

## Influence of service quality on customer satisfaction in Serbian logistics practice

### Uticaj kvaliteta usluge na zadovoljstvo kupaca u logističkoj praksi Srbije

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#### Abstract

*Starting from the findings of other authors that logistic service quality indeed affects customer satisfaction, the author of this paper wanted to examine whether this relation existed in the context of Serbian logistics practice. The research was conducted in October 2021 on a sample of 234 respondents who used the services of shipping companies from Serbia. Send questionnaires consisted of three general questions about demographic variables and sixteen closed-ended questions about the perceived service quality based on the dimensions of the SERVPERF model. The researchers assessed the correlation between variables by regression analysis. The results of the research confirm a significant positive correlation between the logistic service quality and customer satisfaction. Responsibility has been shown to have the greatest impact on customer satisfaction, while other characteristics of service quality - reliability and tangibles show a medium, and assurance and empathy almost insignificant positive correlation with customer satisfaction.*

**Keywords:** logistic service quality, SERVPERF model, customer satisfaction, service quality dimensions

#### Sažetak

*Polazeći od nalaza drugih autora da kvalitet logističke usluge u velikoj meri utiče na zadovoljstvo korisnika, autori ovog rada su želeli da ispituju da li ovaj odnos postoji u kontekstu srpske logističke prakse. Istraživanje je sprovedeno u oktobru 2021. godine na prigodnom uzorku od 234 ispitanika koji su koristili usluge špediterskih preduzeća iz Srbije. Poslati upitnici su se sastojali od tri opšta pitanja o demografskim varijablama i šesnaest pitanja zatvorenog tipa o percipiranom kvalitetu usluge na osnovu dimenzija SERVPERF modela. Korelacija između varijabli ispitivana je primenom regresione analize. Rezultati istraživanja potvrđuju značajnu pozitivnu korelaciju između kvaliteta logističke usluge i zadovoljstva korisnika. Pokazalo se da najveći uticaj na zadovoljstvo korisnika ostvaruje odgovornost, dok ostale karakteristike kvaliteta usluge – pouzdanost i opipljivost pokazuju srednju, a sigurnost i empatija gotovo beznačajnu pozitivnu korelaciju sa zadovoljstvom korisnika.*

**Ključne reči:** kvalitet logističke usluge, SERVPERF model, zadovoljstvo korisnika, dimenzije kvaliteta usluge

## 1. Introduction

Due to the constant increase in competition in the service sector, the question of the organizations ability to understand the customers' needs and ensure their satisfaction is becoming increasingly important. If customers are the most important business part of any service organization, then it is important to keep in mind that the service sector activities must be oriented towards customers. According to the numerous authors (Liu & Xie, 2013; Xie et al., 2011; Rahman, 2008; Tapiero &

Kogan, 2007; Hays & Hill, 2006) the services quality is the basis for the functioning of the service sector, that is, one of the most important success guarantors of the logistics business (Chen et al., 2009, Huang & Huang, 2012) which is closely related to meeting the customers' needs.

Organizations are increasingly recognizing that the services quality is an important strategy for success and survival in today's competitive economic environment. From the available literature it becomes obvious that the

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providing of high services quality enables the organization greater competitiveness, productivity and profitability, increases cash flow and shareholder value (Bateson & Hoffman, 2011; Kelkar, 2010; Kersten & Koch, 2010; Talib & Rahman, 2010; von Freymann & Cuffe, 2010). The advantages of high-quality services also go beyond economic indicators and have a positive social outcome, because they improve the life of communities' quality (Lee et al., 2007). Scientists believe that meeting customer expectations about service quality affects business performance and encourages their satisfaction and loyalty (Huang & Huang, 2012; Jayawardhena, 2010; Juga et al., 2010; Kilibarda et al., 2012). This paper focuses on examining the predictive role of the logistics services quality on customer satisfaction in Serbia. The research aim is to determine the extent perceived logistics services quality affect the level of customer satisfaction.

## 2. Theory and Hypotheses

From a wide range of literature on service quality and customer satisfaction, it can be concluded that these are conceptually different but closely related constructs (Parasuraman et al., 1985, 1994; Dabholkar, 1995; Shemwell et al., 1998). For example, Rust and Oliver (1994, p. 73) stated that: "Overall customer satisfaction with a particular service provider and perceived service quality are undoubtedly interrelated and, in many cases, highly correlated". At the same time, numerous studies have offered evidence supporting a positive relationship between customer satisfaction and service quality (Yee et al., 2011), despite discussions of their cause-and-effect relationship in the sense that service quality leads to satisfaction (McDougall & Levesque, 2000; Negi, 2009), i.e., customer satisfaction contributes to the services quality (Cronin & Taylor, 1992). Most research to date on determining the relationship between the services quality and customer satisfaction indicates that it is significant and positive, that is the services quality is a predictor of customer satisfaction. Therefore, it can be assumed that the services quality leads to customer satisfaction. In other words, both constructs are independent but closely related, which implies that the increase of one is likely to lead to the increase of the other (Sureshchandar et al., 2021).

The results of numerous studies confirm the previously presented thesis. Thus, for example, in the research of the impact of service quality on customer satisfaction and loyalty (Fida et al., 2020) it was confirmed that three important factors (service quality, customer satisfaction and customer loyalty) are significantly interrelated, emphasizing that increasing the service quality encourages increasing the degree of customer satisfaction and loyalty. Similarly, the results of a similar study confirm that the organizations' ability to properly implement quality dimensions in service delivery increases customer satisfaction and loyalty (Ismail & Yunan, 2016). Many authors (Mai & Kong, 2021; Mai et al., 2021) proved that the service quality has a significant positive impact on customer satisfaction, i.e., that the service quality is a predictor of customer satisfaction. The effect magnitude of the relationship between service quality and customer satisfaction is significantly large.

Examining the impact of logistics service quality on customer satisfaction revealed that service quality has a significant positive impact on customer satisfaction, which implies that customer satisfaction is directly related to service quality dimensions (Li et al., 2019). These findings are in line with the research results conducted by Kilibarda and Andrejić (2012) stating that the logistics service quality has a significant relationship with customer satisfaction. The same conclusion is drawn by the authors (Politis et al., 2014) who point to a significant relationship between logistics, service quality and customer critical action.

The results of impact of the logistics services quality on customer satisfaction in order to retain them (Nugroho et al., 2020), show that the good logistics service ability will make customers satisfied and customer satisfaction increase. Satisfied customers will not hesitate to buy the organization services again. The results of the next study showed that these two constructs are indeed independent, but are closely related, which implies that the increase of one is likely to lead to the increase of the other (Sureshchandar et al., 2021). Based on the above results, it is possible to set the following hypotheses:

H<sub>1</sub> There is a significant positive correlation between the logistics services quality and the customers satisfaction.

H<sub>2</sub> The logistics services quality is a significant predictor of customer satisfaction.

In identifying the impact of the logistics services quality dimensions on the degree of customer satisfaction, the previous research results show different results. In identifying factors that affect the customer satisfaction, the authors (Nguyen et al., 2019) prove that empathy has the greatest impact on customer satisfaction, which is consistent with their psychology when deciding to perform transaction. The results of the second study also reveal the predominance and positive magnitude of the empathy effect on customers satisfaction (Slack et al., 2020). Thus, Arslan and colleagues (Arslan et al., 2014) examining the relationship between service quality and customer satisfaction concluded that reliability and empathy affect customer satisfaction. At the same time, by using the SERVQUAL model, research was conducted to examine the impact of reliability, responsiveness, assurance, empathy and tangibles on customer satisfaction. Regression analysis that showed that empathy is a significant predictor of customer satisfaction (Vencataya et al., 2019).

Similarly, research findings (Budiarta & Fachira, 2017) show that only three sub-dimensions of the SERVQUAL model play a significant role in customer satisfaction, namely tangibles, assurance and empathy. Identical, the results of the other two studies confirm that the service quality dimensions - tangibles, assurance and empathy show statistically significant relationships with customer satisfaction (Eresia-Eke et al., 2020), i.e., that the main service quality dimensions affect customer satisfaction are empathy, tangibles and reliability, while responsiveness and assurance do not affect satisfaction (Dharmadasa & Gunawardane, 2017). Based on the above results, it is possible to set the following hypotheses:

H<sub>3</sub> Empathy, tangibles and reliability have the greatest impact on customer satisfaction.

### 3. Methodology

For the purposes of empirical research on the customer satisfaction with the logistics services quality, a test method was used. Data were collected using a questionnaire. The survey questionnaire includes 19 questions that are divided into two parts. The first part of the questionnaire includes 3 questions related to the respondent's socio-demographic characteristics (gender, age, level of education). The second part of questionnaire refers to the perceived service quality based on the SERVPERF model service quality (assurance, responsiveness, reliability, empathy and tangibles) (Cronin & Taylor, 1992).

According to model, the service quality is assessed only through the customers perception without the assessment in the customer expectations. Also, in this part of the questionnaire, respondents were asked about the satisfaction with the logistics services quality. When asked about the satisfaction, the respondents gave answers with the help of Likert's five-point scale (1 = I am completely dissatisfied, 5 = I am completely satisfied). The survey was conducted online, by sending a questionnaire to the 260 email addresses of customers who have used the services of shipping companies from Serbia in recent years. The researcher explained to the respondents the research goal and purpose and gave instructions on how to fill in the questionnaire. 234 completed questionnaire was forwarded to the researcher while ensuring the respondents anonymity who participated in the research. The survey was conducted in October 2021. Significantly more women than men participated in the survey on the satisfaction with the logistics services quality (73.1% women and 26.9% men). Regarding the age structure of the respondents who completed the survey, 70.9% of respondents are aged 30 to 45 years, followed by respondents over 45 years of age (23.5%) and finally respondents younger than 30 years of age. There are only 13 in the sample, which represents 5.6% of the total number. When it comes to the education level, slightly less than half of respondents have completed high school (40.6%), 45.7% are respondents with a university degree, while 13.7% of respondents have completed college.

### 4. Results

A correlation method was used to examine the relationship between service quality and customer satisfaction. The results of descriptive statistics indicate a moderate level of customer satisfaction (M=3.92; SD=0.53), a moderate level of satisfaction with logistics services quality (M=3.92; SD=0.52).

**Table 1.** Results of descriptive statistics

	Mean	Std. Deviation
Customer satisfaction	3.92	0.53
Logistics services quality	3.37	0.52

Source: Authors research

Pearson's correlation was applied in order to examine the relations among customer satisfaction and logistics services quality. Table 2 presents the results. In accordance with the Pearson's correlation values, we notice that the variables of the logistics services quality and customer satisfaction are in a statistically very significant positive correlation ( $r = 0.591$ , sig. = 0.00). In other words, the increase in quality leads to an increase in the degree of customer satisfaction with the delivered logistics service, which confirms hypothesis H1.

**Table 2.** Results of correlations

	CS	LSQ
Customer satisfaction (CS)	1	0.59
Logistics services quality (LSQ)	0.59	1

Source: Authors research

The multiple regression method was used to examine the predictive role of service quality to customer satisfaction. The results are presented in the Table 3. In addition to multicollinearity, preliminary analysis examined the assumptions of normality, linearity, homoscedasticity, and the presence of multivariate extreme values. No violation of the assumptions for the use of multiple regression was observed.

**Table 3.** Results of multiple regression

	Customer satisfaction				
	B	Std. Error	Beta ( $\beta$ )	t	Sig.
Logistics services quality	0.60	0.05	0.591	11.16	0.000

Source: Authors research

Results of multiple regression show that the logistics services quality is a significant predictor of customer satisfaction (ANOVA sig. = 0.000,  $p < 0.0005$ ) which explains 59.1% of the variance of customer satisfaction. The logistics services quality greatly contributes to explaining customer satisfaction in the entire sample ( $\beta = 0.591$ ,  $p = 0.000$ ), i.e., provides a unique and statistically significant contribution to the prediction of the results of measuring customer satisfaction.

**Table 4.** Results of multiple regression

	Customer satisfaction				
	B	Std. Error	Beta ( $\beta$ )	t	Sig.
Age	0.082	0.05	0.08	1.48	0.14
Gender	-0.11	0.07	-0.09	-1.71	0.09
Education	-0.01	0.03	-0.03	-0.53	0.59
Logistics services quality	0.63	0.06	0.61	11.37	0.00

Source: Authors research

In order to test the accuracy of hypothesis H2, which assumes that the logistics services quality can predict a significant part of the variance in customer satisfaction (removing the influence of socio-demographic variables), the technique of hierarchical multiple regression was applied (Table 4).

In the first step, the variables gender, age and education were entered, which explained 9% of the variance in customer satisfaction. After entering the logistics services quality scale in the second step, the model as a whole explained 60.5% of the total variance  $F(5, 242) = 33.12$ ,  $p < 0.00$ . The logistics services quality explained an additional 35.5% variance in customer satisfaction, after removing the influences of gender, age and education;  $r^2$  has changed for  $= 0.36$ ,  $F$  has changed for  $(2, 242) = 166.87$ ,  $p < 0.00$ . In the final model, the logistics services quality was statistically a significant measure of customer satisfaction ( $\beta = 0.61$ ,  $p < 0.00$ ). In accordance with the obtained results, it can be concluded that high logistics services quality significantly contributes to customer satisfaction, which fully confirms the H2 hypothesis.

In the continuation of the paper, the relationship between the five dimensions of the logistics services quality (Responsiveness, Reliability, Assurance, Empathy, Tangibles) and customer satisfaction is examined. For the analysis, the standard regression analysis on the whole sample was applied. The results are presented in next table.

**Table 5.** Results of correlations

	CS	RS	RL	AS	EM	TN
CS	1					
RS	0.51**	1				
RL	0.44**	0.60**	1			
AS	0.39**	0.44**	0.69**	1		
EM	0.35**	0.22**	0.39**	0.39**	1	
TN	0.42**	0.28**	0.34**	0.33**	0.17**	1

CS - Customer satisfaction; RS - Responsiveness; RL - Reliability; AS - Assurance; EM - Empathy; TN - Tangibles

\*\* Correlation is significant at the 0.01 level (2-tailed)

Source: Authors research

In accordance with the values of Pearson's correlation coefficient, it can be noticed that only the variable of responsiveness is in a statistically very significant positive correlation with customer satisfaction. ( $r = 0.51$ ,  $\text{sig.} = 0.00$ ). Other services quality dimensions show a medium, i.e., less significant positive correlation with customer satisfaction. Moreover, although all services quality dimensions are positively correlated with customer satisfaction, only the responsiveness significantly contributes to increasing the customer satisfaction, thus completely rejecting the hypothesis H3.

**Table 6.** Results of multiple regression

	Customer satisfaction				
	B	Std. Error	Beta ( $\beta$ )	t	Sig.
Responsiveness	0.32	0.06	0.357	5.49	0.00
Reliability	0.00	0.06	0.007	0.09	0.93
Assurance	0.06	0.06	0.080	1.08	0.28
Empathy	0.12	0.04	0.195	3.43	0.00
Tangibles	0.17	0.04	0.255	4.59	0.00

Source: Authors research

The results of multiple regression presented in Table 6 also indicate that responsiveness in relation to other services quality dimensions is a significant predictor of customer satisfaction ( $\text{sig.} = 0.000$ ,  $p < 0.0005$ ) which

explains 35.7% of the variance of customer satisfaction. Responsiveness greatly contributes to explaining customer satisfaction across the sample ( $\beta = 0.357$ ,  $p = 0.00$ ), that is, it provides a unique and statistically significant contribution to the prediction of the results of measuring customer satisfaction.

## 5. Discussion and conclusion

As seen in the previous section, the first hypothesized relation is completely accepted, logistics services quality has a statistically significant direct positive influence on customer satisfaction. These findings are in line with some previous findings in the literature that logistics services quality show a significant influence on customer satisfaction (e.g., Kilibarda et al., 2012; Nugroho et al., 2020; Mai et al., 2021). Also, the findings show that the logistics services quality is a significant predictor that explains 59.1 percent of the variance of customer satisfaction, or 60.5 percent after removing the influence of socio-demographic variables. The logistics services quality can therefore be identified as a significant predictor of customer satisfaction. These findings are consistent with some previous findings in the literature that service quality is a precursor to customer satisfaction. (Cronin & Taylor, 1992; Caceres & Paparoidamis, 2007; Gorla et al., 2010; Mai & Cuong, 2021). Therefore, it can be assumed that high quality services led to customer satisfaction.

While most studies have confirmed the significant impact of empathy, tangibles and reliability on customer satisfaction, this study has demonstrated the strongest impact of responsiveness. Other services quality dimensions - reliability and tangibles indicate a medium, while assurance and empathy less significant positive correlation with customer satisfaction. This study shows that the responsiveness (ability of service providers to support customers and provide timely service) is the most important for logistics services customer in Serbia. This finding is consistent with the study's conclusion that when customers encounter high levels of responsiveness in some service industries, then the level of satisfaction and intentional behavior will depend on how responsiveness will be a major issue in decision making (Kuruuzum & Koksall, 2010).

The presented data show the findings relevant to logistics organizations. The logistics services quality and customer satisfaction are especially important in the current business environment, as the relationship between service providers and customers is usually long-term (or at least attempts to maintain it). Therefore, one of the most important elements in the services market is the development of interaction with customers (Caceres & Paparoidamis, 2007) which is achieved by delivering services whose qualities exceed customer expectations and lead to an appropriate level of satisfaction. Any logistics organization that wants to gain a competitive advantage should focus on improving the quality of its services, in particular to ensure timely delivery and show interest in helping its customers. The research is based on the five-component service quality model (SERVPERF)

of Cronin and Taylor (1992) to assess the logistics services quality and customer satisfaction. As the services quality is measured solely on the basis of customer perception, future research could include customer expectations, but other quality factors also shape customer satisfaction (price of services, quality of customer relations, etc.).

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