

**Vasile Alecsandru STRAT, PhD**

**E-mail: vasile.strat@bbs.ase.ro**

**Department of Statistics and Econometrics**

**The Bucharest University of Economic Studies**

**Florin Stelian GROSU, PhD**

**E-mail: fg@traderion.com**

**The Bucharest University of Economic Studies**

**Corina MURAFĂ, PhD**

**E-mail: corina.murafa@fabiz.ase.ro**

**The Bucharest University of Economic Studies**

**Nicoleta CHICU, PhD**

**E-mail: chicu\_nicoleta@yahoo.com**

**The Bucharest University of Economic Studies**

**Ion Daniel ZGURA, PhD**

**E-mail: zgura@com.ase.ro**

**The Bucharest University of Economic Studies**

## **IS CORPORATE ENVIRONMENTAL RESPONSIBILITY A MEANINGFUL FACTOR FOR ROMANIAN CONSUMERS?**

***Abstract.** The article explores Romanian customers' perceptions and behavior regarding enterprises' involvement in sustainability-related processes and actions geared towards climate action. Based on the 2 hypotheses outlined by the authors, the study uses a hierarchical clustering methodology having a sample of 1002 consumer data points collected at the national level. The authors grouped Romanian counties into 5 clusters by addressing 4 dimensions and 11 individual items on socio-economic characteristics such as: economic development, education and culture, health and infrastructure. The main results showed that companies are being perceived by citizens from all development clusters as bearing the highest responsibility for the wellbeing of the planet, yet their green messages have the highest appeal in clusters with higher general development levels. However, surprisingly, from a double materiality viewpoint, corporations' good influence on the environment and society appears to be rewarded the most by customers with relatively little socio-economic capital - the biggest number of consumers who use their wallets to reward corporate sustainability are the ones with low socio-economic development.*

***Keywords:** customer behavior, sustainability, environment, eco-friendly consumers, green deal.*

**JEL Classification : C12, D12, D71, O13, Q56, P46**

## **1. Introduction**

Despite improving people's lives, technological advancement and rapid economic progress generate a wide range of environmental concerns, including global warming, air pollution and climate change. Consumers have been more environmentally concerned over the previous several decades.

Shifting cultural attitudes and behaviours may feed into companies' and governments' efforts, ideally developing positive feedback loops that can contribute to tipping points when their adoption grows fast. More requests for climate-friendly items, for example, can lead to increases in quantity and quality, as well as reduced prices due to economies of scale, encouraging further demand. Researchers have been investigating the role of businesses in reducing environmental degradation, as well as whether or not sustainability is a relevant buying factor for customers.

Taking all these premises into account, the purpose of this article is to provide a look into the attitude and behaviour of individuals (consumers) in Romania regarding business commitment to sustainability, primarily in the form of corporate sustainability policies and activities.

The following sections reflect the literature review and they are organized into two main sections: (I) Human capital and sustainability, with a focus on education and (II) Consumer purchasing patterns in relationship to corporate sustainability commitments. Following the literature review part, the paper continues on to a section dedicated to methodology, which covers a discussion of the primary data concerns, as well as the assumptions employed in the research process. The study includes a significant part of empirical data based on the methodology section, where the important insights and their consequences are discussed. Finally, the article contains a section of conclusions that highlights the major findings and suggests additional research directions.

## **2. Literature review**

### **Sustainability and human capital**

Sustainability typically includes a triple perspective: economic, social and environmental. In this research, the focus will be on the balance between corporate environmental responsibility and consumers' approach to these challenges.

Tensions concerning sustainability are increasing globally. In this context, there have been major debates on the role held by human capital in safeguarding the environment (Zia et al, 2021; Nathaniel, Nwulu and Bekun, 2021).

Research concludes that human capital is closely connected to ecological challenges and, as a matter of fact, education, a key component of this concept, develops "a particularly strong relationship with environmental problems" (Polcyn, 2021), while green purchase behaviour is strongly determined by pre-existing environmental behaviour (Fontes et al., 2021). Consumer choice studies show that environmental sustainability labels are more appreciated by well-educated consumers (Van Loo et al., 2015) and that individuals with formal education are

more likely to be concerned about the environment and therefore also act in this direction.

In the same area of research, several studies were directed towards the analysis of the relation between the depletion of natural resources and the education of human capital (Balaguer and Cantavella, 2018; Cui et al., 2022). In another article focusing on the role of human capital concerning environmental challenges, the author examined a sample made up of 119 nations (Salahodjaev, 2018). The conclusions of this study showed that there is a positive relation between cognitive skills and climate change awareness.

On the contrary, there were also studies who found inconsistent data concerning the role of human capital in relation to pollution emissions (Sapkota and Bastola, 2017) and even no major connection between human capital and environmental quality (Williamson, 2017).

#### **Sustainability as a purchase criterion for consumers**

Researchers state that there has been a growing request for eco-friendly or green products (Tudu and Mishra, 2021; Hameed et al., 2021). Accordingly, the market demand has been shifting towards a more environmentally friendly buying behaviour. In this respect, businesses have been forced to move towards sustainability to stay competitive, by sustainable entrepreneurship (Anand et al., 2021; Hummels and Argyrou, 2021). Thus, lately there has been a growing movement of businesses towards the incorporation of pro socio-environmental values into their corporate policies, products and actions. As empirical evidence from Romania shows, this has also improved their financial performance (Matei et al., 2021).

As far as the relation between sustainability and consumers is concerned, the following themes are generally being developed: profiling sustainable consumers (Golob, U. and Kronegger, L., 2019; De Canio, Martinelli and Endrighi, 2021), analyzing environmentally friendly consumer behaviour (Han, 2021; Kumar, Gargnand & Singh, 2022) or consumers' willingness to pay more for green products (Li and Kallas, 2021). As expected, in general, research conducted around the world on consumer willingness to pay (WTP) in relationship to sustainability attributes concludes that consumers with higher income and education levels are less price sensitive and willing to pay premiums for sustainable products (Yue et al., 2020; Tait et al., 2019). Surprisingly, though, household attributes (size, type of location, etc.) do not predict the sustainability consciousness of the household (Krstevich and Smokova., 2021).

Also, there is a growing consensus among scholars (Lin et al., 2017; Jaiswal and Kant, 2018), who consider that green consumption behaviour needs to be stimulated "by encouraging consumers to purchase green products, thereby reducing the generation of pollution" (Tsai et al., 2020). In this respect, many companies "have prioritized the use of green marketing and promoting green products to improve consumers' brand recognition and trust, which then stimulates green product purchase intentions" (Tsai et al., 2020).

While the literature on environmental sustainability, human capital, purchase intentions and the role played by companies in reducing environmental degradation is extensive at global level, particularly by discrete choice experiments literature, it is limited in the case of Romania. Thus, it is worth examining what role corporate sustainability plays in relationship with consumer purchase behaviour in Romania and whether human capital and development in general affect the sensitivity of this relationship.

### 3. Research methodology

The analysis proposed in this paper is a twostep approach mixing a macro level view based on county level socio-economic characteristics, with a micro level view based on individual questionnaires. The design proposes a geographic approach of the studied phenomena and not one based on socio-demographic characteristics. As a consequence, we assess differences between geographic groups created on a multi criteria mechanism and not between socio-demographic groups independent on their location. Thus, the socio-economic characteristics of the counties that were taken into consideration include 4 dimensions and 11 individual items. The four dimensions were constructed starting from the dimensions that are usually included in indicators measuring human development and these are: economic development, education and culture, health and, finally, infrastructure. All 11 items were harmonized (ratios between the key variable and a variable controlling for the size of the county) in order to obtain data comparable across counties.

$$Item\ harmonised_i = (Item_i)/(Size\ controlling\ variable_i) \quad (1)$$

**Table 1: Dimensions and included items**

economic development	education and culture	health	infrastructure
I 1.1 No. Employees **	I 2.1. School population, by level of education, counties **	I 3.1 Beds in health units **	I 4.1 Area of green spaces **
I 1.2 Average monthly net nominal earnings	I 2.2. Teaching staff by county **	I 3.2 Medical personnel **	I 4.2 Total length of drinking water distribution network **
I 1.3 Nominal GDP 2019 **	I 2.3 Spectators and audience at artistic performances **		I 4.3 Total length of sewerage pipes **

\*\* - controlling for size was necessary for this variable

Is Corporate Environmental Responsibility a Meaningful Factor for Romanian Consumers?

The 11 items and also the 3 variables used for standardization were downloaded from the Tempo database of the National Institute of Statistics. (Table 2)

**Table 2: Descriptive statistics of the items after controlling for size**

Items - Descriptive Statistics	Average ( $\bar{x}$ )	St. dev ( $\sqrt{s^2}$ )	Median (Me)	Skew (s)	Kurt (k)	Count (n)
Item 1.1	0.62	0.03	0.62	1.12	2.98	42
Item 1.2	2857.3	371.1	2744.0	2.3	6.9	42
Item 1.3	0.05	0.02	0.04	3.41	16.01	42
Item 2.1	0.17	0.03	0.17	0.98	1.45	42
Item 2.2	0.07	0.01	0.07	0.54	0.52	42
Item 2.3	0.06	0.06	0.05	1.96	3.92	42
Item 3.1	6.33	1.82	6.16	0.82	1.69	42
Item 3.2	16.40	5.04	15.34	1.20	2.07	42
Item 4.1	0.06	0.03	0.06	1.84	6.07	42
Item 4.2	5.00	1.62	5.06	0.29	0.25	42
Item 4.3	2.23	0.74	2.17	0.08	-0.95	42

Even though, comparability across counties was attained after the construction of the 11 items, one further step was taken and each item was transformed into a z score. Using the z – scores we have created groups of similar counties. We have employed two parallel approaches, the first based on a mix between PCA (first stage) and (2) agglomerative hierarchical clustering analysis (HCA) using Euclidian Squared Distance (second stage) (3) and the second a single stage based on hierarchical clustering analysis using Euclidian Distance.

$$z \text{ score} = (x_i - \bar{x})/s \quad (2)$$

$$\|a - b\|_2^2 = \sum_i (a_i - b_i)^2 \quad (3)$$

*The first approach involved a first stage PCA, where three valid PCs were identified.*

$$t_{k(i)} = x_i * w_k \quad (4)$$

$$w_1 = \arg \max_{\|w\|=1} \left\{ \sum_i (t_1)_{(i)}^2 \right\} \quad (5)$$

$$t_{(i)} = (t_1 \dots \dots t_l)_{(i)} \text{ principal components scores} \quad (6)$$

$$w_{(k)} = (w_1 \dots \dots w_p)_{(k)} \text{ - coefficients} \quad (7)$$

$$x_{(i)} \text{ - initial variables} \quad (8)$$

Vasile Alexandru Strat, Florin Grosu, Corina Murafa, Nicoleta Chicu,  
Ion Daniel Zgură

Using the Kaiser-Meyer-Olkin test, we have confirmed that one can identify some underlying factors for the 11 initial items (test value 0.786 higher than 0.7 and Significance level under 0.01).

**Table 3: KMO and Bartlett's Test**

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,786
Bartlett's Test of Sphericity	Approx. Chi-Square	292,890
	df	55
	Sig.	,000

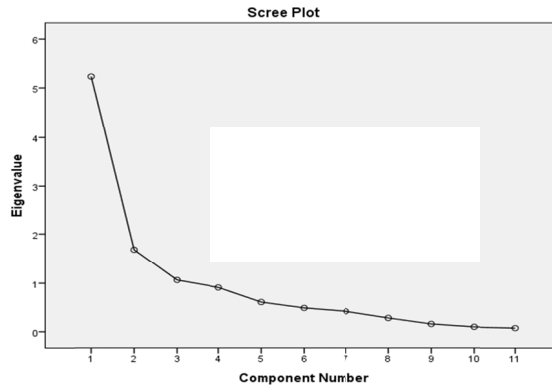
The three important principal components identified with eigenvalues over 1 explain cumulatively over 72.5% of the initial variance.

**Table 4: Principal Components**

Component	<b>Total Variance Explained</b>								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Var	Cumulative %	Total	% of Var	Cumulative %	Total	% of Var	Cumulative %
1	<b>5.236</b>	<b>47.597</b>	<b>47.597</b>	<b>5.236</b>	<b>47.597</b>	<b>47.597</b>	<b>3.993</b>	<b>36.299</b>	<b>36.299</b>
2	<b>1.687</b>	<b>15.334</b>	<b>62.931</b>	<b>1.687</b>	<b>15.334</b>	<b>62.931</b>	<b>2.567</b>	<b>23.338</b>	<b>59.637</b>
3	<b>1.059</b>	<b>9.631</b>	<b>72.562</b>	<b>1.059</b>	<b>9.631</b>	<b>72.562</b>	<b>1.422</b>	<b>12.925</b>	<b>72.562</b>
4	.906	8.234	80.796						
5	.605	5.501	86.296						
6	.485	4.408	90.705						
7	.415	3.776	94.481						
8	.279	2.537	97.017						
9	.156	1.419	98.437						
10	.097	.879	99.316						
11	.075	.684	100.00						

Is Corporate Environmental Responsibility a Meaningful Factor for Romanian Consumers?

---



**Figure 1: Eigenvalues of the PCs**

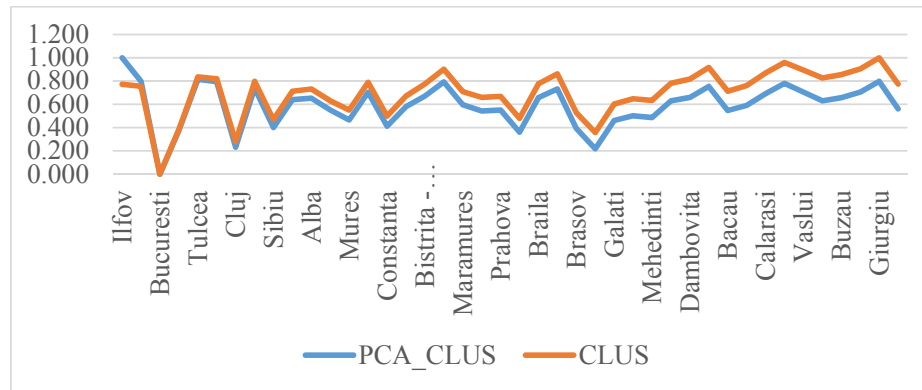
Using the Varimax rotation we have identified the association between the initial 11 items and the newly constructed 3 principal components. The first PC is mainly correlated with the items in the 3rd and 2nd initial dimensions, being therefore a factor of culture, education and health. The second PC is mostly covering the economic dimension and is also negatively impacted by the second item of the second dimension. Finally, the third PC could represent the infrastructure for utilities.

**Table 5: Rotated Component matrix (11 items vs 3 PCs)**

	Component		
	PC1	PC 2	PC 3
V3.1	,916	,099	,099
V3.2	,890	,262	,101
V2.1	,804	,306	-,049
V2.3	,729	,092	,011
V4.1	,622	,178	-,200
V1.1	,204	,845	,132
V1.2	,544	,748	-,179
V2.2	-,002	-,746	,396
V1.3	,601	,676	,046
V4.3	,211	,101	,875
V4.2	-,229	-,241	,621

For the second stage, using hierarchical clustering based on Euclidian Squared Distances (ESDB), for the 3 new PCs we have computed the distance between each county and Bucharest. For the second approach we have started directly with the

second step and have computed for the 11 initial items, the ESDB between each county and Bucharest. The results were analyzed and the highest differences (in absolute distances), between the two approaches, were recorded for Ilfov County, Giurgiu County, Suceava County, Vrancea County and Buzau County.



**Figure 2: Rescaled distances between each county and Bucharest in the two approaches (PCA+HCA vs simple HCA)**

Next, in order to select between the two approaches, we have computed the descriptive statistics for the two series of distances and have selected the one with the lowest coefficient of variability (more homogeneity is preferred). The coefficient of variance for the PCA + HCA was 31.8% while the coefficient of variation for the HCA was 28.8%. Thus, using the Euclidian Squared Distances (ESDB), for the second approach (only HCA) five clusters were created. The clusters were created using the distances from Bucharest (0.0 – centre) to all other 41 counties and, as a consequence, 5 clusters with similar length have resulted. The decision was made to divide the maximum distance ECDB into 5 equal slots, instead of using quintiles for balancing the number of components in clusters. Thus, the components of the five clusters resulted is the following: (Table 6)

**Table 6: The distribution of counties in the five clusters**

<b>Cluster 1</b> - Bucharest, Cluj
<b>Cluster 2</b> – Iasi, Timis, Sibiu, Dolj, Constanta.
<b>Cluster 3</b> – Brasov, Mures, Galati, Bihor, Mehedinti, Gorj, Arges
<b>Cluster 4</b> - Prahova, Hunedoara, Maramures, Covasna, Bacau, Alba, Arad, Botosani, Ilfov, Bistrita – Nasaud, Suceava, Braila, Olt, Satu Mare, Salaj, Dambovita Harghita, Neamt
<b>Cluster 5</b> – Tulcea, Buzau, Valcea, Calarasi, Vaslui, Caras – Severin, Vrancea, Ialomita, Teleorman, Giurgiu



## Is Corporate Environmental Responsibility a Meaningful Factor for Romanian Consumers?

---

For the second step of the methodology a sample, which is representative at national level, including 1002 questionnaires (after calibration) collected in 12-17 October 2021<sup>1</sup> using the CAWI method was used. The questionnaire was complex including 10 socio-demographic questions and 18 questions related to the topic of the study. Among these 18 questions, 8 included elements related to the attitude and behaviour of individuals (consumers) towards the involvement of companies in sustainability related activities and actions. The sample was divided for the subsequent analysis in the five clusters resulted from the first step of the analysis.

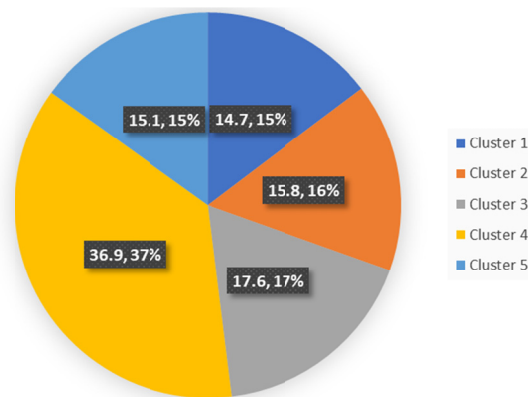
Using the sample data, the following two assumptions were formulated and further tested:

- **Assumption 1:** The higher the level of social, educational and economic capital of an area, the more inclined will be the population to reward, respectively to punish, through its purchasing habits, the commitment to sustainability of the companies. Based on the five clusters we have constructed, this assumption would mean that consumer interest in companies' sustainability practices decreases from cluster 1 towards cluster 5.

- **Assumption 2:** Companies' green messages (e.g.: marketing campaigns, etc.) have the highest appeal in areas with higher income, higher educational attainment levels and higher general development levels. Based on the five clusters, we have constructed this assumption, which would mean that the appeal of companies' green messages decreases from cluster 1 towards cluster 5.

### 4. Results and discussion

The structure of the sample, based on the five created clusters, by using the county level scores of the hierarchical clustering is the following:



**Figure 3: The structure of the sample for the five clusters**

---

<sup>1</sup> We express our sincere gratitude to Izidata, the research lead company and Ambasada Sustenabilității, the client who ordered the research, for providing us with the detailed data collected.

For testing the formulated assumptions, we assert that the development level is the highest in the core clusters and it decreases with each one, up to the fifth.

To test assumption 1 we analyse, inter alia, the questions in Tables 7 and 8.

**Table 7: “When you think of companies which care about people and the planet, which of these statements fits you best?”**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
I don't know of such companies.	37.93%	28.21%	29.14%	29.51%	28.67%
I know such companies, but they do NOT affect my purchasing decisions.	4.83%	4.49%	17.71%	7.92%	8.00%
I know such companies and I appreciate they have such preoccupations.	28.28%	30.77%	22.29%	27.87%	36.67%
I know such companies and I prefer to buy their products	14.48%	17.95%	15.43%	18.31%	9.33%
I haven't thought about this aspect yet.	14.48%	18.59%	15.43%	16.39%	17.33%

For none of the 5 analysed aspects' elements, a clear ascending or descending pattern is visible. Therefore, there is no visible correlation between the cluster (socio-economic development level) and the opinion of the respondents.

**Table 8: Question “Which are the five most important actions you do for the environment?”**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
None of the below – I am not interested in environmental protection	2.8%	1.9%	16.6%	2.2%	2.7%
None of the below – but I am interested in environmental protection	1.4%	1.9%	2.9%	1.4%	3.4%
I use public transport more often than the car	39.3%	37.2%	26.9%	38.5%	42.3%
I walk/ cycle on short distances	55.9%	62.2%	37.1%	57.4%	70.5%
I collect trash selectively	66.9%	75.6%	53.1%	71.0%	61.1%
I recycle packaging	59.3%	63.5%	46.9%	63.1%	62.4%
I buy secondhand clothes	17.9%	23.7%	21.7%	28.7%	23.5%

Is Corporate Environmental Responsibility a Meaningful Factor for Romanian Consumers?

I avoid throwing food away and buying more food than I need	68.3%	59.6%	54.3%	69.1%	51.7%
I try to reduce water and electricity consumption	40.0%	47.4%	35.4%	44.5%	47.0%
I don't eat/ try to avoid meat consumption	11.0%	6.4%	8.0%	6.8%	22.1%
I avoid plastic packaging	43.4%	28.8%	31.4%	20.8%	16.1%

For none of the 11 analysed aspects' elements, a clear ascending or descending pattern is visible. Therefore, there is no visible correlation between environmental behaviour and development level.

Assumption 1 is not confirmed by the data collected through the questionnaire. Over half of the respondents from the most economically and socially developed cluster claim they do not know of companies that have a sustainable behaviour (i.e., people and planet positive), and close to 30% of them, despite knowing such companies, do not reward sustainable corporate behaviour by individual purchasing choices. Surprisingly, from a double materiality perspective, companies' positive impact on the environment and on society seems to be rewarded most by consumers with relatively low socio-economic capital – the highest number of consumers that use their wallets to reward corporate sustainability is in Cluster 4. Some of the most responsible consumption behaviours at individual level are present in the less developed Clusters (4 and 5). The behaviour inertia of more wealthy consumers can be a danger for the European Green Deal: because of this inertia they would not seize the possibility of transforming the environmental and climate challenges in opportunities. At the same time, the fact that the less well-off consumers are having already a consumption-limiting behaviour means that particular attention needs to be given to the equitable character of the transition.

Tables 9 to 12 test assumption 2.

**Table 9: Question “From what places did you hear about the term sustainability”?**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
From companies' campaigns (recycling batteries, separate trash collection, etc.)	50.23%	38.24%	29.26%	27.32%	24.10%

Rejection of the null hypothesis for Pearson Chi Square test (there is a slight association between the respondents and the clustering).

**Table 10: Question “Who is responsible for actions that promote the wellbeing of people and of the planet?” (Multiple choice answer)**

Q4	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Companies (producers of goods and services)	44.73%	54.81%	65.98%	49.18%	41.51%

A clear ascending or descending pattern is not visible, in the data. Therefore, there is no visible correlation between the cluster (socio-economic development level) and the opinion of the respondents.

**Table 11: Question “Thinking about the future, in 2030 (in 9 years from now), which are the directions where you think the world is heading?”**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Very pessimistic	11.8%	20.2%	30.7%	17.8%	17.7%
Pessimistic	10.5%	12.6%	11.6%	20.9%	18.1%
Not decided	42.0%	20.0%	20.8%	23.5%	32.1%
Optimistic	25.8%	23.5%	19.7%	22.4%	14.8%
Very Optimistic	9.9%	23.7%	17.3%	15.3%	17.2%
Very pessimistic + pessimistic <sup>2</sup>	22.3%	32.9%	42.3%	38.7%	35.8%

There is no visible correlation between the cluster (socio-economic development level) and the opinion of the respondents (optimism/pessimism)

**Table 12: Question “How necessary do you see companies’ involvement in environmentally friendly actions?”**

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
not at all necessary	2.05%	3.16%	13.14%	2.47%	1.33%
low necessity	2.05%	1.27%	5.14%	1.92%	5.33%
not decided	6.16%	8.23%	4.57%	4.66%	2.67%
high necessity	23.97%	20.25%	26.29%	26.03%	26.67%
extreme necessity	65.75%	67.09%	50.86%	64.93%	64.00%
high & extreme necessity	89.73%	87.34%	77.14%	90.96%	90.67%

Assumption 2 is partially supported by the findings in the data, because companies are being perceived by all clusters as bearing a very high responsibility for the

<sup>2</sup> In the questionnaire, all directions were described qualitatively (e.g.: “We are already doing something about this and pollution will be effectively contained”) and we codified them in a six-step optimism scale.

wellbeing of the planet, yet their green messages have the highest penetration in clusters with higher general development levels. Their marketing companies have reached 50.23% of the population in Cluster 1 and 38.24% of the population in Cluster 2 (the most developed clusters), as opposed to only 27.32% in Cluster 4 and 24.10% in Cluster 5 (the least developed clusters).

An interesting finding is that 36.67% of the population in the least developed cluster is aware of companies who care about the planet and the environment, as opposed to only 28.28% of the population in the most developed cluster. However, when asked if they prefer to buy the products of such companies as opposed to products from the companies with no perceived care about the future of the planet, only 9.33% of the population in the least developed cluster expressed a preference for the products of these companies, as opposed to 14.48% of the population in the most developed cluster (see Table #7). <https://www.ashoka.org/en-us/fellow/mark-campanale>

#### **4. Conclusions**

Our paper could be easily included in the broader field of research related to sustainability and, more precisely, in the group of research concerned with the opinion and behaviour of customers regarding the engagement of companies in sustainability specific processes and green responsibility activities.

The paper uses a double step methodology in creating some geographical clusters, based on the socio-economic development of the Romanian counties and tries to identify patterns in the attitudes and behaviour of the Romanian customer regarding the perceived sustainability and engagement in sustainability of companies. Starting with development dimensions measured by using 11 items, we have used the hierarchical clustering approach and have created 5 clusters of Romanian counties. These clusters include similarly developed counties (based on Euclidian squared distance) for the year 2020 (data downloaded from the Tempo Database of the National Institute of Statistics). In the second step, we have synthesized two key assumptions regarding the behaviour of customers and their sensitivity to sustainable activities and approaches of companies. The analysis was based on a sample of 1002 data points, representative at national level and distributed across all five clusters. The first assumption stating that the higher the level of social, educational and economic capital of an area, the more inclined will be the population to reward, respectively to punish, by its purchasing habits, the commitment to sustainability of the companies is not confirmed by our data. Surprisingly, from a double materiality perspective, companies' positive impact on the environment and on society seems to be rewarded most by consumers with relatively low socio-economic capital – the highest number of consumers that use their wallets to reward corporate sustainability is in one of the lowest developed clusters. Assumption 2 is partially confirmed by the findings in the data: while

companies are being perceived by all clusters as bearing the highest responsibility for the wellbeing of the planet, their green messages have the highest appeal in clusters with higher general development levels, but it is mostly citizens in clusters with lower development levels who declare they prefer to purchase products from companies with a sustainable behaviour.

Since most elements of the formulated assumptions were contradicted by the empirical data, it is necessary to further investigate the phenomenon to identify the appropriate stimuli for each area or group of customers, in order to nudge them to develop purchasing behaviours that would reward or punish companies for their commitment to support environmental sustainability goals. Another important direction, for broadening the perspective, will be to use a similar approach at a European level using the Euro regions as geographical statistical units.

## REFERENCES

- [1] Anand, A., Argade, P., Barkemeyer, R. and Salignac, F. (2021), *Trends and Patterns in Sustainable Entrepreneurship Research: A Bibliometric Review and Research Agenda*. *Journal of Business Venturing*, 36(3): 106092;
- [2] Balaguer, J. and Cantavella, M. (2018), *The Role of Education in the Environmental Kuznets Curve. Evidence from Australian Data*. *Energy Economics*, 70: 289-296;
- [3] Cui, Y., Wei, Z., Xue, Q. and Sohail, S. (2022), *Educational Attainment and Environmental Kuznets Curve in China: An Aggregate and Disaggregate Analysis*. *Environmental Science and Pollution Research*, 1-11;
- [4] De Canio, F., Martinelli, E. and Endrighi, E. (2021), *Enhancing Consumers' Pro-Environmental Purchase Intentions: The Moderating Role of Environmental Concern*. *International Journal of Retail & Distribution Management*, Vol. 49 No. 9, pp. 1312-1329;
- [5] Fontes, E., Moreira, A.C., Carlos, V. (2021), *The Influence of Ecological Concern on Green Purchase Behavior*. *Management & Marketing. Challenges for the Knowledge Society*, 16(3): 246-267;
- [6] Golob, U. and Kronegger, L. (2019), *Environmental Consciousness of European Consumers: A Segmentation-Based Study*. *Journal of Cleaner Production*, 221, 1-9;
- [7] Han, H. (2021), *Consumer Behavior and Environmental Sustainability in Tourism and Hospitality: A Review of Theories, Concepts, and Latest Research*. *Journal of Sustainable Tourism*, 29(7): 1021-1042;
- [8] Hameed, I., Hyder, Z., Imran, M. and Shafiq, K. (2021), *Greenwash and Green Purchase Behavior: An Environmentally Sustainable Perspective*. *Environment, Development and Sustainability*, 23(9): 13113-13134;
- [9] Hummels, H. and Argyrou, A. (2021), *Planetary Demands: Redefining Sustainable Development and Sustainable Entrepreneurship*. *Journal of Cleaner Production*, 278: 123804;

- [10] Jaiswal, D. and Kant, R. (2018), *Green Purchasing Behaviour: A Conceptual Framework and Empirical Investigation of Indian Consumers*. *Journal of Retailing and Consumer Services*, 41: 60-69;
- [11] Krastevich, T., Smokova, M. (2021), *Does the Degree of Urbanisation Affect Sustainable Household Consumption? (Some Empirical Evidence)*. *Management & Marketing. Challenges for the Knowledge Society*, 16(3): 187-209;
- [12] Kumar, N., Garg, P. and Singh, S. (2022), *Pro-environmental Purchase Intention towards Eco-Friendly Apparel: Augmenting the Theory of Planned Behavior with Perceived Consumer Effectiveness and Environmental Concern*. *Journal of Global Fashion Marketing*, 1-17;
- [13] Li, S. and Kallas, Z. (2021), *Meta-analysis of Consumers' Willingness to Pay for Sustainable Food Products*. *Appetite*, 163: 105239;
- [14] Matei, F. B., Boboc, C., Ghiță, C. (2021), *The Relationship between Corporate Social Responsibility and Financial Performance in Romanian Companies; Economic Computation and Economic Cybernetics Studies and Research*, 55(3): 297-314; ASE Publishing;
- [15] Nathaniel, S.P., Nwulu, N. and Bekun, F. (2021), *Natural Resource, Globalization, Urbanization, Human Capital, and Environmental Degradation in Latin American and Caribbean Countries*. *Environmental Science and Pollution Research*, 28(5): 6207-6221;
- [16] Polcyn, J. (2021), *Eco-efficiency and Human Capital Efficiency: Example of Small-and Medium-Sized Family Farms in Selected European Countries*. *Sustainability*, 13(12)684: 6;
- [17] Salahodjaev, R. (2018), *Is there a Link Between Cognitive Abilities and Environmental Awareness? Cross-National Evidence*. *Environmental research*, 166: 86-90;
- [18] Sapkota, P. and Bastola, U. (2017), *Foreign Direct Investment, Income, and Environmental Pollution in Developing Countries: Panel Data Analysis of Latin America*. *Energy Economics*, 64, 206-212;
- [19] Starchenko, L.V., Samusevych, Y.V. and Demchuk, K. (2021), *Social and Eco-Friendly Entrepreneurship: The Keys to Sustainability*; Business Ethics and Leadership, Volume 5, Issue 1, 2021 ISSN (online) – 2520-6311;
- [20] Tudu, P.N. and Mishra, V. (2021), *To Buy or Not to Buy Green: The Moderating Role of Price and Availability of Eco-Friendly Products on Green Purchase Intention*. *International Journal of Economics and Business Research*, 22(2-3): 240-255;
- [21] Tsai, P.H., Lin, G.Y., Zheng, Y.L., Chen, Y.C., Chen, P.Z. and Su, Z.C. (2020), *Exploring the Effect of Starbucks' Green Marketing on Consumers' Purchase Decisions from Consumers' Perspective*. *Journal of Retailing and Consumer Services*, 56, 102162;
- [22] Van Loo, E.J., Caputo, V., Naygra, R.M., Seo, H.S., Zhang, B., Verbeke, W., (2015), *Sustainability Labels on Coffee: Consumer Preferences, Willingness-*

Vasile Alexandru Strat, Florin Grosu, Corina Murafa, Nicoleta Chicu,  
Ion Daniel Zgură

---

*to-Pay and Visual Attention to Attributes*. *Ecological Economics*, 118(2): 215-225;

[23] Williamson, B. (2017), *Big Data in Education: The Digital Future of Learning, Policy and Practice*. Sage;

[24] Witek, L. and Kuźniar, W. (2020), *Green Purchase Behavior: The Effectiveness of Sociodemographic Variables for Explaining Green Purchases in Emerging Market*. *Sustainability*, 13(1): 209;

[25] Zia, S., Noor, M.H., Khan, M.K., Bibi, M., Godil, D.I., Quddoos, M.U. and Anser, M.K. (2021), *Striving towards Environmental Sustainability: How Natural Resources, Human Capital, Financial Development, and Economic Growth Interact with Ecological Footprint in China*. *Environmental Science and Pollution Research*, 28(37): 52499-52513.