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HOUSEHOLD MATERIAL STATUS AND CONSUMPTION PATTERNS: IMPLICATIONS FOR DIFFERENTIATED MARKETING STRATEGIES

Nina Uremović Associate Professor, Doctor of Economics, Pan-European University Apeiron, Banja Luka, Banja Luka, Bosnia and Herzegovina, nina.d.uremovic@apeiron-edu.eu; ORCID ID: 0000-0001-5445-2262

Mirjana Landika Full Professor, Doctor of Economic Sciences, Pan-European University Apeiron, Banja Luka, Banja Luka, Bosnia and Herzegovina, mirjana.f.landika@apeiron-edu.eu; ORCID ID: 000-0002-1495-2462

Vanja Sredojević Associate Professor, Doctor of Economic Sciences, Pan-European University Apeiron, Banja Luka, Banja Luka, Bosnia and Herzegovina, vanja.b.sredojevic@apeiron-edu.eu; ORCID ID: 0000-0001-5445-2262

Nenad Simić Doctor of Technical Sciences, Ministry of Internal Affairs of the Republic of Serbia, simic0406@gmail.com

Abstract: Material differences between households have a significant impact on the structure of their consumption. Households of lower material status allocate a larger part of the total consumption to basic foodstuffs, while households of higher material status have greater flexibility in allocating funds to non-essential products, other goods and infrastructure elements.

The research is focused on examining the relationship between the household material status index and the Engel coefficient, expressed as the share of food consumption in total consumption, for urban and rural households in the Republic of Srpska, in the periods 2015 and 2021/22. The material status index is defined as a composite indicator of the economic position of a household, based on the amount and structure of consumption, and the possession of tangible goods and infrastructure, including assets such as cars, computers, air conditioners, household appliances, etc.

Analysis by Pearson's correlation coefficient showed a strong negative correlation ($r = -0.927$), which confirms the basic principle of Engel's law: an increase in the material standard leads to a decrease in the relative share of food expenditure. The results indicate that a higher material status index contributes to greater diversification of diet and total consumption, while urban and rural households differ in the structure of expenditure on meat, milk, beverages and other food categories.

The findings of the research provide an empirical basis for the creation of differentiated marketing strategies, based on the material status index, as well as for the design of measures aimed at improving living standards and reducing unequal spending on basic needs.

Keywords: *material status index, material status, consumer patterns, Engel's coefficient, differentiated marketing strategies.*

JEL classification: *M31, M37, M10, D11*

INTRODUCTION

The material status of households is an important indicator of their economic position, which can be seen through the amount and structure of consumption, as well as through the possession of material goods and infrastructure. As such, it forms one of the key components of the broader socioeconomic status of households. Differences in material status are significantly reflected in consumption patterns, especially in the way income is distributed between basic life needs and non-essential goods. In this context, it is particularly important to analyze how the proportion of food consumption changes with the growth of the material standard, which is the essence of Engel's law¹. Understanding this relationship enables better planning of consumption policies, the design of social programs and the development of differentiated marketing strategies, especially in urban and rural communities. Although Engel's law in its original form relates the proportion of food expenditure to household income levels, in modern research the economic situation is often assessed through composite indicators of material status that include consumption and possession of durable goods, as such indicators can more realistically reflect the real standard of living of households. A similar view is expressed by , emphasizing that composite indicators better reflect the real standard of living than individual measures such as the share of food expenditure. He emphasizes the need to apply objective and subjective indicators in empirical research (which includes material indicators, such as consumption and possession of goods), emphasizing that composite indicators better reflect the real standard of living than individual measures such as the share of food expenditure.

The main problem of the research relates to the quantification of the relationship between the index of the material status of households and the structure of their consumption, as well as to the verification of the applicability of Engel's law in the modern economic context. Accordingly, the research question is: How does the material status of households affect the share of consumption on food and non-essential products?

The aim of this paper is to empirically show that lower material status leads to a higher share of consumption for basic needs, while higher material status allows greater flexibility and greater diversification of consumption. In this study, the material status index is defined as a composite indicator that includes the level and structure of household consumption, possession of durable goods and certain infrastructure resources. This approach allows for a more reliable analysis of consumption patterns from the perspective of the economic standard of households.

The initial hypothesis of the research is that there is a negative correlation between the material status index and the Engel coefficient, i.e. that the relative share of

¹ Engel's law is based on the assumption that lower-income households allocate a relatively larger proportion of their budget to meet basic needs, primarily food. As income increases, the relative share of food expenditure in total consumption decreases, while at the same time the share of expenditure on other categories of goods and services, such as housing, transport, communications, clothing and similar higher-value products, increases

food consumption decreases with the increase in material status. Verification of this hypothesis allows for quantitative confirmation of Engel's law, but also provides a basis for creating targeted marketing and social strategies tailored to different material profiles of households.

A REVIEW OF SIMILAR STUDIES

Modern economic literature strongly supports the empirical validity of Engel's law, but consumption patterns vary depending on social, demographic, or geographic context. For example, an analysis of micro data on urban household consumption in Sulawesi (an island in Indonesia) shows a negative elasticity of the share of food consumption in relation to income, which confirms the pattern according to Engel's law: as income increases, the relative share of food expenditure in total consumption decreases, although food remains necessarily good. An analysis of household consumption in Rwanda conducted by indicates marked differences in food consumption patterns between rural and urban households, as well as between different income groups. The authors emphasize that poorer households allocate a larger part of their resources to basic food products, while with the growth of income, the structure of consumption changes in favor of more diverse and nutritionally better foods. Although the paper primarily analyzes the structure of demand and the composition of consumption, its results are in line with the assumptions of Engel's relation about the change in the share of food consumption depending on income.

Empirical studies of various developed and developing countries also show that income distribution and the influence of factors such as demographics, education, or household structure can modify the Engel curve, but the underlying relationship still remains generally negative in the proportion of food consumption with income growth. Research in Nigeria also confirms that higher-income households spend a lower percentage on food, although socio-demographic factors such as household size and access to credit can affect overall spending.

In addition to classical economic analyses of consumption, papers dealing with the topics of food demand, income distribution among households, and consumption elasticity show that Engel's relation can also be extended in the context of social policies, such as consumer protection programs in low-income countries.

Similar results are confirmed by a multilevel regression analysis conducted in South Africa, where it was found that households of lower socioeconomic status allocate a significantly larger share of the budget for food compared to richer strata of the population.

Global food safety reports further emphasize that the structure of consumption directly reflects the economic capacity of households, with a higher share of spending on staple food products characteristic of resource-constrained populations.

A regional analysis of Engel's law in Bosnia and Herzegovina, conducted by , empirically examines the association between household income levels and the share of consumption on food and non-alcoholic beverages. The results of the research confirm that households with lower incomes allocate a larger relative part of the budget for basic food products, while this share decreases with income growth. The authors conclude that the validity of Engel's law in the context of Bosnia and Herzegovina can be confirmed in the observed period.

This contemporary literature provides an additional empirical basis for the interpretation of the research results, confirming that the negative relationship between material status and the share of food consumption is stable and widely confirmed in various economic contexts.

METHODOLOGY

The research is descriptive-analytical and quantitative, focused on examining the relationship between the index of material status of households and the share of food consumption, in accordance with Engel's law.

The descriptive-analytical method was used to analyze data on the structure and amount of household consumption, possession of material goods and infrastructure elements. The survey population included households in urban and rural areas, and the data were taken from the Statistical Office of the Republic of Srpska (consumer habit survey). The sample is stratified by household type and includes two time points: 2015 and 2021/22.

Primary variables include total household consumption, consumption on food and beverages, structure of food consumption (bread and cereals, meat, milk, fruits and vegetables, beverages and other foods), and possession of material goods and household infrastructure (car, computer, air conditioning, household machine, etc.) for the calculation of the material status index. The inclusion of infrastructure allows for a more precise quantification of material standards and living comforts.

The Household Material Status Index is measured through a combination of consumption and possession of tangible goods and infrastructure, which is a quantitative measure of material standard and purchasing power.

The data were analyzed using descriptive statistics, and the relationships between the material status index and the Engel coefficient were estimated using the Pearson correlation coefficient (r).

Engel's coefficient is expressed by the following formula :

$$\text{Engel coefficient} = \frac{\text{Total spending on food and beverages}}{\text{Total consumption}} \times 100$$

dok Pearsonova formula glasi:

$$r = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{(\sum (X_i - \bar{X})^2 \times \sum (Y_i - \bar{Y})^2)}}$$

where:

X_i = Material Status Index

Y_i = Engel's coefficient

RESULTS

This section analyses the structure of household consumption according to functional categories of expenditure, then examines the relative differences between households of different material standards, and identifies consumption patterns that point to a lower or higher material standard. A special focus was placed on the value of expenditure by household categories and type of settlements in Republika Srpska (RS), in 2015 and 2021/22. (Table 1).

Table 1. Average monthly expenditure by categories of households and type of settlements in RS in 2015 and 2021/22 (in KM) with percentage increase

Expenditure category	2015		2021/22		The percentage of increase 2021/22/2015	
	urban	rural	urban	rural	urban	rural
Food & Drink	425.69	400.93	539.28	541.97	126.68	135.18
Housing and utilities	245.25	178.89	334.24	257.36	136.29	143.86
Transportation	139.08	112.24	233.42	271.78	167.83	242.14
Healthcare	54.01	46.78	43.64	41.98	80.80	89.74
Communications	77.98	49.77	130.02	111.97	166.74	224.97
Clothing and footwear	85.81	50.69	118.86	84.65	138.52	167.00
Electricity	116.47	119.06	120.24	145.66	103.24	122.34
Furniture, equipment and services	65.06	52.04	90.46	75.41	139.04	144.91
Catering services	26.04	18.73	50.13	36.93	192.51	197.17
The pigeon	32.32	30.89	47.11	41.98	145.76	135.90
Other consumer goods	159.12	93.71	163.2	136.13	102.56	145.27
Total	1426.83	1153.73	1870.6	1745.82	131.10	151.32

Source: Statistical Office of the Republic of Srpska [RZSRS], 2025

The data from Table 1 show that total monthly household expenditure in the RS increased significantly in the period 2015–2021/22, with the growth being more pronounced in rural areas (51.32%) than in urban areas (31.10%). However, the absolute level of total consumption is still higher in urban households, indicating a higher material standard.

Expenditure on food and beverages has increased in both types of settlements, but the growth in total spending allows for greater diversification of budgets, especially in cities. Most non-essential categories (transportation, communications, hospitality, home furnishing) are seeing strong growth, suggesting a spread of consumption beyond basic needs. In contrast, health expenditure is declining, while electricity is showing more moderate growth compared to other categories.

The structure of food consumption, as the most represented category in monthly expenditures, is shown in Table 2.

Table 2. Average monthly consumption of food per household member in RS in 2015 and 2021/22 (in KM) with percentage increase

Expenditure category	2015		2021/22		Procenat povećanja 2021/22/2015	
	urban	rural	urban	rural	urban	rural
Bread and cereals	55.36	51.6	71.6	66.11	129.34	128.12
Meat	109.13	121.45	133.52	159.75	122.35	131.54
Milk	64.88	59.97	77.88	69.87	120.04	116.51

Fruits and vegetables	77.05	65.89	101.07	97.63	131.17	148.17
Beverages	53.98	50.74	41.08	43.33	76.10	85.40
Oils and fats	16.05	14.99	21.53	21.17	134.14	141.23
Sugar & Confectionery	49.24	36.3	92.6	84.11	188.06	231.71
Total Food & Drink	425.69	400.94	539.28	541.97	126.68	135.17

Source: (RZSRS, 2025)

Table 2 shows that the total annual consumption of food and beverages per household member, in the period 2015–2021/22, increased in both types of settlements, with a more pronounced growth in rural areas (135.17%) compared to urban areas (126.68%). Although urban households had higher consumption per member in 2015 by 2021/22, rural households are reaching or slightly outperforming urban households, indicating changes in the structure and dynamics of consumption in line with material status.

Most categories are seeing growth (bread and cereals, meat, milk, fruits and vegetables, oils and fats), while beverages are the only category with a decline in urban areas. The growth in the consumption of sugar and confectionery products is particularly pronounced, which may indicate changes in eating habits and greater availability of processed products.

The material status of the households observed is shown in Table 3.

Table 3. Indicators of the material status of households by type of settlement in the Republic of Srpska: 2015 and 2021/22 (in %)

Expenditure category	2015		2021/22	
	gradsko	ruralno	gradsko	ruralno
Cars	40.1	40.6	68	67.7
Computer	54.3	32.1	61.1	45.1
Air conditioning	18.7	5.1	43.4	21.4
Electric stove	97	87.4	98	93.7
Coal stove	72.8	97.5	63.4	91.1
Dishwasher	20.2	9.9	41.6	26
Refrigerator	98.8	98.1	98.4	98.3
washing machine	95.5	87.1	98.1	94.3
Cleaning equipment	92.1	81.2	96.9	95
Stove, boiler, hood	91.8	81.4	85.6	91.7
Sewing & Knitting Machine	8.3	5.9	6.3	7.7
TV	97.7	96.3	96.2	97.8
Video Recorder	26.2	17	28	24.6
Satellite Dish	6.9	13.4	22.1	31.5
Internet connection	70.2	52	83.6	74.2

Izvor: RZSRS, 2025

In the period 2015–2021/22, there was an improvement in the material status of households, both in urban and rural areas. Growth is particularly pronounced in durable goods that signal a higher material standard: cars, computers, air conditioners, dishwashers and internet connections.

Although urban households still have a higher share of ownership of most modern goods, rural households are making significant progress, reducing disparities in material standards. At the same time, there is a noticeable decline in the use of traditional forms of equipment (e.g. coal-fired stoves), reflecting the modernization of households. A high and stable percentage of basic household appliances (refrigerators, washing machines, televisions) shows that they have become the standard, while the material status is increasingly determined by digital connectivity and accessories.

As part of the material status of households, their infrastructure is also observed (Table 4).

Table 4. Infrastructure of the main dwelling unit of the household in the Republic of Srpska by type of settlement (in %)

	2015		2021/22	
Expenditure category	urban	rural	urban	rural
Bathroom with toilet	98.7	91.1	99.5	97.4
WC	89.9	87	85.9	77.3
Running water	100	96.8	99	81.6
Electricity	99.7	99.4	100	99.9
Garage	35.9	45.8	42.5	57.6
Garden	28.6	83.2	29.4	73.8

Source: RZSRS, 2025

The quality and availability of infrastructure has a direct impact on the material standard of households. Urbanization enables a higher material status through better communal equipment, while in rural areas the material status is more shaped by a combination of household goods and basic infrastructure.

The data from Tables 1–4 clearly show that households with a higher material standard have greater consumer flexibility and less relative dependence on basic food expenditures. The growth of total expenditure in urban households enables the diversification of budgets and the transition to products with higher added value, while households with a lower material status retain a higher share of spending on basic foodstuffs and show sensitivity to prices.

An analysis of nominal and relative food consumption (Table 2) confirms that an increase in food expenditure does not necessarily mean an increase in its share in the total budget. When total consumption grows faster than food expenditure, the share of food in the budget decreases, which is in line with Engel's principle. These results highlight that a higher material standard allows for greater diversification of consumption, while households with a lower material status index remain focused on basic food categories.

Data on the ownership of tangible goods and household infrastructure (Tables 3 and 4) further confirm the growth of material standards, especially in urban areas,

correlates with greater purchasing power and flexibility in consumption, which is reflected in a lower share of consumption on food and a higher share on other goods, durable goods and household infrastructure.

This analysis confirms the key role of material status in shaping consumer patterns and emphasizes the need for a differentiated marketing approach. Segmentation according to the material standard enables precise targeting of consumers, optimization of campaigns and the creation of products and services tailored to the real possibilities and preferences of different socio-economic groups.

The quantitative verification of the hypothesis included three analyses: calculation of the material status index, calculation of the Engel coefficient, and estimation of the relationship between these two variables using the Pearson correlation coefficient.

1) Material Status Index

To assess the material status of households, the material status index was used, which is determined on the basis of the possession of key material goods and infrastructure, including cars, computers, air conditioners, household machinery, and housing infrastructure (bathroom, running water, energy, garage, garden). A higher material status index reflects a higher level of household equipment and purchasing power, while a lower index indicates more limited access to these resources.

Table 6 shows the ownership of tangible goods and infrastructure by urban and rural households in 2015 and 2021/22, together with the calculated material status index, expressed as the average of the share of ownership of relevant items. These data enable a comparison of the material standard and changes in the technological and infrastructural equipment of households over time.

Table 6. Comparative overview of the material status index and its components in the Republic of Srpska by household type, (2015–2021/22)

Type of household	Year	Material goods (%)	Infrastructure (%)	Material Status Index (%)
Urban	2015	67.64	90	81.25
Rural	2015	58.09	83	75.07
Urban	2021/22	73.81	95	85.5
Rural	2021/22	66.63	91	81.77

Note: The data has been edited by the author.

The data from Table 6 show the growth of the material status index in both types of households between 2015 and 2021/22. Urban households still have a higher material standard (67.64% → 73.81%) compared to rural households (58.09% → 66.63%), which confirms that urban households own more material goods and have higher purchasing power.

The increase in the material status index in both types of households correlates with a decrease in the share of consumption on food (Engel's coefficient), which confirms the hypothesis of a negative correlation between material status and relative consumption on basic needs. A higher material standard allows for greater flexibility in consumption, switching to non-essential products and diversifying the diet.

From a marketing perspective, these changes suggest the need for differentiated strategies in urban and rural areas.

2) Engel's coefficient

The share of household consumption on food in total consumption is presented below, classified by functional categories of goods and type of households (urban/rural) for the years 2015 and 2021/22. Table 5 provides insight into differences in the structure of consumption and identifies patterns associated with lower and higher material standards.

Table 5. Engel's coefficient and structure of consumption of food and other goods in the Republic of Srpska by type of household and year (in %)

Category	Gradsko 2015	Ruralno 2015	Gradsko 2021/22	Ruralno 2021/22
Total food	29.83	34.76	28.83	31.04
Bread and cereals	3.88	4.47	3.83	3.79
Meat	7.65	10.53	7.14	9.15
Milk	4.55	5.2	4.16	4
Fruits and vegetables	5.4	5.71	5.4	5.59
Beverages	3.78	4.4	2.2	2.48
Oils and fats	1.12	1.3	1.15	1.21
Sugar & Confectionery	3.45	3.15	4.95	4.82
Other goods	70.17	65.24	71.17	68.96

Note: The data has been edited by the author.

The above data indicate a negative correlation between the material status index and the share of food consumption, which confirms the basic hypothesis of the research. Urban households, with a higher material status index, spend a lower share of income on food in both observed periods (29.83% in 2015 and 28.83% in 2021/22), while rural households with a lower material status index retain a higher share of food spending (34.76% in 2015 and 31.04% in 2021/22).

These patterns indicate differences in eating habits that are related to product availability, income, and cultural preferences.

From the point of view of marketing strategies, data enables differentiated targeting in production and promotional activities. Producers of staple foods can count on stable demand, while products whose consumption varies, such as meat and sweets, can be especially promoted in urban areas. At the same time, the table provides an empirical basis for policy-making aimed at reducing disproportionate consumption of staple foods among households with lower material status, which can improve nutritional structure and reduce social inequality.

3) Correlation between the index of material status and the share of consumption on food (Engel's coefficient)

For the purpose of testing the hypothesis, the correlation between the index of material status and the share of consumption on food (Engel's coefficient) was calculated using the Pearson correlation (Table 7).

Table 7. Components and value of Pearson's correlation coefficient

Component / Variable	Value
$\Sigma(X_i - \bar{X})(Y_i - \bar{Y})$	-84
$\Sigma(X_i - \bar{X})^2$	406.74
$\Sigma(Y_i - \bar{Y})^2$	20.156
$\sqrt{(\Sigma(X_i - \bar{X})^2 \times \Sigma(Y_i - \bar{Y})^2)}$	90.54
Pearson r (index of material status ↔, Engel's coefficient)	-0.927
Material status ↔ index of other goods (%)	0.927
Material Status ↔ Index Material Goods	0.998
Infrastructure Material Status ↔ Index	0.992

Note: The data has been edited by the author.

The analysis shows that households with a higher material standard spend a smaller share on food ($r = -0.927$), which is in line with Engel's law. On the other hand, the same groups of households allocate a higher share for other goods ($r = 0.927$), material goods ($r = 0.998$) and infrastructure ($r = 0.992$), reflecting greater consumption capacity and diversity of consumption.

These correlations provide an empirical basis for planning economic and marketing measures, with an emphasis on tailoring products and services to the specific needs of different groups of households.

The obtained results confirm that the material status of households plays a key role in shaping consumption patterns and provide an empirical basis for segmented policies and strategies aimed at improving living standards.

DISCUSSION

The analysis of the results confirms the basic principle of Engel's law. These findings are consistent with previous research in a variety of geographic and socioeconomic contexts. In Rwanda showed a similar negative relationship between income and the share of food spending. In Ghana points out that the marginal share of food consumption decreases with the growth of total consumption, while emphasize that the local context can amplify or mitigate the effect of the Engel curve, but the basic principle remains: a lower material status means a higher share of consumption on food and basic products. further confirms that while the nominal consumption of wealthier households on food is increasing, their share of total income is declining proportionately, which coincides with our findings.

These coincidences confirm the universal applicability of Engel's law and emphasize that material status consistently influences the structure of total consumption. The results have practical implications: an increase in material standards can reduce the relative share of spending on basic foodstuffs and increase spending on other goods and services, which is important for planning subsidies, social transfers and food security. Marketing strategies, which take into account segmentation by material status, can target consumers: in rural communities, the focus may be on basic products, while in urban communities, priority is given to products and services with higher added value.

Although the paper provides strong evidence of the relationship between material status indices and consumption structures, there are limitations, such as not taking

into account seasonal variations, inflation, and regional price differences. For future research, it is recommended to collect more detailed data over time, expand the analysis to more regions and countries, and combine quantitative and qualitative methods to better understand consumer choices .

CONCLUSION

The analysis confirms that there is a strong negative correlation between the index of material status of households, expressed by a combination of possession of material goods and infrastructure, and the share of consumption on food, measured by the Engel coefficient. Households with a higher material status index, mostly urban, spend a smaller share of their income on basic foodstuffs and have greater flexibility in spending on non-essential products and services, while households with a lower material status, predominantly rural, retain a larger share of the budget for basic foodstuffs, and limit other consumption according to the material standard. These results confirm the basic principle of Engel's law and clearly show how the growth of the material standard leads to the diversification of consumption. They also provide practical guidance for creating differentiated marketing strategies that fit the material profile of households and enable the optimization of a targeted approach to consumers.

Consumers with lower material status, especially in rural communities, are focused on basic products, so marketing campaigns for these segments should highlight the value, availability and convenience of products. In contrast, urban households with a higher material status index represent a market for higher value-added products and services or luxury items, so strategies can include premium positioning, innovation, and additional benefits. Understanding the material profile of households enables precise targeting of campaigns, optimization of the assortment and increasing the effectiveness of marketing activities.

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