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## A Study on the Determinants of Consumer Online Purchasing Behaviour

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Artur Kwasek<sup>1</sup>, Magdalena Maciaszczyk<sup>2</sup>, Damian Kocot<sup>3</sup>,  
Marek Martin<sup>4</sup>, Maria Kocot<sup>5</sup>

**Abstract:**

**Purpose:** To identify purchasing determinants that affect online consumers.

**Design/Methodology/Approach:** The study was conducted in 2021 on a random sample of 945 respondents with the use of a questionnaire. Thanks to the research it was possible to list the variables influencing consumer online shopping behaviour. For this purpose, a structural model was estimated using the maximum likelihood method.

**Findings:** The strength of influence between endogenous variables, i.e., the mentioned aspects, was shown. By analysing these dependencies, it is possible to establish dependencies that can give an image of the purchasing behaviour of consumers at virtual points of sale.

**Practical Implications:** The results of the research show dependencies that shape the consumer online purchase behaviour. Determining the correlations makes it possible to highlight the significant correlations of shopping variables and their strength of influence. Thanks to this, universal purchasing trends can be determined, taking into account that the purchasing variables are primarily influenced by the gender of the buyer.

**Keywords:** Internet, consumer, enterprise, business.

**JEL codes:** M0, M10.

**Paper type:** Research article.

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<sup>1</sup>Vistula University in Warsaw, Warsaw, ORCID: 0000-0003-4386-1444,  
[a.kwasek@vistula.edu.pl](mailto:a.kwasek@vistula.edu.pl);

<sup>2</sup>Lublin University of Technology, Lublin, ORCID: 0000-0001-7225-4921,  
[m.maciaszczyk@pollub.pl](mailto:m.maciaszczyk@pollub.pl);

<sup>3</sup>University of Economics in Katowice, Katowice, ORCID: 0000-0001-9240-857X  
[damian.kocot@ue.katowice.pl](mailto:damian.kocot@ue.katowice.pl);

<sup>4</sup>Lodz University of Technology, Lodz, Poland; ORCID: 0000-0001-7925-6399,  
[marek.martin@p.lodz.pl](mailto:marek.martin@p.lodz.pl);

<sup>5</sup>University of Economics in Katowice, Katowice, ORCID: 0000-0001-5150-3765,  
[maria.kocot@ue.katowice.pl](mailto:maria.kocot@ue.katowice.pl);

## **1. Introduction**

The rapid development of information technology and progressive digitisation, as well as new market conditions, have led to the need to completely redefine the market role of online consumers, who, being market participants, intensify their involvement in its functioning, assuming a new market role (Ritzer and Miles, 2019; Dusi, 2018; Gabriel, Korczynski, and Rieder, 2015; Pearce, 2012). Consumers provide a wide range of services, such as purchasing, communication and creative services. The activities of modern consumers have changed significantly. Subjects are no longer just passive participants in a transaction, but conscious market participants.

The aim of the article is to establish the determinants of consumer online purchasing behaviour. It presents the results of a survey conducted in June 2021 with the use of CAWI techniques. The conducted research allowed the authors to estimate a structural model using the maximum likelihood method. The model made it possible to establish the variables influencing the determinants of e-consumers' purchasing behaviour, as well as to show the strength of influence between endogenous variables. Identifying these relationships allows researchers to highlight the factors that are of most importance to the consumer when shopping online and at the same time contribute to determining purchasing trends.

## **2. Theoretical Views and Literature Review**

### **2.1 The Contemporary Online Consumer**

In economic theory, the term “consumer” is analysed in terms of the theory of choice. Consumer is often understood as the buyer who consumes the purchased products and at the same time takes advantage of their use value (Bradley, 2016; Karakaya, Hidalgo, and Nuur, 2014). In the theory of marketing, the consumer is considered to be the starting point for marketing activities undertaken on the market of goods and services.

Today, the concepts of consumption remain consistent with the postmodern paradigm, which perceives consumption as a way to search for exciting experiences and sensations. It is extremely important for consumers to be able to choose from a wide range of available products and services. This act of choosing not only makes it possible to satisfy one's needs, but most of all enables individual expression of personality, as well as pursuing one's passions and fulfilling dreams (Dey, Yen, and Samuel, 2020; Gabriel, Korczynski, and Rieder, 2015; Karakaya, Hidalgo, and Nuur, 2014; Matschke, Moskaliuk, and Cress, 2013).

Over the years, the image of the consumer, their activities and decision-making behaviour in the area of shopping have been significantly modified. In the contemporary economic reality characterised by rapid digitisation and virtualisation,

the availability of various communication and transaction solutions as well as a wide market offer mean that consumers have full freedom of choice and determine the fate of enterprises (Raišienė *et al.*, 2019; Park *et al.*, 2018; Izvercian and Potra, 2014). In the literature on the subject, the buyer began to be described as a “seeking consumer” (trysumer), who wants to try new things, verifies the market offer and analyses their own experiences (Rzepka *et al.*, 2021; Ballesteros, 2018). Therefore, it can be concluded that the consumer has become an external employee of the enterprise, actively participating in the design and production of individualised products, and often also in innovations (Albouy *et al.*, 2020; Martucci, de Felice, and Shirone, 2012).

Contemporary consumers should not be seen only as passive and compliant market subjects who consume products and use services. They play the role of business partners in the area of marketing activities and analysis of products and services. Consumers communicate with each other via various instant messengers. They leave comments, give opinions and exchange suggestions among themselves. Moreover, they share their observations with producers. Thus, there is a continuous transfer of knowledge between consumers and enterprises, which takes place in two directions: from consumers to enterprises and from enterprises to consumers (Sokowati, 2020; Belk, 2014).

Consumers are becoming more and more conscious market participants and a source of knowledge transfer. Moreover, they are aware of the feeling of dissatisfaction that results from limiting the scope of their activities to the purchasing dimension. Producers are therefore forced to redefine their role, noting their increasing activity (Greaver, 2016).

Currently consumers have turned from passive recipients to co-creators of goods and services. The dynamic development of ICT gives them the opportunity to express opinions about products and services, as well as exchange suggestions, which also makes them creators of innovative ideas (Shah, 2018; Lii, 2011). Moreover, due to the fact that the customer's expectations increase, they often begin to demand personalised products. In this way, they exert an influence on the creation of the offer. Consumption becomes interactive; it becomes possible to provide the producer with information about the perception of the product. Contemporary consumers belong to the Net Generation and treat the Internet as a place for creating goods and services. These buyers have a strong need for individualisation, freedom and choice, and they tailor the offer to their needs. Therefore, a specific customisation of services can be observed (Cabigiosu and Campagnolo, 2019; Mourtzis *et al.*, 2018).

## **2.2 Determinants of Consumer Behaviour during the COVID-19 Pandemic**

The outbreak of the COVID-19 pandemic forced consumers to adapt to a new reality. They had to modify certain organisational questions, such as the shopping process. These changes derived their origins from both external and internal factors.

Among the former there were measures adopted by the authorities, while internal determinants included consumers' awareness of the inevitability of change (Koch *et al.*, 2020). However, buyers are unable to anticipate the shape it will take. Another issue is the overwhelming sense of uncertainty that caused consumers, especially in the initial period of the pandemic, to stockpile. At the same time, they were afraid of leaving the house or would prefer shopping alone for fear of becoming infected (Trzebiński *et al.*, 2021; Alexander and Karger, 2021).

When the lockdown was introduced by the authorities, some people gave up shopping in hypermarkets in favour of online shopping. Moreover, as the first cases of the disease began to appear, consumers became more interested in health. They expressed it by buying sanitary products and groceries in stock. As the number of cases increased, a particularly significant change in the behaviour of consumers could be observed - they avoided going out and began to choose online shopping, thus visiting brick and mortar stores less frequently (Ali, 2020; Kim, 2020).

The phenomenon of social isolation resulted in many aspects of life, like medical care, education, working, travelling, and shopping, being transferred to the virtual world (Adnan and Anwar, 2020; Liu *et al.*, 2020; King *et al.*, 2020; Galanti *et al.*, 2020; Chang and Meyerhoefer, 2021). There was an increase in interest in e-commerce websites, which minimize the risk of meeting other people, guarantee comfort and safety of shopping, create unlimited choice and ensure quick availability of products. More and more consumers decide to shop online, which modifies their entire decision-making process. In the era of the coronavirus, the determinants of consumer behaviour are changing. This results in the emergence of new e-consumer models of purchasing (Aryani *et al.*, 2021; Laato *et al.*, 2020).

### **3. Materials and Methods**

In June 2021, research was carried out to identify the determinants of consumer online purchasing behaviour. The analysis covered such issues as the frequency of making purchases on the Internet, the type of products purchased most often, the amount of money spent on shopping online per month, and the reliability of online stores. Efforts were also made to find out to what extent the e-consumers covered by the study fulfil the role of prosumers (by answering questions of other Internet users looking for information about a product or by making suggestions to the manufacturer about introducing changes to the products they offer).

A hypothesis was put forward that the online shopping behaviour of consumers is determined by many aspects, both economic and non-economic. There is also strength of influence between endogenous variables. This knowledge gives a picture of the impact of particular determinants on the purchasing behaviour of consumers on the Internet. Primary research was carried out in order to achieve the research goals and verify the hypothesis.

The survey method was used for this purpose. In June 2021, a questionnaire was sent to respondents via the Internet. The standards of the CAWI technique were used during the research. The results of the surveys were compiled with the help of the SPSS Statistic programme.

The results of the conducted research will make a huge contribution to the process of determining trends and regularities in e-consumers' shopping behaviour. This topic was addressed due to its up-to-date nature and great importance, as well as the existence of a noticeable research gap in this area. The research sample consisted of 945 people representing various generations. The sociodemographic data of the surveyed respondents are presented in Table 1.

**Table 1.** *Socio-demographic characteristics of respondents.*

Variables		Frequency N = 945	Percentage %	
1	Sex	Male	313	33
		Female	632	67
2	Generation	X	97	10
		Y	265	28
		Z	583	62
3	Place of residence	Countryside	163	17
		Town with 20-49,000 inhabitants	132	14
		City with 50-200,000 inhabitants	126	13
		City over 200,000 inhabitants	524	55
4	Financial situation	Very good	120	13
		Good	551	58
		Average	250	26
		Bad	24	3
5	Employment status	Not working	85	9
		Permanent work	689	73
		Occasional work	119	13
		Own business	52	6
6	Level of studies	Undergraduate	562	59
		Engineering	46	5
		MA studies	321	34
		PhD	16	2
7	Type of studies	Full-time studies	219	23
		Extramural studies	726	77
8	Field of study	Economics	151	16
		Management	311	33
		Finance and Accounting	102	11
		Computer Science	25	3
		Business Psychology	72	8
		Internal Security	114	12
		Tourism and Recreation	16	2
		Administration	79	8
Educational Sciences	4	0		

Logistics and Transportation	44	5
Civil Engineering / Architecture	3	0
Other	24	3

*Source: Own study.*

From the point of view of the topic discussed in this article, it was also important to define the frequency of purchases on the Internet. Detailed data on this subject is presented in Table 2.

**Table 2.** *The frequency of purchases on the Internet*

Frequency	Number of respondents
Every day	10
Several times a week	111
Once a week	84
Several times a month	422
Once a month	166
Several times a year	152

*Source: Own study.*

Next, it was determined which types of products are purchased most often. A detailed specification is presented in Table 3 and Figure 1.

**Table 3.** *Products most often purchased online*

Products	Number of respondents
Clothes	713
Cosmetics	481
Shoes	395
RTV and household appliances	302
Food products	146
IT hardware and software	145
Computer games	113
Jewellery	138
Sport equipment	149
Books, CDs, films	292
Cinema tickets	190
Multimedia, e-books, MP3	95
Health and beauty products	268
Children's goods and toys	97
Gifts and accessories	255
Tourism, travel, booking	229
Furniture and interior design	169

*Source: Own study.*

#### 4. Results and Discussion

An attempt was also made to find out what amount of money the respondents spend on online shopping per month. Detailed data on this subject is presented in Table 4.

**Table 4.** Amount of money spent on online shopping per month.

Amount of money	Number of respondents
0-99 PLN	125
100-200 PLN	275
200-499 PLN	358
500-999 PLN	129
more than 1,000 PLN	58

*Source:* Own study.

The respondents also indicated the names of three websites that they associate with online shopping. Among the most frequently mentioned by respondents were sales sites such as Polish Allegro (n=839) and OLX (n=459), German Zalando (n=430) and Chinese Aliexpress (n=421). Further indications turned out to be much more scarce and were the book, music and press chain Empik (n=205) and the Polish shoe store eobuwie (n=170).

The names of websites that are associated with buying clothes online were also given. Respondents could give three names each and this time the Zalando store proved to be the most popular (n=609). The next two indications concerned chain brands - Spanish Zara (n=402) and Polish Reserved (n=374).

Similarly, the names of websites associated with buying groceries online were also indicated. Again, respondents could give three names each. The ability to shop for groceries at Lidl (n=572), Auchan (n=477), and Tesco (n=439) proved most attractive. Dutch food delivery services such as Just Eat Takeaway.com, known in Poland as pyszne.pl (n=445) was also among the favourites. Interestingly, prior to the Covid-19 pandemic, pyszne.pl was only involved in the delivery of prepared food from local caterers, while the market situation led to a temporary change in service offerings.

The study was also aimed at identifying the aspects important for the respondent in making online purchasing decisions. Detailed information is provided in Table 8.

**Table 8.** Important aspects of making online purchasing decisions

Aspect	Definitely not important	Rather unimportant	I have no opinion	Rather important	Definitely important	Total
price	22	25	26	295	577	945
friendly UX	28	76	343	360	138	945
product/service quality	20	13	17	264	631	945
speed of delivery	16	49	49	350	481	945
warranty	19	49	79	342	456	945
product information	20	23	49	332	521	945

payment method	28	67	65	369	416	945
opinions of other Internet users	28	55	85	383	394	945
after-sales service	31	104	180	367	263	945
organic origin of products	106	167	263	277	132	945

*Source: Own study.*

An extremely important part of the study was checking whether e-consumers give their opinions online on the products purchased on the Internet. In this way, the researchers wanted to establish whether the consumer fulfils the role of a prosumer. And so it turned out that this role is indeed fulfilled by only 46% of the respondents (that is 439 respondents). Subsequently, the respondents who answered in the affirmative specified the place where they left their opinions about the product bought online (Table 9).

**Table 9.** *Place of leaving an opinion about a product bought online*

Place of leaving a comment	Number of respondents
price comparison websites	88
discussion groups on Facebook	68
chats	44
discussion forums	121
surveys	312

*Source: Own study.*

It was also interesting to find out whether the respondents had ever taken advantage of the personalization offer while shopping online. It turned out that the majority (58%) had not. However, the remaining respondents determined what the effect of personalization was (Table 10).

**Table 10.** *What was the effect of personalisation?*

The effect of personalisation	Number of respondents
other	10
Placing one's illustration on the product	42
Adding a function to the product	93
Placing one's name, surname or slogan on the product	174
Placing one's photo on the product	91
Choosing the colour of the product	210

*Source: Own study.*

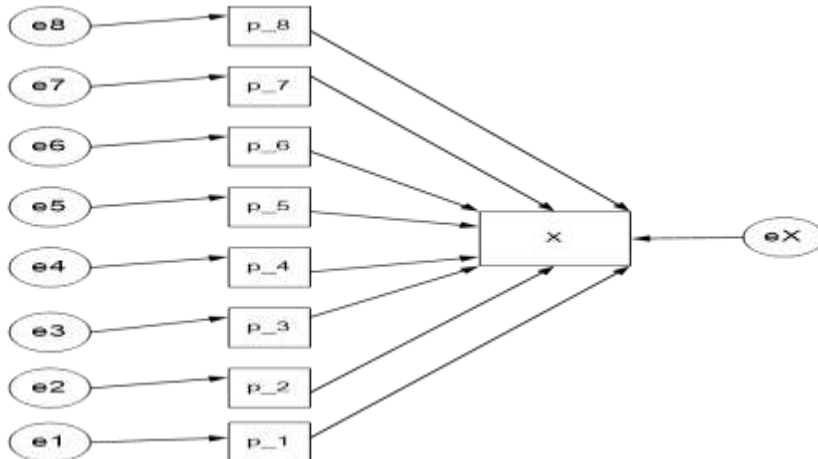
Structural models were estimated using the maximum likelihood method. There was no reason to reject the null hypothesis that the residual values of the empirical and theoretical matrices are zero ( $\chi^2 = 540.587$ ;  $p = 0.001$ ). The value of root mean square error of approximation (RMSEA = 0.139) indicates that the model can be



considered a good fit for the data. In order to determine the reliability of the data, the Cronbach's alpha coefficient was determined, which was 0.751.

Structural models estimated by the maximum likelihood method (Figure 1) contain the following: A Observable endogenous variables: p\_1 - Age, p\_2 - Gender, p\_3 - Place of residence, p\_4 - Financial situation, p\_5 - Employment status, p\_6 - Level of studies, p\_7 - Field of study, p\_8 - Type of studies, p\_9 - How often do you buy products online?, p\_11 - What amount of money do you spend on shopping online per month?, p\_16\_a - price, p\_16\_b - friendly UX, p\_16\_c - product/service quality, p\_16\_d - speed of delivery, p\_16\_e - warranty, p\_16\_f - product information, p\_16\_g - payment method, p\_16\_h - opinions of other Internet users, p\_16\_i - after-sales service, p\_16\_j - organic origin of products, p\_17 - Do you leave your opinions online about the products purchased on the Internet?, p\_19 - Have you ever taken advantage of the personalisation offer while shopping online?, p\_21 - Do you answer the questions of other Internet users looking for information about a product?, p\_22 - Have you ever made a suggestion to the manufacturer about introducing changes to the products they offer? and B Unobservable exogenous variables: e1, e2, e3, e4, e5, e6, e7, e8, e9.

Figure 1. Estimated structural model<sup>6</sup>.



Source: Own creation.

Non-standardised and standardised coefficients are presented in Tables 11 and 12. The non-standardised coefficients of the model inform by how many units the value of the explained variable will change when the value of a given explanatory variable increases by one unit. Standardised coefficients describe by how many of their

<sup>6</sup>X denotes respective observable endogenous variables: from p\_9 to p\_22, and eX, respectively, random errors of these variables.

standard deviations the value of the explained variable changes when the value of the explanatory variable increases by one standard deviation<sup>7</sup>.

The below interpretations are valid only when the values of the remaining variables remain unchanged. Thus, the values of the coefficients describe the direction (positive/negative) and the strength of influence of the explanatory variable on the explained variable. The strength of influence on the explained variable can be compared between the explanatory variables using standardised coefficients. The values of non-standardised coefficients depend on the units in which the variables are measured (Osińska, Pietrzak, and Żurek, 2011; Konarski, 2010; Osińska, 2008; Domański, 1990).

**Table 11.** Non-standardised model coefficients

Variables	Estimated values of parameters															
	observable exogenous variables															
	p_9	p_11	p_16_a	p_16_b	p_16_c	p_16_d	p_16_e	p_16_f	p_16_g	p_16_h	p_16_i	p_16_j	p_17	p_19	p_21	p_22
p_1	-0.072	-0.099	-0.019	-0.229	-0.045	-0.078	-0.194	-0.033	-0.109	0.004	-0.191	-0.339	-0.042	0.129	-0.024	-0.033
		***		***			***		***		***	***	***	***		
p_2	-0.011	-0.003	0.189	0.099	0.109	0.232	0.028	0.288	0.232	0.279	0.114	0.660	0.024	0.023	-0.052	-0.094
			***		***	***		***	***	***		***				***
p_3	-0.017	0.028	-0.011	0.059	0.009	0.068	-0.039	-0.035	-0.042	-0.036	-0.018	-0.029	-0.006	-0.013	0.004	0.015
				***												
p_4	-0.303 ***	0.415	-0.009	0.156	0.074	0.133	0.032	0.033	0.007	0.01	0.052	0.062	0.003	0.063	0.033	0.012
		***	***	***	***	***								***		
p_5	-0.178 ***	0.245	-0.014	0.008	0.008	-0.050	-0.064	-0.002	0.052	-0.002	0.042	-0.071	0.037	0.028	0.005	-0.004
		***														
p_6	-0.007	-0.044	0.021	0.001	-0.054	-0.024	-0.034	-0.016	-0.052	-0.014	-0.032	-0.027	-0.050	-0.017	-0.008	0.007
					***								***			
p_7	-0.006	0.014	0.003	-0.016	0.001	-0.005	0.002	-0.008	-0.003	-0.007	0.010	-0.001	0.003	0.002	-0.010	-0.002
															***	
p_8	-0.017	0.066	0.207	-0.133	0.101	0.169	0.083	0.269	0.069	0.131	0.096	-0.115	0.003	0.027	-0.069	-0.091
			***			***		***								***

**Note:** \*\*\* means  $p < 0.001$

**Source:** Own creation.

### 5. Limitations of the Study and Further Research

The research took place during the coronavirus pandemic; therefore, the authors of the study did not have the opportunity to meet respondents in person and conduct a more detailed interview, which can certainly be considered a significant limitation of this study.

<sup>7</sup>Bollen K.A. (1989), *Structural Equations with Latent Variables*, Wiley; Kline R.B. (2005), *Principles and Practice of Structural Equation Modeling*, The Guilford Press.

In the future, it would be interesting to carry out similar research among respondents from abroad. In this way, it would be possible to compare domestic and foreign studies, and also verify whether the dependencies presented in the Conclusion section are also present on foreign markets. These topics could provide interesting material for future research.

**Table 12.** Standardised model coefficients

Variables	Estimated values of parameters															
	observable endogenous variables															
	p_9	p_11	p_16_a	p_16_b	p_16_c	p_16_d	p_16_e	p_16_f	p_16_g	p_16_h	p_16_i	p_16_j	p_17	p_19	p_21	p_22
p_1	-0.039	-0.064	-0.015	-0.162	-0.038	-0.058	-0.137	-0.042	-0.069	0.003	-0.120	-0.189	-0.057	0.176	-0.035	-0.060
p_2	-0.004	-0.001	0.103	0.030	0.065	0.130	0.014	0.158	0.107	0.132	0.051	0.239	0.023	0.022	-0.052	-0.118
p_3	-0.016	0.032	-0.015	0.074	0.013	0.011	-0.048	-0.048	-0.049	-0.045	-0.018	-0.028	-0.015	-0.031	0.009	0.046
p_4	-0.164	0.270	-0.053	0.108	0.064	0.099	0.022	0.026	0.003	0.021	0.033	0.035	0.004	0.083	0.047	0.021
p_5	-0.099	0.162	-0.011	0.006	0.007	-0.038	-0.061	-0.001	0.035	-0.002	0.027	-0.041	0.051	0.029	0.007	-0.007
p_6	-0.006	-0.042	0.024	0.001	-0.068	-0.026	-0.035	-0.018	-0.030	-0.014	-0.029	-0.022	-0.097	-0.034	-0.017	0.018
p_7	-0.024	0.048	0.012	-0.060	0.003	-0.019	0.008	-0.035	-0.009	-0.026	0.033	-0.003	0.018	0.015	-0.078	-0.018
p_8	-0.006	0.027	0.101	-0.060	0.054	0.078	0.038	0.132	0.029	0.055	0.038	-0.040	0.002	0.023	-0.062	-0.103

Source: Own creation.

## 6. Conclusions

In the light of the conducted statistical analyses, it turned out that the modelled endogenous variables, i.e., the frequency of shopping online, the amount of money spent on online purchases per month, price, user-friendly UX, product/service quality, speed of delivery, warranty, product information, payment method, opinions of other Internet users, after-sales service, organic origin of products, sharing your opinion online about the products purchased on the Internet, taking advantage of the personalisation offer when shopping online, the willingness to answer the questions of other Internet users looking for information about a product, and the tendency to make suggestions to the manufacturer about introducing changes to the products they offer (variables from p\_9 to p\_22) are mostly influenced by the variable p\_2, i.e., gender. On the other hand, the weakest influence is exerted by the variable p\_7, i.e., the field of study.

Moreover, the conducted analyses allowed the authors to determine the following dependencies:

- based on the standardised coefficients of the model, it turned out that the variable p9 (frequency of making purchases on the Internet) is most influenced by the variable p4 (financial situation), and least influenced by the variable p2 (gender),
- the variable p11 (the amount of money spent on shopping online per month) is most influenced by the variable p4 (financial situation), and least influenced by the variable p2 (gender),

- the variable p16a (price) is most influenced by the variable p2 (gender), and least influenced by the variable p5 (employment status),
- the variable p16b (friendly UX) is most influenced by the variable p2 (gender), and least influenced by the variable p6 (level of studies),
- the variable p16c (product/service quality) is most influenced by the variable p2 (gender), and least influenced by the variable p7 (field of study),
- the variable p16d (speed of delivery) is most influenced by the variable p2 (gender), and least influenced by the variable p3 (place of residence),
- the variable p16e (warranty) is most influenced by the variable p1 (age), and the least influenced by the variable p7 (field of study),
- the variable p16f (product information) is most influenced by the variable p2 (gender), and least influenced by the variable p5 (employment status),
- the variable p16g (payment method) is most influenced by the variable p2 (gender), and least influenced by the variable p7 (field of study),
- the variable p16h (opinions of other Internet users) is most influenced by the variable p2 (gender), and least influenced by the variable p5 (employment status),
- the variable p16i (after-sales service) is most influenced by the variable p1 (age), and least influenced by the variable p3 (place of residence),
- the variable p16j (organic origin of products) is most influenced by the variable p2 (gender), and least influenced by the variable p7 (field of study),
- the variable p17 (leaving one's opinions online about the products purchased on the Internet) is most influenced by the variable p6 (level of studies), and least influenced by the variable p4 (financial situation),
- the variable p19 (taking advantage of the personalisation offer while shopping online) is most influenced by the variable p1 (age), and least influenced by the variable p7 (field of study),
- the variable p21 (answering the questions of other Internet users looking for information about a product) is most influenced by the variable p7 (field of study), and least influenced by the variable p3 (place of residence),
- the variable p22 (making suggestions to the manufacturer about changes to the products they offer) is most influenced by the variable p2 (gender), and least influenced by the variable p5 (employment status).

Determining the above relationships makes it possible to highlight the significant correlations of shopping variables and their strength of influence. Thanks to this, universal purchasing trends can be determined, taking into account that the purchasing variables are primarily influenced by the gender of the buyer. Such information can help increase online sales.

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