

## CONSUMER TRUST IN E-COMMERCE: THE CASE OF POLAND

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Anna Rybak, Ph.D.

*Czestochowa University of Technology*

*Faculty of Management*

*Institute of Enterprise Management*

*J.H. Dąbrowskiego 69; 42-201 Częstochowa*

e-mail: [anna.rybak@wz.pcz.pl](mailto:anna.rybak@wz.pcz.pl)

ORCID: <https://orcid.org/0000-0003-3981-0273>

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### Abstract

The increasing use of the Internet as a commercial sales channel arouses interest in understanding key issues in building customer relationships. Confidence is considered the key to the success of building these relationships. Considering the differences between online and offline sales, the antecedents and consequences of trust deserve a reconsideration. This research identifies satisfaction and knowledge as key factors related to trust in the context of online sales. The findings from this study suggest that people buy online more often if they see a higher level of trust in e-commerce and have more experience in using the web. Customer satisfaction can be influenced by the level of trust as well as the user's experience and knowledge about the distribution channel as well as the e-seller. It seems that people with a higher level of satisfaction with shopping become loyal customers and more often participate in e-commerce. Positive experience and the ability to monitor purchases favors the development of the e-commerce market in Poland. These results complement earlier arrangements for e-commerce and shed light on how to establish a trust relationship on the World Wide Web.

**Keywords:** consumer trust, trustworthiness, trust of the company, e-commerce

**JEL classification:** A13, D91

## **Introduction**

Consumer trust constitutes a significant factor determining decisions about the purchase of a given product and selecting a service provider. Digital space has broadened the markets of trade and marketing communication of various economic entities, but it has also introduced divisions, barriers, and exclusions (for more, see: Bassanini, Scarpetta, 2002; Okoli, Mbarika, McCoy, 2010; Pohjola, 2003; Parente, Prescott, 1994; Zeira, 1998). As a result of the information and communication technology (ICT) development, consumer trust has grown in its importance. If we draw our attention to the asymmetry in customer-vendor relations pertaining, among others, to the issues of finances, technology, and information, the development of the Internet can be thought to reduce the information advantage in these relations. Thanks to the information exchange among social communities relating to a given entity, it is possible to avoid disappointment. Common knowledge concerning a given producer allows a customer to take a purchase decision and, at the same time, guarantees a steady income to a reliable entity. A crucial condition to meet is the fulfillment of a promise made by the producer with respect to the product or service on offer.

Consumer trust is a multiaspectual concept that has become a focus of interest of numerous researchers from various scientific disciplines, among others, economics, sociology, political science, and social culture. The present article limits its research scope with regard to consumer trust to consumers' behaviors on the e-commerce market. The aim of the article is to probe into the factors impacting on consumer trust in online shopping. Taking account of trust and online shopping intentions, it seems legitimate to select young consumers for the research target group. A deeper insight into the factors determining consumer trust will allow online markets to develop faster as well as to safeguard mutual interests of their participants.

### **1. Consumer trust – an overview of literature**

The concept of trust is crucial because it affects a number of factors essential to online transactions, including security and privacy. Moreover, although e-commerce brings benefits to both vendors and customers, it also has limitations, such as the physical separation between buyers and sellers, and between buyers and merchandise. In order to reduce the barriers, vendors must develop a trustworthy relationship to foster customer loyalty (Teo, Liu, 2007).

European Commission, by monitoring the consumer goods and services markets, pays attention to trust as a determinant of economic development. As a part of its research on consumer markets, it draws up a common economic policy. Its report clarifies that:

Consumers' propensity to engage in (cross-border) online transactions may be facilitated or hampered by a number of factors, including perceived benefits and risks of e-commerce, confidence in online transactions, their awareness of key consumer rights online and the reliability of online comparison tools. Convenience in terms of time, lower prices and greater choice are the main reasons for shopping online. Consumers feel considerably more confident buying online in their own country (61%) than in other EU countries (38%). However, among consumers who have made at least one cross-border online purchase, the confidence to buy from online sellers in other EU countries is more than double that of those who have never done so. Slightly over half of the respondents (56%) in the EU knew that they have the right to return a new electronic product ordered by post, phone or the Internet four days after its delivery, without giving any reason. Consumers' awareness of their right to a cooling-off period when purchasing digital content appears even lower, with a mere 9% of online consumers correctly identifying the latest stage up to which they have the right to withdraw from such purchase and get their money back. A recent in-depth study by the Commission found that two thirds of comparison tool users (65%) had experienced at least one problem when using such tools (e.g. unavailability of the product on the seller's website or incorrect prices). Less than half of the comparison tools tested disclosed details of their relationship with suppliers or described their business model, and only a third provided information on how to file a complaint. As a follow-up, the Commission will work further with the comparison tool operators to ensure they provide transparent and reliable information to consumers. Data protection, payment security and consumer rights are key concerns in domestic e-commerce. Concerns about cross-border e-commerce are linked to delivery, redress and consumer rights. Concerns regarding, in particular domestic, e-commerce are overall higher in EU-13 than in EU-15 (European Commission, 2015).

Consumer trust in e-commerce stems, among others, from cultural differences. It is thought so by T.S.H. Teo and J. Liu (2007) as well as by H. Hallikainen and T. Laukkanen (2018), who conducted research on trust in ICT across various cultural circles. The conclusions drawn from the research are that national culture and trust are interrelated. It was discerned that culture impacts on the attitude of the customer and his/her propensity to trust as well as on the perception of the vendor, which can create a barrier to the international and global development of markets. The cultural context in research on trust confirmed the multiaspectual nature of this concept. The trust of the supplier and the trust of the customer should be treated as two autonomous research subjects. Teo and Liu (2007) directed our attention to the fact that trust is a consequence of different perceptions of risk related to online transactions. Accordingly, trust rests on cultural foundations related to the propensity to take or avoid risk. Hallikainen and Laukkanen (2018) examined trust taking into consideration the model proposed by Hofstede (2011). The results of their research confirm that cultural differences affect trust and the activities undertaken on the online market. What is interesting is that the differences are not that straightforward. Consumers' collectivist propensity affects negatively their purchase activity

on digital markets, yet masculinity (from the perspective of culture) does not prevent one from trusting Internet stores.

Devising their trust model of Portuguese consumers concerning e-commerce markets, T. Oliveira, M. Alinho, P. Rita, and G. Dhillon (2017) noticed that consumer trust should be examined with respect to the entrepreneur, the digital environment, as well as interaction (experience of previous transactions).

Isolating the particular elements making up the system of online shopping allowed them to discover relations between their constituents and building up trust in transactions.

## **2. Polish market of e-commerce**

According to the data by Gemius (2017), 79% of Polish citizens aged 7–79 use the Internet, and the people shopping online make up 54% of all Internet users. Statistically speaking, the biggest group of people using the Internet to do shopping are people aged 15–49 (87%), those with secondary education (47%), those living in the city (74%), as well as the people whose financial situation is good (51%). The biggest part of Poles (53%) does shopping by means of domestic websites; in contrast, only 16% of Internet users consciously opt for foreign ones. The most recognizable e-services are Allegro (71%), OLX (32%), and Zalando (13%). Of all foreign ones, Aliexpress is spontaneously recognized by 26% of the Internet users who did shopping online on foreign e-services in the period of the last six months. The respondents acknowledged that the reasons for doing shopping online were lower prices in e-shops (58%) than in traditional ones, as well as low delivery costs (62%). The factors driving customers away from online shopping are long delivery time (38%), high delivery costs (37%), as well as annoying Internet advertising popping up after watching a certain product (36%). The research did not take into consideration the reasons for which Internet users abstain from doing shopping online. Paying particular attention to consumer trust as a factor determining doing shopping in digital space, the present article attempts to analyze the reasons affecting consumer trust in e-commerce in Poland.

## **3. Research methodology**

The research was conducted on a group of seven young consumers who responded to a questionnaire on an e-learning platform. Collecting the data by means of the Internet allowed to identify the computer users who do shopping online. The questionnaire survey was used

to select relevant factors and examine the power of their impact on building up trust in the e-commerce market. What was taken into consideration was annual expenditures, the kind of shopping, as well as the factors determining doing shopping online. A five-point semantic scale was used to measure the determinants of e-shopping, and they were treated as reflexive variables. Basing on relevant literature and cognitive theory, it was possible to mark a path of consumer trust (Figure 1).

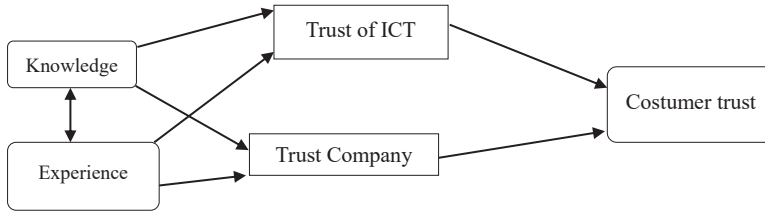


Figure 1. Path of building up consumer trust

Source: author's own elaboration based on literature.

STATISTICA software was used for the statistical analysis. Statistical power – assuming a given sample size – is the most frequently measured value, and conversely, with the statistical power assumed to be on a sufficiently high level, one can determine a minimum sample size. Statistical power is understood as the probability of not rejecting the alternative hypothesis when it is true. In other words, it is the probability of rejecting the null hypothesis under the assumption that the hypothesis is false. In statistical literature, the recommended power of a test is a value greater or equal to 0.8 (Cohen, 1965). Hypothesis  $H_0$  means that a 7-element sample is sufficient to formulate general statements.

$$H_0: \delta d = 0.$$

$$H_1: \delta d \neq 0.$$

The process of testing the null hypothesis  $H_0$  consists in determining the probability (p-value) of yielding the value  $\delta d$  under the assumption that the actual value equals zero. If a p-value – calculated on the basis of a seven-element sample – is lower than the assumed significance level of  $\alpha = 0.05$ , it is presumed that a very improbable event occurred, and that it is necessary to reject the hypothesis  $H_0$ , and accept  $H_1$  as the true one. However, if p-value is greater than  $\alpha$ , one can only state that rejecting the hypothesis  $H_0$  is unfounded. Using the Power Test module of STATISTICA, the following values of parameters were entered: sample size  $N = 25$ , tolerable error  $\delta d = 2$ , significance level  $\alpha = 0.05$ , empirical standard deviation  $S = 10$ , and the following form of hypothesis  $H_0 \delta d = 0$ , all of which enabled to calculate the power test of the research.

Table 1. Power analysis results

	Power, test t; $H_0: \mu = \mu_0$
	Value
Average Null Hypothesis ( $\mu_0$ )	0.00
Average in the Population ( $\mu$ )	2.00
Standard Error of the Proportion ( $\sigma$ )	10.00
Standardized effect (Es)	0.20
Sample Size (N)	25.00
Type I error rate ( $\alpha$ )	0.05
Critical Value t	2.06
Power	0.16

Source: author’s own elaboration.

It is easily discernible that the calculated power 0.16 for a 7-element sample has a very low effectiveness of rejecting results encumbered with the error greater than the assumed value of 2. In order to examine the possibility of increasing the power of a test, one can use the software to generate charts showing the relations between the power of a test and the number of N responses (Figure 2).

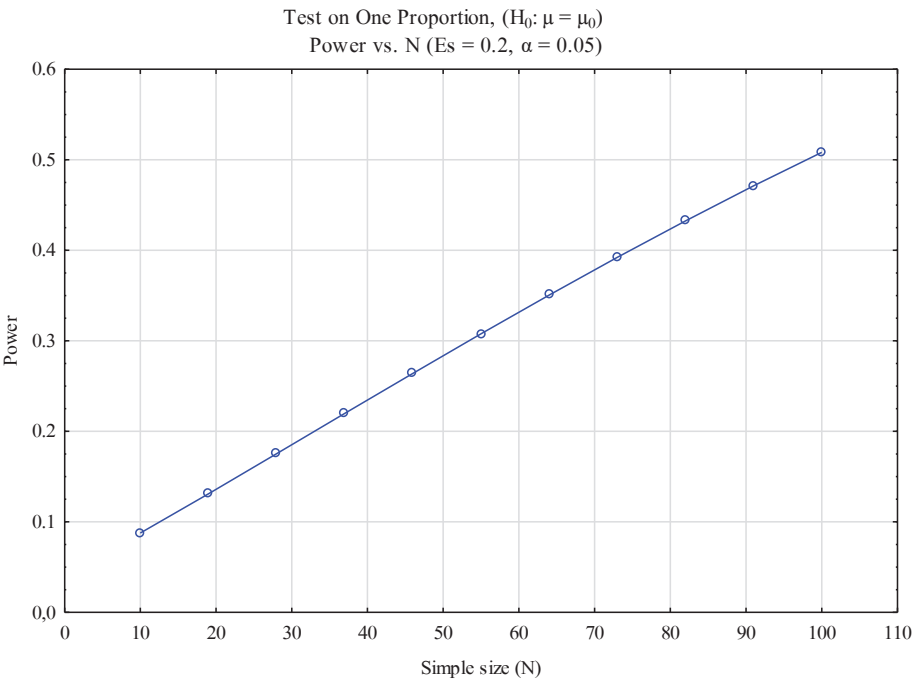


Figure 2. Statistical power as dependent on the sample size

Source: author’s own elaboration.

As Figure 2 shows, it is possible to discern that the number of responses influences the significance level. If we assume that the significance level should be  $\geq 0.8$ , the size of the sample should equal 150 (if we want to achieve statistical significance). Because this value is increasingly objectionable, and because the present research is qualitative in nature,  $N = 25$  can be assumed to be sufficient with the sample size on the level of 0.13. Accepting E. Aranowska and J. Rytel's (2000) assumptions, further calculations were made assuming the significance level on  $\alpha = 0.065$ .

#### 4. Trust measurement results

The correlation matrix (Table 2) between particular determinants will allow to select dependent variables and conduct a further factor analysis for the chosen indices.

Accumulated correlation coefficient was used when creating the matrix. Table 2 clarifies that at the significance level  $p \leq 0.065$  there is a considerable correlation between the following:

1. Personal experience with the vendor as a factor in choosing the same vendor; the payment as well as satisfaction with the fulfillment of the order (0.75) – the elements of knowledge and experience of e-customer.
2. Personal experience with the vendor as a factor in choosing the same vendor and satisfaction with the purchase (0.76) – experience.
3. Fast delivery and satisfaction with the purchase (0.80) – knowledge and experience.
4. Experience of making a complaint (vendor's reaction) and an easy return of goods (0.79) – experience.
5. Customer-vendor relationship stability, a fast delivery, and a possibility of monitoring the product delivery from the very moment of the registration of the purchase (0.9) – knowledge and experience.
6. Satisfaction with the purchase and customer-vendor relationship stability (0.76) – experience.

The data have a qualitative character thus the impact of particular variables can make interpretation difficult. The higher the correlation coefficient, the more closely the data are correlated. The correlation matrix was used for further examination of consumer trust.

Table 2. Correlation matrix

	Average	Standard Error	Availability of the person providing information about the products or services offered by an e-commerce company	The payment and fulfillment of the order was satisfying to previous customers	One's own experience with the vendor as an element of placing a repeat order	Comparability of prices interpreted as a relative attractiveness, safety, and economy	Fast delivery and a possibility of monitoring the product delivery from the moment of the registration of the purchase	Easy return of goods failing to meet a customer's expectations	Experience of making a complaint on the Internet – the behavior of the vendor	Satisfaction with the purchase	Stability in the customer-vendor relationship contributes to doing shopping online
Availability of the person providing information about the products or services offered by an e-commerce company	3.00	1.1547	1	-0.27	-0.28	0.54	-0.3852	-0.5916	-0.4472	-0.1909	0.405
The payment and fulfillment of the order was satisfying to previous customers	0.5345	0.5345	-0.27	1	<b>0.75</b>	0.1667	-0.3492	0.5477	0.483	0.4714	0.4583
One's own experience with the vendor as an element of placing a repeat order	4.5714	0.5345	-0.28	<b>0.75</b>	1	0.4167	-0.4657	0.4108	-0.00	<b>0.766</b>	0.7083
Comparability of prices interpreted as a relative attractiveness, safety, and economy	4.5714	0.5346	0.54	0.1667	0.4167	1	-0.4658	-0.5477	-0.7246	0.3536	0.7084
Fast delivery and a possibility of monitoring the product delivery from the moment of the registration of the purchase	18.5714	36.3495	-0.3852	-0.3492	-0.4658	-0.4658	1	-0.196	-0.0035	<b>-0.7469</b>	<b>-0.8817</b>
Easy return of goods failing to meet a customer's expectations	3.4286	0.9759	-0.5916	0.5477	0.4108	-0.5477	-0.196	1	<b>0.7937</b>	0.4841	0.9129
Experience of making a complaint on the Internet – the behavior of the vendor	3.00	1.291	-0.4472	0.483	-0.00	-0.7246	-0.0035	<b>0.7937</b>	1	0.00	-0.2415
Satisfaction with the purchase.	4.2857	0.7559	-0.1909	0.4714	<b>0.766</b>	0.3536	<b>-0.7469</b>	0.4841	0.00	1	<b>0.766</b>
Stability in the customer-vendor relationship contributes to doing shopping online	4.1429	1.069	0.405	0.4583	0.7083	0.7084	<b>-0.8817</b>	0.9129	-0.2415	0.766	1

Source: author's own elaboration.



## 5. Purchase satisfaction as an e-customer's experience impacting on their trust

All the research variables have the nature of latent variables. By applying the correlation matrix, it is possible to examine selected variables and determine their impact on consumer trust. Purchase satisfaction is closely correlated with three variables; accordingly, it seems legitimate to examine this factor in relation to the amount of online shopping expenditures (Figure 3). For the purposes of this research, the Author applied “Generalized Linear Models” – one-way analysis of variance.

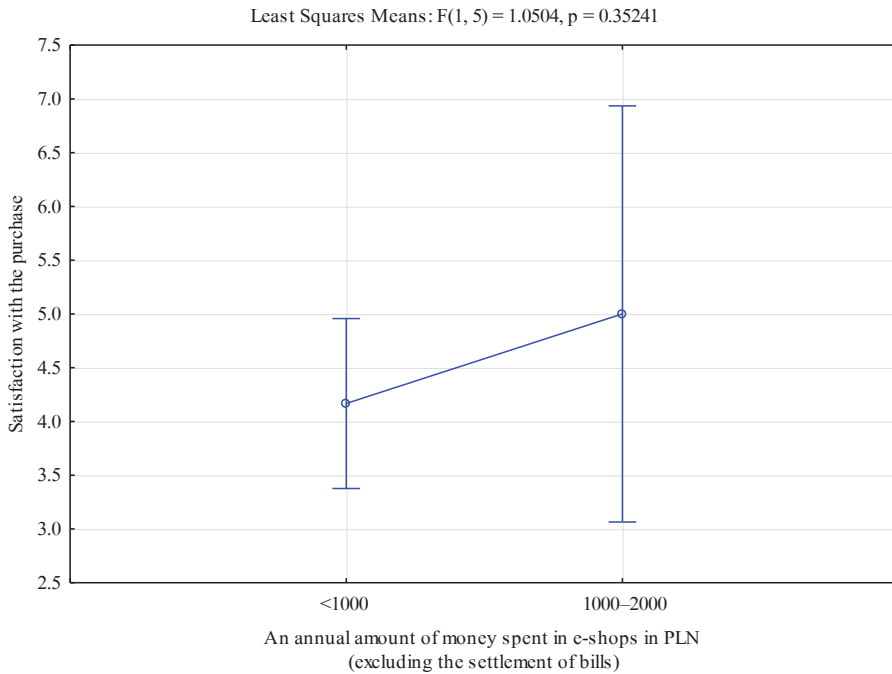


Figure 3. The impact of purchase satisfaction on the amount of expenditures.

Source: author's own elaboration.

Purchase satisfaction is closely correlated with the amount of expenditures (with higher amounts of expenditures contributing to greater confidence intervals), which can mean that together with the amount of expenditures other factors than satisfaction start to impact on the purchase decision to a larger extent. However, the average impact is greater, which means that the determinant of satisfaction influences the amount of online shopping expenditures more considerably.

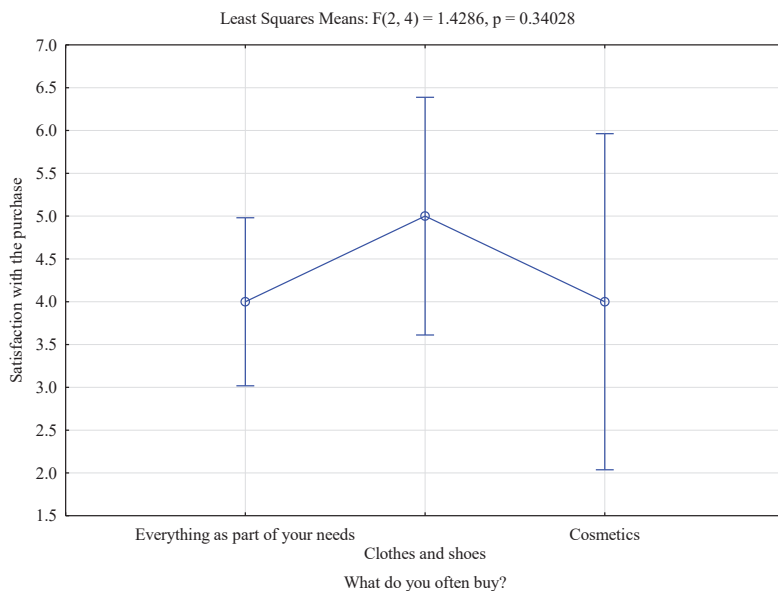


Figure 4. Purchase satisfaction and the kind of purchase

Source: author's own elaboration.

Figure 4 presents purchase satisfaction as dependent on the kind of purchase. The greatest confidence interval occurs with the purchase of cosmetics. Satisfaction with e-shopping is of lesser importance if the customer knows the brand that they opt for. If one takes into consideration a fact that consumers have trust in the brand of a product (cosmetic), a decision to choose a specific distribution channel is dependent on other factors. Accordingly, a considerable confidence interval may be related to building up trust in a distribution channel, and in the case of e-market in the credibility, reliability, and honesty of the e-commerce vendor. If customers buy clothes and shoes, their satisfaction is significant on the level of 5 points. It seems legitimate to assert that together with higher trust in a certain company (brand), the importance of the distribution channel is smaller or other factors decide about it (e.g. lower prices or discounts).

## 6. Knowledge about e-commerce vendors shared among customers and consumer trust

In the present survey, the Author also took into consideration the experience of previous e-customers and its influence on purchase decisions. Knowledge about e-commerce vendors and sharing it has a positive influence on building up trust in a company as well as on the distribution

channel. Figure 5 illustrates the correlation between the satisfaction of other customers of a given e-commerce vendor and the amount of expenditures.

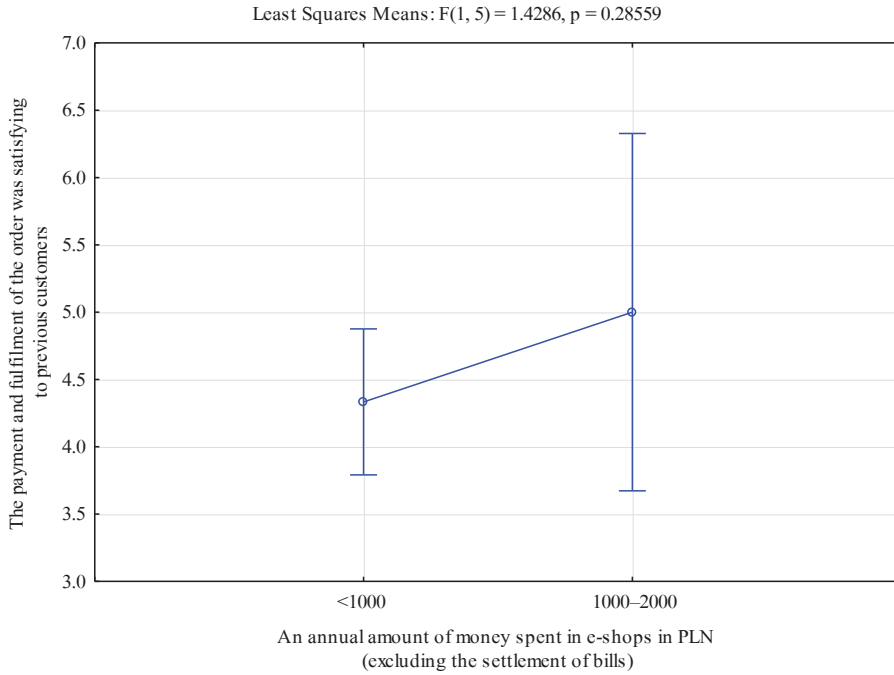


Figure 5. The payment and fulfillment of the order were satisfying to previous e-customers and the amount of expenditures

Source: author's own elaboration.

The amount of expenditures is also related to the satisfaction of other e-customers. Also in this case, the confidence interval distribution is greater if the amount of expenditures is higher and the purchase satisfaction increases (by 0.6 point) together with higher expenditures. The influence of other customers' experience on the amount of expenditures is on the same level as one's own experience (5 points), yet the confidence interval is lower (from 3.7 to 6.4). This means that the respondents were more unanimous as to the impact of other people's experience on their own decisions.

E-customers' experience and satisfaction with shopping are an important determinant if the purchase concerns clothes, shoes, and other goods (on the level of 4.5 point). Nevertheless, a decision to buy cosmetics online was influenced to a lesser degree by other customers' experience, even if respondents were not unanimous (the greatest confidence interval).

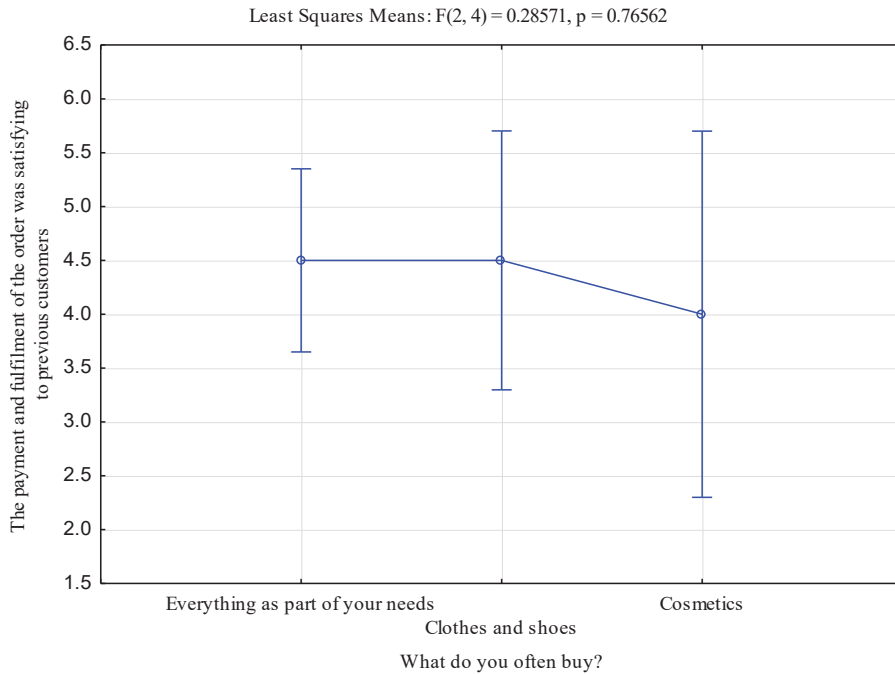


Figure 6. The payment and fulfillment of order was satisfying for previous customers and the kind of purchase

Source: author's own elaboration.

## Conclusions

The use of latent variable indices in the present research on consumer trust in online shopping (with knowledge and experience constituting consumers' attributes) has led to selecting factors which impact on the kind of purchase and the amount of expenditures. If satisfaction with the purchase is closely correlated with customers' loyalty (their own experience is a reason for choosing the same vendor again and the customer-vendor relationship stability) and with knowledge (a possibility of monitoring orders), it is important to pay attention to them when building up consumers' trust in e-commerce. The present work is experimental in character and presents a selection of determinants which affect consumers' trust among young Polish Internet users who do shopping online. A relatively small sample size does not allow the author to draw some more general conclusions. Future research can attempt to increase the sample size and diversify the age groups. In addition, it would be advisable to pay a closer attention to consumer trust in selling services by means of e-commerce.

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## References

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- Aranowska, E., Rytel, J. (2000). Nowe ujęcie problematyki mocy testów statystycznych. *Przegląd Psychologiczny*, 1 (43), 29–38.
- Bassanini, A., Scarpetta, S. (2002). Growth, technological change, and ICT diffusion: Recent evidence from OECD countries. *Oxford Review Economy Policy*, 3 (18), 324–344.
- Cohen, J. (1965). Some statistical issues in psychological research. In: B.B. Wolman (ed.), *Handbook of clinical psychology* (pp. 92–121). New York: Academic Press.
- Daveri, F. (2002). The new economy in Europe. *Oxford Review Economy Policy*, 3 (18), 345–362.
- European Commission (2015). Consumer Conditions Scoreboard, Consumers at home in the Single Market.
- Gemius (2017). Retrieved from: <https://www.gemius.pl/wszystkie-artykuly-aktualnosci/najnowsze-dane-o-polskim-e-commerce-juz-dostepne.html> (8.12.2017).
- Hallikainen, H., Laukkanen, T. (2018). National culture and consumer trust in e-commerce, *International Journal of Information Management*, 38, 97–106.
- Hofstede, G. (2011). *Kultury i Organizacje: zaprogramowanie umysłu*. Warszawa: PWE.
- Okoli, C., Mbarika, V.W., McCoy, A. (2010). The effects of infrastructure and policy on e-business in Latin America and SubSaharan Africa. *Europe Journal Information System*, 1 (19), 5–20.
- Oliveira, T., Alhinho, M., Rita, P., Dhillon, G. (2017). Modelling and testing consumer trust dimensions in e-commerce. *Computers in Human Behavior*, 71, 153–164.
- Parente, S.L., Prescott, E.C. (1994). Barriers to technology adoption and development. *Journal Politic Economy*, 2 (102), 298–321.
- Pohjola, M. (2003). The adoption and diffusion of ICT across countries: patterns and determinants. In: D.C. Jones (ed.), *The new economy handbook*. New York: Elsevier.
- Teo, T.S.H., Liu, J. (2007). Consumer trust in e-commerce in the United States, Singapore and China. *Omega – The International Journal of Management Science*, 35, 22–38.
- Zeira, J. (1998). Workers, machines, and economic growth. *Quarto Journal Economy*, 4 (13), 1091–1117.