

ARE THERE DIFFERENCES REFERRING TO THE LIVING STANDARD IN ROMANIA ACCORDING TO THE OCCUPATIONAL STATUS? EMPIRIC RESEARCH REFERRING TO THE ENDOWMENT WITH DURABLE GOODS IN ROMANIAN HOUSEHOLDS

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Rezumat

The endowment with durable goods is both a barometer of the living standard and life quality published as a statistic indicator by the National Institute for Statistics from Romania (INS) and at European level – comparative – by Eurostat, for European countries. For both national and European level, this indicator is reported taking into account socio-demographic characteristics of the of the family head and of the household itself, such as: occupational status, education level, gender, the age of the family head, the number of the persons from the household, etc. From all the socio-demographic variables, we consider the most important the one referring to the occupational status of the family head, this being correlated directly with the educational level and implicitly with the income, variables which were the foundation of constituting the sample basis of this research. Previous research proved that the endowment with durable goods presents significant differences from a statistical point of view at the level of the development regions from Romania. In this work, we complete previous research for Romania, based on a representative sample at urban national level consisting of 300 households, using a double scheme of sampling, stratified samples and on levels. For this I used methods of descriptive and non-parametric statistics starting from the hypothesis that, the living standard and the quality of life in Romania are significantly different from a statistical point of view according to the occupational status of the household head. The conclusions of this research present importance from the point of view of social and macroeconomical politics as well as for the “actors” of the market for these consumption goods

Cuvinte cheie: durable goods, occupational status, life quality, sampling Romania

Clasificare JEL: C14, C83, D12, D63, I30, R21

1. Introduction

Post-communist Romania presents numerous economical and social “particularities” reflected in economic-statistical indicators reported to the level of INS, of the European institutions (EUROSTAT) and worldwide level. These particularities place it – taking into account that this country is a member of the European Union – on laggard places:

- existence of a very strong, direct correlation between inflation and unemployment, for the period between 2000 and 2009, when in Romania there was a decrease in unemployment as well as in inflation, is considered the result of the increase in labor productivity in the context of the new information economy (Herman, 2010)
- Romania, near to Estonia, Latvia, Lithuania and Hungary of those 27 analyzed employment elasticity is negative, which reflects the negative effect of economic growth on employment in these countries, having negative consequences on economic and human development (Herman, 2011)
- the average size of the household places Romania on the last places, among the countries with the biggest number of persons in a household (according to EUROSTAT, *The social situation in the European Union 2009*, Februarie 2010, p. 205);
- the discrepancies are very big concerning another important indicator, GDP per capita expressed through standards of the buying power, which emphasizes the biggest differences (between 41 and 60 %) between EU average and Romania, alongside countries like Poland and Lithuania (according to EUROSTAT, *The social situation in the European Union 2009*, Februarie 2010, p. 215);

All these particularities of the Romanian economy are completed by the particularities of the structure of the Romanian households in comparison to European Union (table 1) and are reflected over the degree of the acquisition of durable goods and implicitly over the decisional process of buying these goods.

In foreign and Romanian literature studied so far there are different approaches of applying the statistical methods in the research of the durable goods market. Thus in Romania, J.C. Drăgan and M.C. Demetrescu (1996) have applied the statistical methods in the study of this market, I. Cătoiu and N. Teodorescu (2003, pp. 245 – 250) presents aspects of the buying intentions and attitudes concerning the behaviour of the consumer for durable goods and in

foreign literature, Pascal Ardily (2006) presents aspects of durable goods research in France.

Table 1 – The structure of the households in European Union (EU) and in Romania, in 2008 according to EUROSTAT (%)

	Single Persons	An adult under 64 years	An adult over 65 years	Two adults under 64 years	Two adults with one child	Two adults with two children	Three or more adults	Three or more adults with one child	No children in care
EU(27countries)	13.1	7.6	5.4	13.2	11.9	17.0	11.9	10.7	49.0
EU(15countries)	14.2	8.5	5.7	14.1	11.8	17.4	11.2	7.8	50.9
Romania	7.4	3.2	4.2	8.4	13.4	14.2	14.4	26.6	38.1

	With children in care	The average size of a household	1 person	2 persons	3 persons	4 persons	5 persons	6 persons
EU(27countries)	51.0	2.4	29.8	30.2	17.4	15.6	4.8	2.1
EU(15countries)	49.0	2.3	31.5	31.5	16.6	14.9	4.1	1.4
Romania	61.9	2.9	21.4	24.9	21.0	19.2	7.7	5.8

(Source: http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/introduction)

2. Research hypothesis

In order to formulate the hypotheses of the research, we started from quarterly and annual reports of the National Institute of Statistics from Romania (referring to the endowment of the households with durable goods living standard and life conditions of the population) and from the results published by GfK Romania in its press releases or materials available on the site of the organization. GfK Company is the number one worldwide level referring to GD market research using a sample (panel) of retailers from 70 countries, the results being published quarterly (GfK Retail & Technology). Thus the hypotheses of the research are presented in table 2.

Table 2 – Research hypotheses

No.	Hypotheses	Theoretical and practical frame
H ₁	H ₁ – There are correlations at least of medium value between; socio-demographic variables of the head of the household and the place, modality, the period and the reason for purchasing the goods, the future intention to purchase and endowment with durable goods	This hypothesis will be tested by means of non-parametric correlations Spearman and Kendall
H ₂	H ₂ – There are significant differences concerning the endowment degree with durable goods according to age, gender, educational level the occupational status of the head of the family and according to the size, the number of children under 18 and the net income for the household.	This hypothesis is based on INS reports in <i>Coordinates of the living standard in Romania – year 2009</i> , pp. 258 – 275 concerning the endowment with durable goods, followed on different socio – demographic characteristics of the household and of the head of the household and it will be tested using χ^2 test bivariated
H ₃	H ₃ – the normal distribution of the households from the sample referring to the power of buying	This hypothesis will be tested using χ^2 test univariated
H ₄	H ₄ – the normal distribution of the households from the sample referring to the satisfying degree concerning the endowment of the household with durable goods	This hypothesis will be tested using χ^2 test univariated
H ₅	H ₅ – the normal distribution of the households in sample according to the acquisition time.	This hypothesis will be tested using χ^2 test univariated
H ₆	H ₆ – the normal distribution of the households in sample concerning the acquisition in the future of durable goods.	This hypothesis will be tested using χ^2 test univariated.

H ₇	H ₇ – there are significant differences concerning the acquisition in the future of durable goods according to social status, gender and the occupational status of the head of the household.	This hypothesis will be tested using χ^2 test bivaried
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3. Methodology

The methodology used to process and analyze the data collected by means of questionnaire comprises the following statistical methods, using the programs SPSS and Excel:

- Descriptive Statistics , respective relative and absolute frequencies , the simple and weighted arithmetic mean for calculating medium scores of the variables measured by means of Likert and Stapel scales
- Non-parametric correlations Spearman and Kendall for testing the hypotheses of the research
- χ^2 test univariad for testing the normality of the distribution in the case of variables measured by Likert scale
- χ^2 test bivaried for testing the hypotheses of the research

4. Sample description

In the sample formation, and consequently to ensure its representativeness, we started from national distribution of households according to two criteria, namely: the distribution of urban households based on occupation and level of education of the household head, the sample used in our research being illustrated in table 3.

Table 3 - The distribution of sample

Profession Level of education	Employees	Freelancers	Agriculture workers	Unemployed persons	Retired
Primary	1	1	1	0	22
Secondary	109	11	2	12	90
Higher	42	1	0	0	8
TOTAL	300 households				

To increase the representativeness of the sample, we considered appropriate to apply a scheme of combined sampling, respectively the **quota sampling** and **stratified sampling**, using two layers as follows:

- **first layer consists of the household head occupation**, including: **employed persons**, including the following categories: *manager, employed person with higher education, employed person with high-school education, unqualified laborer, freelancers*, respectively *employers and self-employed, farmers, unemployed, retired*.
- **The second layer** consisting of **the level of training of household head**, as follows: primary level: *no school, elementary school, secondary school*, secondary level: *vocational school, high-school, technical / craftsmen school*, higher education level: *college / university, postgraduate studies*.

In applying the **quota sampling** there have been distributed to each operator the quotas to be achieved while respecting the distribution of households according to statistics at the national level.

For information gathering stage we used a questionnaire administered by trained operators, namely trained students who have practical experience in this field, questionnaire containing a broad range of scales both classical and specific to marketing data and, implicitly, identification of socio-demographic variables of the household head characteristics.

The socio-demographic characterization of the sample is shown thoroughly in tables 4 and 5 according to the *size of household, number of children with age below 18 years, gender, age and education level of household head*, the latter shown only as a restricted form, primary, secondary and higher level, respectively. Starting from data in table no. 4, **indicators of hard core trend** are provided by:

- ⇒ Average size of household in the sample is 3 people, variation coefficient calculated and equal to 7.6 % thus showing a uniform population and an average representative within the sample;
- ⇒ Of households with children below 18 years, the average number of children per household is 1 child per household.
- ⇒ Average age of household head is 49.37 years, this value is the result of a high percentage of households of pensioners in the sample, 40 % respectively, the average being representative for 70 % of population (variation coefficient is 29.7 %).

Table 4 – Distribution of households on various characteristics (%)

Size of household	Number of children below 18 years	Type of household head	Age of household head	Education level of household head
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1 person	12.0	No children	65.0	Male	78.7	15 -24 years	1.3	Primary (including no education)	8.3
2 persons	25.0	With children of which:	35.3			25- 34 years	14.3		
3 persons	26.0	1 child	24.7					Secondary	74.7
4 persons	26.3	2 child	9.3	Female	21.3	35 – 49 years	33.0	Higher	17.0
5 persons	8.0	3 children	0.7			50 -64 years	33.3		
6 persons and more	2.6	4 children and more	0.3			65 years and more	18.0		

(Own calculations according to sampling data processing)

Table 5 – Distribution of households on various characteristics (%)

Civil status of household head		Children below 18 years		Occupation status of household head	
Married	75.3	0 – 18 months	1.0	Employer	3.0
Free communion-cohabitation	3.7	18 months – 3 years	3.0	Freelancer	1.3
		3 – 5 years	4.3	Manager	2.3
				Higher educated employee	11.0
Not married	5.7	6 – 8 years	6.7	Standard education employee	33.3
		8 – 10 years	3.3	Unemployed	4.0
Divorced/ widow	15.3	11 -13 years	8.7	Unskilled worker	4.0
		14 – 16 years	8.2	Pensioner	40.0
		16 – 18 years	11.0	Farmer	1.0

(Own calculations according to processing of sampling data)

5. Main findings

For the **hypothesis H_1** – *There are correlations of at least medium value between: socio-demographic variables of the head of the household and the place, the modality, the time and the reason for purchasing the goods, the future intention for purchasing and endowment with durable goods “second-hand”, the results are presented in structured manner in table 6.*

Table 6 – The correlation coefficients Spearman and Kendall for the research hypothesis H_1

	The place of the goods acquisition/purchase		Payment modality		The endowment with „second-hand” goods		The acquisition period		The reason for acquisition	
	S	K	S	K	S	K	S	K	S	K
The education level	Values under 0.5 of the coefficient		The statistical significance level 0.80		-0.18	-0.16	The statistical significance level 0.4		The statistical significance level 0.95	
Occupational status	Negative and positive correlations of low values under 0.5		The statistical significance level 0.70		The statistical significance level 0.20		The statistical significance level 0.15		Significance level 0.15	
The net income	Significance levels bigger than 0.05 or values very small (positive or negative) of the correlation coefficients		The statistical significance level 0.13		-0,18	-0.15	The statistical significance level 0.10		The statistical significance level 0.08	
The age	Negative correlations with very low values 0.5		The statistical significance level 0.56		The statistical significance level 0.42		The statistical significance level 0.38		The statistical significance level 0.30	

(Note: S = Spearman coefficient, K = Kendall coefficient)

We can conclude, based on data from table 6 that, none of the formulated hypotheses concerning the existent correlations between the two types of variables is significant so H_1 hypothesis is not confirmed.

For testing H_2 hypothesis – there are significant differences concerning the endowment degree with durable goods according to age, gender, educational level, the occupational status of the head of the household and according to the size of the family, number of the children under 18 and the net income on the household, I was applied χ^2 test bivaried for testing the significant differences between distributions according to different socio-demographic characteristics of the households or of the head of the household concerning the endowment with durable goods, such as:

- The size of the household,
- Children under 18 years,
- The gender of the household head,
- The age of the household head,
- The occupational status of the head of the household,
- The educational level of the head of the household

For calculating χ^2 statistics there have been taken into consideration only the durable goods of which the endowment degree is over 50% in households. We present as it follows (table 7) the results obtained, on each hypothesis, with the mention that, for the theoretical value of χ^2 , statistics it has been considered the statistic significance level $\alpha = 0.05$. For each tested hypotheses it has been calculated the contingency coefficient and the maximum value of the contingency coefficient.

Table 7 – Results for χ^2 test bivaried

The null hypothesis tested H_0	χ^2 calculated	The number of the freedom degrees	χ^2 theoretical for $p = 95\%$	The contingence coefficient	Conclusions
1. There is no significant differences from a statistical point of view concerning the endowment with durable goods according to the size of the household.	77.68	45	30.61	0.4535	H_0 is rejected medium association between variables
2. There are no significant differences from a statistical point of view concerning the endowment with durable goods between the households with children and those without..	13.77	15	7.96	0.209	H_0 is rejected weak association between variables
3. There are no significant differences from a statistical point of view concerning the endowment with durable goods according to the gender of the head of household	13.62	15	7.96	0.208	H_0 is rejected weak association between variables
4. There are no significant differences from a statistical point of view concerning the endowment with durable goods according to the age of the head of the household	135.98	45	30.61	0.558	H_0 is rejected good association between variables
5. There are no significant differences from a statistical point of view concerning the endowment with durable goods according to the occupational status of the head of the household	64.72	42	28.14	0.421	H_0 is rejected medium association between variables
6. There are no significant differences from a statistical point of view concerning the endowment with durable goods according to the level of education of the household head	69.82	28	16.93	0.435	H_0 is rejected medium association between variables
7. There are no significant differences from a statistical point of view concerning the endowment with durable goods according to net income achieved in the household	77.84	56	39.80	0.454	H_0 is rejected medium association between variables

The final conclusion achieved after applying χ^2 test for testing the differences between the distributions of different durable goods according to different socio-demographic characteristics of the households sample

emphasized the fact that, the degree of endowment with durable goods is influenced by the socio-demographic characteristics of the head of the household or of the household.

For the hypothesis:

- H_3 – the normal distribution of the households in the sample referring to the degree of satisfaction regarding the endowment of the household with durable goods.
- H_4 – the normal distribution of the households in the sample referring to the power of buying.
- H_5 – the normal distribution of the households in the sample concerning the acquisition in the future of durable goods.
- H_6 – the normal distribution of the households in the sample according to the period of acquisition

The results are presented structured in table 8, obtained after applying χ^2 test unvaried, being indicated both the results obtained on each tested item, for a statistical significance level $\alpha = 0.05$.

Table 8 - The results for χ^2 unvaried

The item from the questionnaire	χ^2 calculated	The number of the freedom degrees	χ^2 theoretic for p = 95%	Conclusions
How satisfied are you of the goods that you have in the household? ⁱ	393.6	5	11.07	H_0 ; is rejected
„We manage to have everything we need, without restraining from anything” ⁱⁱ	113.04	5	11.07	H_0 ; is rejected
„We manage to buy some expensive goods, but with restrains in other field”	222.2	5	11.07	H_0 ; is rejected
„We earn enough for a decent living, but we can’t afford buying expensive goods.”	114.08	5	11.07	H_0 ; is rejected
„The incomes are enough for strictly necessary”	113.32	5	11.07	H_0 ; is rejected
„The incomes are not enough for strictly necessary”	371.91	6	12.59	H_0 ; is rejected
How sure are you that you will buy durable goods in the future? ⁱⁱⁱ	186.23	4	9.49	H_0 ; is rejected
The time / period of goods acquisition ^{iv}	144.83	3	7.82	H_0 ; is rejected

From the data presented in the table above, it results that for all the items tested, the hypotheses are rejected so the differences recorded at the respondents’ opinion level towards the statements and answers formulated are significant from a statistical point of view.

For hypothesis H_7 – there are significant differences concerning the acquisition of durable goods in the future according to social status, gender and occupational status of the head of the household, the results associated with χ^2 test bivariad applied for testing this hypothesis can be found in table 9 as well.

Table 9 – Results for χ^2 test bivariad

The null hypothesis H_0	χ^2 calculated	The number of the freedom degrees	χ^2 teoretic for p = 95%	The contingence coefficient	Conclusions
1. There are no significant differences from a statistical point of view concerning the acquisition in the future of goods between employed and unemployed respondents	17.78	2	5.99	0.24	H_0 ; is rejected weak association between variables
2. There are no significant differences from a statistical point of view concerning the acquisition in the future of goods between married and unmarried respondents.	14.014	2	5.99	0.21	H_0 ; is rejected weak association between variables
3. There are no significant differences from a statistical point of view concerning the acquisition in the future of goods between men and women	8.21	2	5.99	0.16	H_0 ; is rejected weak association between variables

6. Conclusions and discussions

As an indicator with major implications at a micro and macroeconomical level, a component of the welfare and life quality in Romania, the degree of endowment with durable goods reflects the behavior and the consumption habits of the households. The results obtained in this study can be inferred at the level of the general population because the sample used is representative for the urban national level. Also, the distributions of the answers measured by means of Likert, Stapel scales, constant sum, etc. are statistically normal.

The tested hypotheses emphasized the fact that, the level of education and the net income of the head of the household are inverted correlated, weak with the durable goods “second-hand” endowment but directly correlated and of weak intensity with the place of the durable goods acquisition. The occupational status and the age of the head of the household are invertedly correlated, of weak intensity with place of the acquisition, all the other correlations not being significant from a statistical point of view.

The test χ^2 bivaried emphasized the fact that there are significant differences from a statistical point of view referring to *the degree of endowment with durable goods in Romania*, according to the following socio-demographic characteristics of the household and the head of the household:

- *The size of the household*
- *Children under 18,*
- *The gender of the head of the household*
- *The age of the head of the household*
- *The occupational status of the head of the household*
- *The occupational level of the head of the household*
- *The monthly net income achieved by the household*

Also, the test χ^2 bivaried emphasized the fact that, *the acquisition in the future of some durable goods* differs significantly from a statistical point of view according to:

- *The gender of the head of the household*
- *The matrimonial status*
- *Employed or unemployed.*

It results that, the occupational status (manager, employee, farmer, or unemployed) of the head of the household together with other socio-demographic characteristics of the head of the household and of the household influence the degree of endowment with durable goods of the households in Romania

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ⁱ Very satisfied, quite satisfied, so-so, not very satisfied, totally unsatisfied

ⁱⁱ Total accord, accord, indifferent, disagreement, total disagreement

ⁱⁱⁱ Of course not, probable not, undecided, probable yes, sure yes

^{iv} On celebrations, promotional prices times, in a very different time of the year.