

## ONLINE SHOPPING – ATTITUDINAL DISPARITIES ON ORDERING/BUYING GOODS AND SERVICES FOR PRIVATE USE AT THE LEVEL OF EU - MEMBER STATES BEFORE THE COVID-19 PANDEMIC

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### **Abstract:**

The Covid19 pandemic, the phenomenon that will undoubtedly define the year 2020 by its general impact on our socio-economical life, has had a major impact on the behavior of the population in terms of online shopping, too, because it was almost the only safe way for buying goods and services for personal use during the alert or emergency periods. Many skeptic consumers in the use of this way of shopping have passed the previously perceived barriers regarding buying/ordering over the Internet and had changed their negative attitude, and had accepted it as only one possibility to safe shopping. Even if, in absence of recent certain dates for online shopping dimensions during the current coronavirus pandemic, interesting changes in individual online shopping behavior are expected because of the lockdown in traditional commerce by social distancing restrictions for the consumers under the pandemic which made that the traditional barriers of online shopping to falling-down. The e-commerce has now a great chance to grow as a healthy safe solution to buy goods and services for private use, even if many authors consider that the attitude is closely related to the perception and behavior manifested, a stability characteristic being the result of a long time. In order with a future analysis of these changes in individual attitude on online shopping, this study aims to analyse the situation before the pandemic, looking for negative attitudinal disparities at the level of European Union Member States (excepting United Kingdom), based on Eurostat data for the year 2019. In this regard was performed hierarchical cluster analysis with IBM SPSS v. 20 statistical software. The profiles of groups of countries are defined for the end of the year 2019 and the expected changes under the impact of coronavirus pandemic are identified for several countries.

**Keywords:** online shopping, attitudinal behavior of individual, disparities, cluster analysis, UE-member states.

**Classification JEL:**

### **1. Introduction**

In recent years, online shopping continued to increase in the European Union simultaneously with the increasing use of the Internet in several Member States and at the same time with better security standards. Economic theory consider that the prices, variety, and transaction costs could be strong factors that make individual consumers to order/buy goods and services from online shops. However, their perceptions of risk are still stronger than that and give some of them a negative attitude for this new type of commerce, even if they use a computer, Internet and access digital media [1]. Many traditional consumers started to appreciate the advantages of being able to shop anywhere and more than that, anytime, a wide range of products even food with the possibility to price compare. However, with all ICT performances and facilities of online environment, such as the smart websites that incorporate artificial intelligence and machine learning, the chatbots and social-media shopping, or the mobile ecommerce with automated checkout, the success of an electronic market depends largely on the desire of consumers to accept it, so on their attitude towards this new way new commerce.

The literature in the field tries to describe the model of acceptance of online shopping, and many classifications, simple or more complex of these factors of attitudinal nature of the consumer,

having in mind: demographic factors, psychological perception, experience in using the Internet, normative beliefs, shopping orientation, shopping motivation, online experience, and online shopping experience [3,6]. These factors are focused primarily on the benefits of perceived, but especially on the risks of online commerce. A large determination of non-online shoppers' attitudes claimed in the literature as major risks of online ordering or paying goods and services. Credit card theft, provision of personal information, pornography and violence, a large amount of advertising on Internet, reliance on information on the Internet, lack of physical contact with products, failure to deliver the purchased product, lack of human contact and dependence on online shopping are some of them [2]. In a recent study by Ramesh et al. (2019) conducted in 2018 were analysed and ranked the online shopping problems of customers and examined the relationship between the demographic variables and problems faced by online customers. The study showed that the risks 'product variation' as such as 'faulty products' have been mentioned as the major problems irrespective of the demographic profile of the costumers. The third major risk of the ranking, 'delay in delivery' are different mentioned with respect to factorial variables education and customers' income. The problem named 'fake website' was significantly different in gender, age, and education of customers [4].

A Eurobarometric survey conducted annually in the EU - Member States still shows that high percentages of all individuals that not buying/ordering personal goods and services on the Internet. In the last 12 months of 2019 (the latest available data), they remained cautious. Specialists in various fields, from marketing to psychology, explain individual behavior regarding online shopping and the habit of resorting to it by several factors underlying the purchase decision. These attitudes determine the individual behavior of the consumer.

The consumer attitudinal behaviour to doing not online shopping has based on various arguments declared as perceived barriers to buying/ordering over the Internet. The commonly arguments are about: the preference to shop in person for seeing the products, the loyalty to shops or force of habit, the lack of the necessary skills, long delivery times or problematic receiving, payment security concerns, trust concerns about receiving or returning goods, complaints/redress concern, the lack of a payment card, the website location, or many others.

In this regard was considered interesting to have a real picture of individuals' behavior and negative attitudinal regarding online shopping at the level of EU member states in the year before the pandemic 2020, with the aim to follow in the future the after changes. This is because the European Union reports on the EU Digital Single market still highlight a high percentage of individuals (in all individuals) with profound and stable negative attitudes on online shopping in several countries, including Romania.

## 2. Data and Methodology

Data used in the study are regarding the perceived barriers to buying/ordering over the Internet, at the level of the 27 countries European Union member states, excepting United Kingdom, for the last 12 months during the year 2019, most recent available data from Eurostat online database [isoc\_ec\_inb].

The indicators considered, as the main factors of online non-buying attitude of consumers are (See table no.1):

- *Variable V1* - Individuals who haven't ordered goods or services over the Internet, because they prefer to shop in person, they like to see product, loyalty to shops or force of habit, measured as % of total population;
- *Variable V2* - Individuals who haven't ordered goods or services over the Internet, because they lack the necessary skills, measured as % of total population;
- *Variable V3* - Individuals who haven't ordered goods or services over the Internet, because of too long delivery times or because of the problematic to receive, measured as % of total

- population;
- *Variable V4* - Individuals who haven't bought/ordered goods or services over the Internet for their own private use, because: Payment security concerns, measured as % of total population;
  - *Variable V5* - Individuals who haven't ordered goods or services over the internet, because of trust concerns about receiving or returning goods, complaint/redress concerns, measured as % of total population;
  - *Variable V6* - Individuals who haven't ordered goods or services over the Internet, because they don't have a payment card, measured as % of total population;
  - *Variable V7* - Individuals who haven't ordered goods or services over the internet, because of other reasons, measured as % of total population;

**Table no. 1 - Reasons for not to buying/ordering goods or services over the Internet for own private use, in the last 12 months, EU-Member States, 2019 (percentage of all individuals)**

Country	V1	V2	V3	V4	V5	V6	V7
	Loyalty to shops/ Force of habit	Lack the necessary skills	Long delivery times/ problematic to receive	Payment security concerns	Trust concerns	Don't have a payment card	Other reasons
Belgium	18	4	1	4	2	3	3
Bulgaria	31	5	2	3	4	3	9
Czechia	8	3	1	2	2	1	4
Denmark	9	1	1	2	2	0	2
Germany	9	3	0	4	2	3	0
Estonia	18	3	0	1	1	0	1
Ireland	19	4	1	4	1	2	3
Greece	26	7	1	9	4	3	5
Spain	28	14	7	16	13	7	6
France	15	3	1	8	3	1	2
Croatia	28	3	0	10	2	1	1
Italy	29	4	1	3	4	5	2
Cyprus	43	20	1	12	11	26	0
Latvia	32	4	1	5	3	1	1
Lithuania	25	9	2	5	8	3	1
Luxembourg	15	4	1	3	2	3	4
Hungary	28	12	9	14	13	10	5
Malta	21	12	3	7	6	4	2
Netherlands	10	3	1	4	3	1	2
Austria	24	6	2	8	4	4	2
Poland	17	3	0	2	2	1	1
Portugal	32	16	7	23	19	8	26
Romania	43	7	2	3	4	5	7
Slovenia	20	3	1	5	2	3	5
Slovakia	19	4	1	5	4	1	3
Finland	18	7	6	14	10	3	5
Sweden	9	3	2	5	2	1	2

Source: Eurostat Database, Perceived barriers to buying/ordering over the Internet [isoc\_ec\_inb], Last update of data: 15/04/2020, Extracted by the author on 05.07.2020.

The variables descriptive statistics shown in the table for figure below highlight high differences in individuals' perceptions at countries level, for all declared reasons for no buying on the Internet excepting the time of delivery and problems on receiving.

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Prefer to shop in person, they like to see product, loyalty to shops or force of habit (% of all individuals)	27	35	8	43	22,00	9,588
They lack the necessary skills (% of all individuals)	27	19	1	20	6,19	4,699
Too long delivery times or because of the problematic to receive (% of all individuals)	27	9	0	9	2,04	2,361
Payment security concerns (% of all individuals)	27	22	1	23	6,70	5,202
Trust concerns about receiving or returning goods, complaint / redress concerns (% of all individuals)	27	18	1	19	4,93	4,497
They don't have a payment card (% of all individuals)	27	26	0	26	3,81	5,046
Other reasons	27	26	0	26	3,85	4,936
Valid N (listwise)	27					

**Figure no. 1** – Descriptive statistics of main indicators regarding the perceived barriers to buying/ordering over the Internet, at the level of the 27 countries European Union member states, for the last 12 months during the year 2019, performed with Descriptive IBM SPSS Procedure

For example, in Romania are registered the high percentage of population that prefer to shop in person (43%), in time that in Czechia only 8% are loyal to traditional shopping. For this indicator are registered the higher variation (with 9,588 standard deviation). Regarding the lack of skills in online shopping, in Cyprus exists the largest percentages of all individuals, 20%, even in Denmark only 1% of all individuals. Payment security concerns were mentioned in the highest percentages, 23%, in Portugal, and only 1% in Estonia. The lack of a payment card is a great problem only for Cyprus, the rest of other country reported percentages under 10% (Hungary), countries like Denmark or Estonia don't have such a problem. Many other reasons highlight Portugal. (see Table 1).

To classify the 27 countries in order to identify countries' disparities based on the seven variables considered we applied the hierarchical cluster analysis performed with IBM SPSS. This method involves using a number of algorithms to classify cases, in this case the 27 EU Member States, into homogeneous groups. In essence, the aim is to identify the relevant clusters, which assume the proximity (similarity) of countries from the attitudinal perspectives of individuals regarding online shopping. The use of cluster analysis practically aims at simplifying the data - the analysis focusing on groups of similar countries, instead of analyzing them individually, as well as identifying the relationships between data - of a simplified structure of data sets grouped in clusters in order to facilitate highlighting links that would otherwise be more difficult to notice. Following the cluster analysis instrumentation, groups of similar countries are generated, clusters, homogeneous within the group and, as far as possible, heterogeneous compared with the other groups.

Various possibilities to group objects into clusters are, many of them being available with IBM SPSS procedures. In the study, we used an agglomerative hierarchical cluster analysis with Ward's method. The fundamentals of the agglomerative algorithms of hierarchical clustering involve determining the pairs of elements closest to each other. By joining them, new clusters are produced until the set of objects that are classified will have included in a single cluster. Ward's method is the most used hierarchical clustering technique that starts with N singletons, N clusters with a single object, and stage by stage, two of them are joined by minimizing the total within-cluster variance, and maximizing the between-clusters variance, at the same time, until a single cluster is obtained that includes all N objects [5]. In this respect, Ward's method is based on the squared Euclidean distance as a dissimilarity measure.

### 3. Results and Discussion

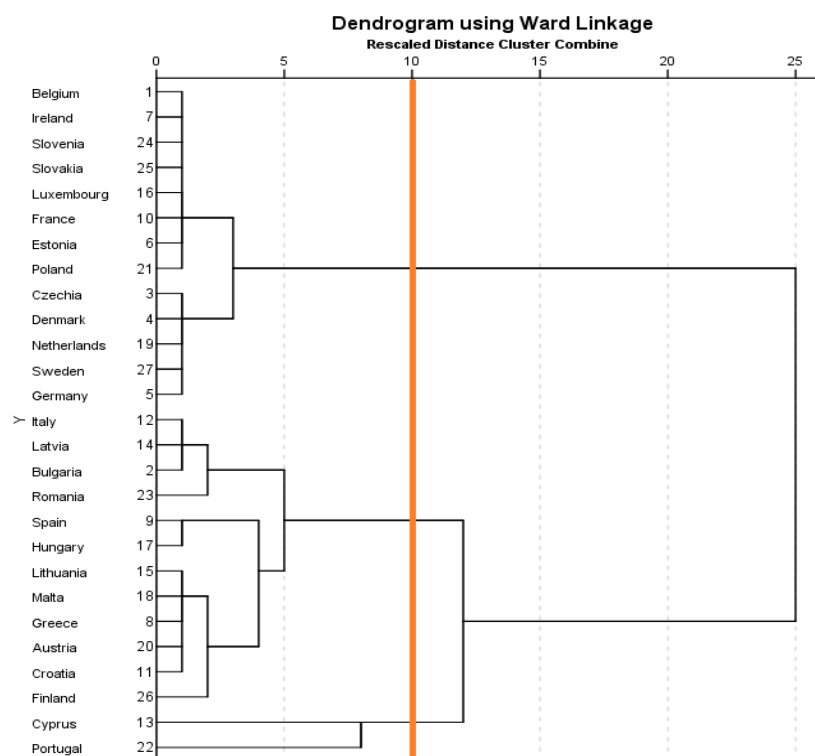
By performing IBM SPSS Hierarchical Cluster Analysis with Ward's method to clustering the 27 countries of EU based on the 7 considered clustering variables in the study, the procedure returns some first significant output.

If it is requested, one of the this outputs is the Proximity Matrix,(dissimilarity matrix in case of Ward's). The matrix lists the squared Euclidean distance that was calculated in the first stage between all countries. An extracted part of its are in the figure below. Some of the differents between countries can be shown. For example, the lower squared Euclidian distance is between Ireland and Belgium (the most similar countries), and the hiegst distance is between Denmark and Cyprus (the most dissimilar).

Case	1:Belgium	2:Bulgaria	3:Czechia	4:Denmark	5:Germany	6:Estonia	7:Ireland	8:Greece	9:Spain	10:France	11:Croatia	12:Italy	13:Cyprus	14:Latvia	15:Lithuania	16: Luxembourg	17:Hungary
1:Belgium	,000	212,000	110,000	104,000	92,000	25,000	3,000	106,000	526,000	32,000	146,000	131,000	1564,000	206,000	116,000	11,000	502,000
2:Bulgaria	212,000	,000	568,000	564,000	578,000	263,000	193,000	82,000	390,000	340,000	138,000	59,000	1110,000	76,000	136,000	287,000	374,000
3:Czechia	110,000	568,000	,000	10,000	26,000	113,000	129,000	398,000	914,000	90,000	474,000	467,000	2336,000	596,000	384,000	55,000	892,000
4:Denmark	104,000	564,000	10,000	,000	22,000	89,000	119,000	396,000	948,000	78,000	432,000	439,000	2378,000	550,000	376,000	59,000	920,000
5:Germany	92,000	578,000	26,000	22,000	,000	101,000	113,000	360,000	848,000	62,000	402,000	415,000	2120,000	538,000	334,000	55,000	818,000

**Figure no. 2** – The Ward's methods dissimilarity matrix – IBM SPSS output

The dendrogram from the figure no.2, as a visual display of the clustering process and the agglomeration schedule are other two significant outputs due to their suggestions about number of clusters solution. They indicate three main clusters formed before point 10 on the rescaled distance axis. The analysis resulted in creating three subgroups/clustrs.



**Figure no. 3** – Dendrogram performed with Ward's method (the added red line indicate the chosen of stopping location) – IBM SPSS output

The clustering solution is described below with respect to the clusters dimension, the clusters membership, and other clusters descriptives. The Ward's method is a very used method

because it assures the homogeneity of the clusters (see figure 4), even it tends to form equal clusters and it is sensitive to outliers.

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Prefer to shop in person, they like to see product, loyalty to shops or force of habit (% of all individuals) * Ward Method	Between Groups (Combined)		1646,481	2	823,240	26,573	,000
	Within Groups		743,519	24	30,980		
	Total		2390,000	26			
They lack the necessary skills (% of all individuals) * Ward Method	Between Groups (Combined)		419,382	2	209,691	32,533	,000
	Within Groups		154,692	24	6,446		
	Total		574,074	26			
Too long delivery times or because of the problematic to receive (% of all individuals) * Ward Method	Between Groups (Combined)		37,271	2	18,635	4,153	,028
	Within Groups		107,692	24	4,487		
	Total		144,963	26			
Payment security concerns (% of all individuals) * Ward Method	Between Groups (Combined)		367,905	2	183,953	13,150	,000
	Within Groups		335,724	24	13,989		
	Total		703,630	26			
Trust concerns about receiving or returning goods, complaint / redress concerns (% of all individuals) * Ward Method	Between Groups (Combined)		323,910	2	161,955	19,248	,000
	Within Groups		201,942	24	8,414		
	Total		525,852	26			
They don't have a payment card (% of all individuals) * Ward Method	Between Groups (Combined)		415,927	2	207,963	20,277	,000
	Within Groups		246,147	24	10,256		
	Total		662,074	26			
Other reasons * Ward Method	Between Groups (Combined)		192,510	2	96,255	5,240	,013
	Within Groups		440,897	24	18,371		
	Total		633,407	26			

**Figure no. 4** – Compared cluster means – Analysis of variance (ANOVA) - IBM SPSS Output

Analyzing the descriptives of the three clusters in the table presented in the figure no 5, can be noted cluster 3 with only 2 members and the highest variation for almost all 7 clustering variables. To understand the membership similarities and make the clusters profiles, must have a look at the means of the clustering variables at each cluster in SPSS outputs in figure 5 and 6.

**Cluster 1** – contains 13 countries: Belgium, Czechia, Denmark, Germany, Estonia, Ireland, France, Luxembourg, Netherlands, Poland, Slovenia, Slovakia and Sweden;

This cluster is characterized by the lowest percentages of individuals for all considered perceived barriers to buying/ordering over the Internet. Most of them are northern European countries which in 2019 had the most digitalized economies. So, countries from this cluster have the advantage of a fast orientation of the population towards online commerce during the pandemic. They are the most adaptable to the pandemic online shopping necessities.

They have skills, have payment cards, the only real reason that prevented their online shopping was the loyalty to traditional commerce, the necessity, the habit of seeing, of feeling what they buy. So, the pandemic conditions will remove online payment security concerns, because of only a low percentage of individuals claim these reasons.

**Cluster 2** – contains 12 countries: Bulgaria, Greece, Spain, Croatia, Italy, Latvia, Lithuania, Hungary, Malta, Austria, Romania and Finland;

Very different countries are in this cluster, as their economies and level of life, but with dedicated non-online shoppers due to their traditional loyalties, with no digital skills for online

shopping, and the most skeptics regarding the online payments, in several countries without payment cards.

We can consider here their older population or the high disparities between urban and rural regions. For those countries, changes in attitude regarding online shopping could be slowly and not really profound if the duration of the pandemic will be not so long.

**Cluster 3** – contains 2 countries: Cyprus and Portugal, the most reticent non-shoppers. Probably no many changes in their attitude after coronavirus pandemic.

This countries are characterized by the highest percentages of individuals for almost all considered perceived barriers to buying/ordering over the Internet.

Report

Ward Method		Prefer to shop in person, they like to see product, loyalty to shops or force of habit (% of all individuals)	They lack the necessary skills (% of all individuals)	Too long delivery times or because of the problematic to receive (% of all individuals)	Payment security concerns (% of all individuals)	Trust concerns about receiving or returning goods, complaint / redress concerns (% of all individuals)	They don't have a payment card (% of all individuals)	Other reasons
1	Mean	14,31	3,15	,85	3,77	2,15	1,54	2,46
	N	13	13	13	13	13	13	13
	Std. Deviation	4,608	,801	,555	1,833	,801	1,127	1,391
2	Mean	27,75	7,50	3,00	8,08	6,25	4,08	3,83
	N	12	12	12	12	12	12	12
	Std. Deviation	6,240	3,555	2,796	4,621	3,841	2,503	2,691
3	Mean	37,50	18,00	4,00	17,50	15,00	17,00	13,00
	N	2	2	2	2	2	2	2
	Std. Deviation	7,778	2,828	4,243	7,778	5,657	12,728	18,385
Total	Mean	22,00	6,19	2,04	6,70	4,93	3,81	3,85
	N	27	27	27	27	27	27	27
	Std. Deviation	9,588	4,699	2,361	5,202	4,497	5,046	4,936

**Figure no. 5** – Descriptive Report of the three clusters solution - IBM SPSS Output

#### 4. Conclusions

E-commerce is one of the essential components of the digital economy including the online shopping of products and services for the private use of the population. Numerous studies have shown that previous experience with online shopping is positively correlated with the probability of future shopping online. The annual Eurobarometer surveys show a high percentage of individuals that have negative attitudes regarding online shopping because of various reasons.

The study aims to show the situation under the 27 countries, European Union member states, before the coronavirus pandemic in order of future analysis of the attitudinal changes under the pandemic impact. By using cluster analysis performed with IBM SPSS, three clusters were identified with different potential in their individuals' attitudes changes due to the conditions of coronavirus pandemic.

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