOME ON VEGETABLES CONSUMPTION IN ROMANIA

#### **RALUCA ANDREEA ION**<sup>1</sup>

**Abstract:** The article analysis the people income influence of vegetables' consumption, assuming that the consumption of vegetables increases along with income growth. The paper tries to answer the question what are the direction and the intensity of income influence on vegetables' consumption? In pursuing this question, data related to income and vegetables consumption have been analysed using the regression models. The results show that 1-unit change in the level of income leads to 0.720 units change in the level of vegetables' consumption. The consumption of vegetables reacts evident to changes in the level of income, as compared to the consumption of fruits. The topic of research and the findings are relevant, because of vegetables' importance for human health, due to their content in micro and macro nutrients. Is also rises awareness on the determinants of vegetables' consumption, and on the extent to which people income plays a role in food choices.

**Keywords:** *vegetables, market, self-consumption, people income* 

JEL Classification: Q13

#### **INTRODUCTION**

The objective of the paper is to identify the direction and the intensity of the relationship between vegetables consumption and people income. For identifying this relationships, data from the National Institute of Statistic of Romania have been analysed using the regression models. The hypothesis tested in this paper is that the level of vegetables consumption increases along with people income growth (Ion, 2015).

The topic is important because vegetables are required in human nutrition as a result of their content of vitamins and minerals. Vegetables become, as such, significant for health, and interesting subject of research. Worldwide, the role of vegetables' consumption is well recognized. The World Health Organization has undertaken research on nutritional status and their relationship to health. As such, vegetables are recommended in the daily diet, because they have very favourable effects on the human body: hydrating the body because of the high water content, fresh vegetables have 72 -95 per cent water, increasing the body's immunity capacity, fat reduction. Vegetables contain vitamins important in the prevention of diseases and maintaining the human body's metabolic balance. They ensure large amounts of vitamin A, found in carrots, tomatoes, lettuce, spinach, pepper, beetroot and meet in a proportion of 60-80 per cent the body needs for carotene (Ion and Dobre 2015).

Vegetables market has a specific behaviour different from other agro-food markets, as a result of its numerous features (Preda, 2001, Turek et al.2008). The most important of them refer to atomicity of demand and supply, vegetables homogeneity, seasonality, zoning, and perishability. Poorly developed collection systems also characterises the vegetables' market, which lead to a high level of self-consumption. As a consequence, only small parts of total production is put on markets. These generate either quantitative surpluses or deficits, which create strong market distortions (Manole et al., 2005, Marin et al., 2017). Besides these, it should be mentioned that the demand for vegetables is continuous, while the supply is seasonal. In order to satisfy the demand, the whole year, imports are needed.

Findings will help farmers, processors and retailers in their efforts of invest money in certain branches and to better understand the factors that changed consumption and production of vegetables.

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### 1. MATERIALS AND METHODS

The information used for market research is collected from databases and publications of the National Institute of Statistics of Romania. The data related to the income and the consumption of vegetables are centralized in Table 1 and Figure 1. The income is expressed in lei per person per month. It refers to the period 2001-2016 and its values have been updated to 2016 using the prices indices. The income increased over the period under analysis from 472 lei per inhabitant per month to 1112 lei per inhabitant per month.

The consumption of vegetables refers to all fresh vegetables and products obtained from vegetables and expressed as fresh vegetables. The data have been retrieved from the National Institute of Statistics database and they are gathered for the period 2001-2016. The consumption of vegetables increased in the period under analysis, up to 125%, from 125 kilograms per person per year to 158 kilograms per person per year. The average annual vegetable consumption was 151 kg / capita in 2012, and 152 kg / capita in 2013 (Ion and Dobre, 2015).

Data in Figure 1 and Table 1 show that the consumption of tomatoes slightly increased to 109% over the period under analysis, from 34 kilograms per person per year in 2001, to 38 kilograms per person per year in 2016.

Year	Average consumption of vegetables (kg/person/year)	Average consumption of tomatoes (kg/person/year)	Income (lei/person/month)
2001	125.6	34.6	472.81
2002	122.4	28.6	488.09
2003	148.9	37.4	525.45
2004	154.8	45.6	608.83
2005	136.1	35	626.09
2006	158.6	44.6	674.01
2007	149.9	46.4	784.76
2008	158.9	42.6	921.36
2009	148.7	37.4	951.05
2010	155.7	40	894.25
2011	162.9	38.6	892.34
2012	151.4	38.4	885.78
2013	152	35.4	886.17
2014	158	38.1	917.68
2015	158.5	38.6	995.00
2016	158	38	1112.22

Table 1. The average consumption of vegetables, the average consumption of tomatoes,and the average population income, in Romania, 2001-2016

Source: National Institute of Statistics of Romania



Figure 1. Dynamics of vegetables' consumption, tomatoes' consumption, and population income,

Source: National Institute of Statistics of Romania

#### 2. FINDINGS

The results of the regression models are presented in Table 2 and Figures 2 and 3. The regression model showing the relationship between income and vegetable consumption is statistically significant since the values of Sig. are below 0.05. Medium correlations have been found between income and the average consumption of vegetables, since the value of R Square is 0.518. The regression model showing the relationship between income and tomatoes' consumption is not statistically significant, since the values of Sig. are higher than 0.05.

Table 2. The influence of people income on consumption of vegetables

	1 1	1	U					
Variable	R Square	Coefficients of	Standard	Sig.				
		regression function	error					
Average consumption of vegetables	0.518	0.720	0.011	0.002				

Source: res	ults of	the reg	ression	mode
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Figure 3. Relationships between people income on consumption of tomatoes



Source: results of the regression model

The results of the regression model show that 1-unit change in the level of income leads to 0.720 units change in the level of the average consumption of vegetables. If income increases by one leu per month, or 12 lei per year, the consumption of vegetables grow with 0.720 kilograms per year. Small reactions in the level of tomatoes consumption have been identified, showing that tomatoes' consumption do not depend on the market and people income, as long as they are more or less acquired from the peoples own households. Farmers' self-consumption from their own production reached 75 per cent of vegetable products for fresh consumption or to conserve (Ion and Dobre, 2015). There are situations where self-consumption fully covers requirements for certain vegetable species, as previous research (Preda, 2001) showed.

#### **CONCLUSIONS**

The paper investigated the relationship between people income and vegetables' consumption in Romania, over the period 2001-2016. Analysing the data using the regression model, the results show that the hypothesis aimed to be tested in this article, namely that the level of vegetables' consumption increases along with people income growth, is validated. Moreover, weak correlations have been found between tomatoes consumption and people income, arguing, anew, that tomatoes consumption do not depend on market conditions, but on individuals own sources of acquiring the tomatoes for family needs.

Due to vegetables' significance for human health, further research should investigate the other determinants of vegetables' consumption, besides people income, to see to what extent they influence people food choices.

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