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Analyzing the service quality priorities in cargo transportation before and during the Covid-19 outbreak

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ABSTRACT

The aim of this study is to find out the most critical service quality priorities in cargo transportation before the Covid-19 and during the Covid-19 outbreak by applying the Fuzzy Importance-Performance-Impact Analysis (FIPIA) method. At the same time, it is also aimed to decide the best resource allocation in cargo services and to show the differences between both periods. This is the first study using the FIPIA method in determining the service quality priorities of consumers using cargo service. A total of 723 participants responded to the questionnaire consisting of 341 participants before the Covid-19 and 382 participants during the Covid-19 period. This study also examined whether there is a relationship between the sectors most frequently used in cargo service in both periods and service quality priorities and found the differences in consumers’ sectors most frequently. According to data found in the study, the application of promotion and courteousness, and politeness of the personnel had the highest value in all service quality priorities before the Covid-19 outbreak. According to results, “evaluation of customer complaints in a short time” and “fast delivery” had the highest value in all service quality priorities after the Covid-19 outbreak. Evaluation of customer complaints in a short time and fast delivery had high importance values while performance and impact had relatively low importance, presenting a need to concentrate on these three-service qualities.

1. Introduction

In our century, in which online consumption has increased with the developments in technology, it is possible to say that the Covid-19 outbreak accelerated this increase. One of the most important actors of online consumption and cargo services will increase exponentially during the Covid-19 period in which contact and social isolation are vital and maybe in the future periods when we will have to learn how to live with the virus. Providing customer satisfaction in cargo services is very important for companies offering cargo service and the businesses that market products. When the product is not received or when it is delivered in a problematic way, consumers’ dissatisfaction or loyalty can be directed not only to the cargo service but also to the brand and the business from where the product is purchased.

Despite the traditional view that customer satisfaction will increase with the increase in service quality, the impact and importance of service quality factors should be determined. With the developments in technology, changes have occurred in the transportation sector, too. Cargo transportation (package distribution in international literature) has become a stand-alone sector by standing out in the transportation sector (Deniz and Gödekmerdan, 2011).

The aim of this study is to find out the most critical service quality priorities of consumers before and after the Covid-19 period by using the Fuzzy Importance-Performance-Impact Analysis (FIPIA) method developed by Atalay et al. (2019) to identify the best resource allocation and to show the differences between the two periods. In the IPA method, Lin and Vlachos (2018) added the impact dimension to the importance-performance dimensions in IPA method and aimed to increase the reliability and validity of the information that will help managers decide how resources will be allocated to ensure the desired customer satisfaction. By considering the impact dimension, FIPIA increases the usefulness and reliability of resource allocation decisions, decreases uncertainty, and considers the uncertainties of specific human perceptions via fuzzy logic, and eliminates the bias of decision maker’s (Atalay et al., 2019). To gain a competitive advantage, business managers need to keep customer satisfaction at the highest level. Therefore, the allocation of business resources should be directed to priority factors...
that will provide satisfaction. The most widely used method by managers to decide is IPA (Azzopardi and Nash, 2013). This useful and simple method has several shortcomings for reducing usefulness and reliability in resource allocation (Lin and Vlachos, 2015). These shortcomings are construct validity of importance dimension, reliability of performance dimension, measurement errors, lack of control, discriminating thresholds of IPA quadrants, and the relationships between performance and importance qualifications (Lin and Vlachos, 2018). On the other hand, FPIA is a novel hybrid method used to determine the highest service quality priorities in the sector and to optimize resource allocation accordingly (Atalay et al., 2019).

The present study is the first study using the FPIA method to determine the service quality priorities of consumers who use cargo services. The study also examines whether the association between the sectors consumers used cargo services most frequently and the differences in the sectors consumers used most frequently before the Covid-19 and Covid-19 by using SPSS. In the first part of the survey used in the study, there are questions about the cargo companies the participants used and the sectors they frequently used cargo services for (food, cosmetics/personal care, small household appliances, ready-made clothing/shoe, technological products, household appliances, furniture, stationery/hobby supplies, cleaning products, medication/health, other). The second and third parts include opinions of the participants about the importance and performance levels of 20 service quality features. The fourth part provides information about the participants’ demographic characteristics.

In the following sections, the service quality concept, factors, and attributes are discussed in cargo transportation. Next, the FPIA method is outlined, and a field study conducted by using FPIA and statistical analysis is used to examine the responses of consumers who use cargo services. The final section consists of discussing findings, conclusion, limitations, and recommendations for future studies.

2. Literature review

Cargo transportation, which has disconnected from the logistic sector and becomes a sector, has become a part of the service sector. In this context, businesses need to ensure customer satisfaction to establish long-term relationships with their customers (Belás and Gabcová, 2014). Service quality has a great significance for customer satisfaction in cargo services. As a matter of fact, the importance of cargo services increases as a result of the outbreak and returned to its previous level with the return period of April 2020. The present study is the first study using the FPIA method to optimize cargo services prior to normal; however, cargo companies such as DHL, UPS, and FedEx tried to manage this environment causes a decrease in consumption (Tekin, 2020). The aim of the present study is to measure the satisfaction levels of customers who receive cargo services and to show how satisfaction criteria differ according to shopping sectors. However, since the Covid-19 period started during the period, the study was carried out, finding out differences before and during Covid-19 was added to these aims. Therefore, the objective is to determine whether the characteristics customers cared for and evaluated performance while receiving cargo services before the Covid-19 differed during Covid-19.

Outbreak periods create a sense of insecurity in consumers, cause uncertainty to occur; during these periods, unemployment increases, and this environment causes a decrease in consumption (Tekin, 2020). Therefore, consumers, businesses, and a large number of sectors are influenced by the outbreak period. Times of crisis bring out new trends in consumer behaviors (Mehta et al., 2020). Epidemic diseases (COVID-19) cause consumers to develop self-protective behaviors (Mehrola et al., 2020). During the Covid-19 outbreak, it can be said that there occurred a decrease in the airline, public transportation, and restaurant spending.

In contrast, an increase in eating and retail expenditures due to isolation and sectors such as home delivery services created a new demand environment (Baker et al., 2020). It was found that the products most frequently ordered during this period were hygiene and sports products (Kayıkçıoğlu and Teker, 2020). Online shopping was also found to increase health and food products (Önder, 2020). During this period, various businesses providing cargo service had to work slower; however, cargo companies such as DHL, UPS, and FedEx tried to manage this process by carrying more than their standard packages of up to 33 kg (Gruenwald, 2020).

The fact that Covid-19 disease is transmitted through consumers’ contact with each other, and closeness of social distance may cause online shopping to be preferred more. The use of cargo services has increased (Cho, 2021; Turunç and Yetkin, 2020). Although online shopping has increased, the businesses providing cargo services cannot satisfy consumers sufficiently (Atkins, 2020). For example, a negative relationship was found between cargo tracking and consumers’ feelings of trust during the Covid-19 outbreak. It has a positive transportation process increased confidence in this period (Parlakpılcı et al., 2020). The number of cargoes transported in Turkey in 2020 was three-fold compared with 2019 (Kayıkçıoğlu and Teker, 2020). It was also found that consumers were satisfied with the purchasing processes in their online shopping.

In contrast, the consumers who were not satisfied were mainly dissatisfied with the problems in the transportation process (Damsma, 2020). It can be seen that online shopping, which increased due to the Covid-19 outbreak, caused a density in businesses providing cargo service, and complaints related to the delivery process (orders not arriving, not shipping the product on time) increased the most in online shopping (Güven, 2020). With the project carried out under the name Covid-19 Commerce Insight, the effects of the outbreak process on e-commerce were investigated in the European and world countries (Erdoğan, 2020). According to the data obtained from this project, it is seen that retail consumption was revived in the world through e-commerce during the period of April–May 2020, when the number of cases was the highest as a result of the outbreak and returned to its previous level with the return to normal; however, the data in Turkey showed that this trend in an increase during the aforementioned period became both higher and more permanent (Önder. 2020). Therefore, it can be said that the importance of cargo services increased gradually during and after the Covid-19 outbreak.

Gulc (2017) stated that today trust and delivery flexibility features were added to the features of delivery time and price. There will be an increase in technical development expectations such as modern packaging, service and service individualization in the coming years.
3. Methodology

Fuzzy importance, performance, and impact analysis were proposed by Deng (2008), considering fuzzy sets reflecting uncertainties in a more suitable manner. It is applied in different application areas such as determining the dynamics of international students (Wang and Tseng, 2011), analyzing critical features in e-learning system (Cheng et al., 2016), determining the public perception for service quality of parks (Qiao et al. 2014), choosing the critical green supply chain practices (Islam et al., 2018) and assessing the airline service quality (Atalyay et al., 2019). FPIA consists of four main steps.

In the first step, the factors are determined based on the literature review. Then the factors are assessed using interview method. In the first step, n (i = 1, . . . , n) respondents, and the number of factors is represented by (j = 1, . . . , m).

The second step, importance and performance, and impact values for cargo firms, are collected using questionnaires. Triangular fuzzy numbers are used to reflect uncertainties in a more reliable manner. Fuzzy numbers developed by Lotfi A. Zadeh (1965) is a strong instrument to manage the uncertainty of human perceptions and evaluation in making decisions process. Many real-world decisions consist of imprecisions since constraints possible actions, and goals are not identified exactly (Zadeh, 1965). Hence, the linguistic terms (LTS) are converted to the fuzzy numbers. The decision-making problems have generated fuzzy numbers in applications (Akyuz and Celik, 2015). A triangular fuzzy number A = (l, m, u) is defined where l, m, and u denote lower, medium, and upper numbers of the fuzzy (x ≤ y ≤ z). The membership function of a triangular fuzzy number can be formulated as follows.

\[ \mu_A(x) = \begin{cases} 0, & x < l \\ \frac{x - l}{(m - l)}, & l \leq x \leq m \\ \frac{u - x}{(u - m)}, & m \leq x \leq u \\ 0, & u \geq u \end{cases} \]  

Therefore, it is possible to convert the opinion of the respondents into quantitative values. While \( f_{ij} \) represents the ith respondent for jth attribute, \( R_{ij} \) is a triangular fuzzy number that is presented in Equations (2) and (3).

\[ f_{ij}^{imp} = (l_{ij}, m_{ij}, u_{ij}) \]  

\[ f_{ij}^{prof} = (l_{ij}, m_{ij}, u_{ij}) \]  

In the third step, the defuzzification procedure is applied to each factor obtained with triangular fuzzy numbers. The explanatory factor analysis is used for calculating the importance score \( f_{ij}^{imp} \). The defuzzification is applied for each of \( f_{ij}^{imp} \) values by using Eq (4)

\[ def_{ij}^{imp} = \frac{l_{ij} + 3m_{ij} + u_{ij}}{4} = f_{ij} \]  

\( f_{ij} \) is obtained for \( j = 1, . . . , m \) by using Eq (3). Explanatory factor analysis is implemented for \( f_{ij} \) values (j = 1, . . . , m) obtained for each factor. The results of the explanatory factor analysis are considered as importance scores.

Then, the performance scores are calculated by fuzzy means using Equations (5) and (6).

\[ f_{ij}^{prof} = (l_{ij}, m_{ij}, u_{ij}) \frac{\sum_{j=1}^{m} f_{ij}^{prof}}{n} = j = 1, . . . , m \]  

\[ def_{ij}^{prof} = \frac{l_{ij} + 2m_{ij} + u_{ij}}{4} = Perf_{ij}, \ j = 1, . . . , m \]  

In this step, information entropy \( E_i \) is computed for impact score using k decision-makers evaluation. In this process, decision-makers use a 1-to-5-point scale, with one least effective to 5 most effective. Initially, the scores of the decision-makers are normalized as follows:

\[ P_{ij} = \frac{X_{ij}}{\sum_{i=1}^{n} X_{ij}} \ j = 1, . . . , m \]  

Then, information entropy \( E_i \) is computed using Equations (8) and (9)

\[ E_i = \frac{1}{\ln(m)} \sum_{j=1}^{m} (P_{ij} \ln P_{ij}) \ j = 1, . . . , m \]

\[ Impact_j = \frac{E_i}{\sum_{j=1}^{m} E_i} j = 1, . . . , m \]

At the final step, the IPA diagram is figured with the X-axis presenting importance and the Y-axis presenting performance scores.

Within the scope of the study, Kurtosis and Skewness values were used to examine the distribution of importance and satisfaction scale scores. Within the scope of the study, Kurtosis and Skewness coefficients calculated for importance and satisfaction scale scores were found to be within ±1.5 range. This result showed that the data met the normality distribution assumption.

Percentage-frequency analysis was used to determine the distribution of the sectors the participants used cargo service most frequently before the Covid-19 and during the Covid-19 period. One-way ANOVA was used to compare the sectors cargo sector’s importance and satisfaction scores most frequently before the Covid-19 and during Covid-19 periods. Hochberg’s GT2 multiple comparison tests were conducted to determine the source of the difference in variance analysis.

4. Results

4.1. Determination of cargo service quality priorities with FPIA

The first step in this model starts with determining the most important service quality features in cargo services. For this reason, service quality features in Cargo transportation literature were reviewed (for exp., Aguezzoul, 2014; Cernea and Buková, 2016; Atmaca and Tugut, 2015; Roslan et al., 2015). These features were presented to the executives of five cargo companies for their evaluation. These executives were chosen according to their experience and their willingness to participate in the study. They were between 35 and 50 years of age, with an educational level of undergraduate and graduate and a professional experience between 5 and 15 years, and all of them were male. Three of the executives worked as managers, one was working as assistant managers, and one was working as an expert in their company. The executives were asked whether they wanted to add or change and were asked to group the features in their lists. After these interviews, the most important features identified were studied in the focus group study. A focus group study was carried out with one moderator, three cargo company executives with experience of more than ten years, three customers who used cargo services frequently, one expert in cargo service quality, and two experts on methodology, and a consensus were reached on the features. These features are as in Table 1:

Cargo service quality survey consists of four parts. There are questions about the cargo companies the participants use and the sectors they frequently use cargo services in the first part. The second part includes opinions of the participants about the importance level of 20 service quality features. In contrast, the third part consists of evaluations about the performance of a specific cargo company on these cargo service quality features. The fourth part includes information about the participants’ age, gender, income, and educational level. Table 2 illustrates the demographic information of the participants.

In the present study, a pilot application was conducted to assess the validity of the questions and to understand whether the questions were understood correctly. In the pilot study conducted with 30 participants, 18 female and 12 males, 3 of the participants had master degree, while
the others had undergraduate degree; the participants were between 26 and 45 years of age and used cargo services at least eight times. Face-to-face and online surveys were conducted with consumers who used cargo services between December 16 and March 23, 2020. The surveys conducted face-to-face were transferred to the online medium. Since the Covid-19 period started in Turkey on March 23, 2020, the only online survey was conducted between March 23 and May 27, 2020. The study was conducted in Turkey, which connects the continents of Asia and Europe and therefore has an important geopolitical location. The surveys were online for about six months. Since the Covid-19 period caused customers to use cargo services more intensely, it was easier to reach consumers online. The participants were invited to contribute to the survey through a link. This link was also shared in various social media platforms. The participants were asked to fill in the survey. The number of face-to-face surveys and total visit number of the survey link was 3117, 1532 participants filled in the survey, eight surveys were eliminated since they were filled in incorrectly or with missing information. Since different cargo companies evaluate service quality differently, a single cargo company was chosen for consistency and free of bias in evaluations. The cargo company chosen was Yurtiçi Cargo. Of the cargo companies in Turkey, the one with the largest fleet of vehicles, the most developed in terms of the number of branches and regional offices, the highest number of central transfers, and the highest number of employees is Yurtiçi Cargo (Duran, 2017). This cargo company provides the same service as FedEx Express, DHL Aviation, Cathay Pacific Cargo, UPS Airlines, and Korean Air Cargo, which have a say in the international arena. It was found that the number of participation of consumers using Yurtiçi Cargo company was 341 before the Covid-19 and 382 after the Covid-19.

To indicate the importance assessment of service quality, the participants were asked to respond to the question “Please rate the importance of the expressions stated below which a cargo service should have” as very unimportant (1), unimportant (2), medium (3), important (4), very important (5). The participants were asked to respond to the question “Rate your satisfaction of the cargo company you use the most based on your general cargo experience”. The triangular fuzzy number represents the linguistic term of respondent’s opinion on the importance and performance (Table 3).

The fuzzy means of each factor are calculated for obtaining the performance values using Equation (5). Then the defuzzification is applied using Equation (6) for obtaining the performance values. The obtained performance values before and after the Covid-19 outbreak are presented in Table 4 and Table 5.

The importance values for each factor are calculated using the defuzzification procedure. In this step, the defuzzification is applied for all responses using Equation (4). Then, the crisp (real) numbers are used for explanatory factor analysis presented in Table 6 and Table 7 before and after the Covid-19 outbreak, respectively.

Exploratory factor analysis was applied to these data. Kaiser-Meyer-Olkin (KMO) was calculated, and the Barlett Sphericity test was applied. The results obtained showed that necessary assumptions were met for importance scores (KMO = 0.84; Barlett Sphericity (χ² (190)) = 6801.23; p < 0.001). Factor analysis was conducted in the next step. It showed that necessary assumptions were met for performance scores (KMO = 0.90; Barlett Sphericity (χ² (190)) = 7825.90; p < 0.001). Factor analysis was conducted in the next step. Factor analysis was conducted using the principal axis method, and it was observed that there were five factors with an Eigen value of higher than 1. It was found that the scale items were grouped under five factors according to the factor analysis. The factors were called flexibility, reliability, tangibles, empathy, and cost, respectively.

Cronbach’s Alpha coefficients were calculated to find out the reliability of importance and performance scale. Alpha coefficient takes a value between 0 and 1. Alpha coefficients calculated for importance scale factors were found to be between 0.80 and 0.88. Alpha coefficients calculated for performance scale factors were found to be between 0.78 and 0.91. The coefficients obtained show that the reliability of the importance scale based on internal consistency was high (Table 8 and Table 9).

A study was conducted on managers’ perceptions for evaluating the effects of the features (Lin and Vlachos, 2018). Therefore, four executives working in the Cargo company were asked to evaluate impact values to the specified features. Of these executives, two were working as managers (experience of 15–20 years, between 36 and 45 years of age and with an undergraduate degree), one was working as assistant manager (experience of 15–20 years, between 26 and 35 years of age and with an undergraduate degree) and one was working as an expert (experience of 5–10 years, between 26 and 35 years of age and with a graduate degree). The executives were asked to respond to the question “Please evaluate the impact scores of the following attributes from the least important to the most important” by scoring each service quality

| Table 1 Features of cargo service quality. |
|--------------------------------------------|
| 1. Ability to respond quickly to expectations | 2. Ability to respond to changing customer needs |
| 3. Flexibility of working hours | 4. Emergency management/ability to find solutions |
| 5. Showing individual attention (one by one) to customers | 6. Evaluation of customer complaints in a short time |
| 7. Behaving sincerely for a solution | 8. Quality service at lower prices than competitors |
| 9. Promotions | 10. Convenient payment options |
| 11. Delivery on time | 12. Quick delivery |
| 13. Delivery of the product to the correct address | 14. Delivery of the product without damage |
| 15. Problem-free return of products | 16. Kindness and politeness of the company staff |
| 17. General appearance of the company staff in terms of cleanliness and outfit | 18. Modern tools, equipment, and technology of the company |
| 19. Being able to follow the cargo in the electronic medium | 20. Number of branches/distribution network of the company |

| Table 2 Distribution of the participants by demographic features. |
|---------------------------------------------|
| Gender | Male | Female |
|--------|------|-------|
| %      |      |       |
| Age    |      |       |
| 18-25  | 150  | 20.7  |
| 26-35  | 117  | 16.2  |
| 36-45  | 201  | 27.8  |
| 46-55  | 178  | 24.6  |
| 56+   | 77   | 10.7  |
| Educational status | Primary | High school | Two-year degree | Undergraduate | Master | Doctorate |
| %      | 24 | 93 | 198 | 254 | 124 | 30 |
| How much is your monthly income? | Less than 2,021 TL | 2,021–5,000 TL | 5,001–8,000 TL | 8,001–11,000 TL | More than 11,000 TL |
| %      | 171 | 197 | 202 | 114 | 39 |
| Total  | 723 |       |       |       |       |
Table 4

| TFN (Q1) | TFN (Q2) | TFN (Q3) | TFN (Q18) | TFN (Q19) | TFN (Q20) |
|----------|----------|----------|-----------|-----------|-----------|
| 1        | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (1, 2, 3) | (1, 2, 3) |
| 2        | (1, 2, 3) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) | (4, 5, 5) |
| 3        | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) | (4, 5, 5) |
| 4        | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 5        | (1, 2, 3) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (4, 5, 5) |
| 6        | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (3, 4, 5) | (2, 3, 4) |
| 7        | (3, 4, 5) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (4, 5, 5) |
| 8        | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (3, 4, 5) | (3, 4, 5) |
| 9        | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) | (4, 5, 5) |
| 10       | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) | (4, 5, 5) |
| 11       | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (3, 4, 5) | (3, 4, 5) |
| 12       | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) | (4, 5, 5) |
| 13       | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 14       | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 15       | (2, 3, 4) | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) |
| 16       | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) |
| 17       | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) |
| 18       | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) |
| 19       | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) |
| 20       | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) |

Table 5

| TFN (Q1) | TFN (Q2) | TFN (Q3) | TFN (Q18) | TFN (Q19) | TFN (Q20) |
|----------|----------|----------|-----------|-----------|-----------|
| 1        | (4, 5, 5) | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) |
| 2        | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (4, 5, 5) |
| 3        | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (4, 5, 5) | (2, 3, 4) |
| 4        | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (2, 3, 4) | (3, 4, 5) |
| 5        | (1, 2, 3) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 6        | (1, 2, 3) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 7        | (2, 3, 4) | (1, 2, 3) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) |
| 8        | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) | (2, 3, 4) |
| 9        | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) | (2, 3, 4) |
| 10       | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) |
| 11       | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) |
| 12       | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) |
| 13       | (3, 4, 5) | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) |
| 14       | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) |
| 15       | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) |
| 16       | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (3, 4, 5) | (2, 3, 4) |
| 17       | (2, 3, 4) | (2, 3, 4) | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) |
| 18       | (3, 4, 5) | (1, 2, 3) | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) |
| 19       | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) | (1, 2, 3) | (2, 3, 4) |
| 20       | (2, 3, 4) | (3, 4, 5) | (3, 4, 5) | (1, 2, 3) | (2, 3, 4) |

feature from 1 (least) to 5 (most).

The information entropy was computed for each factor using Eq. (8) for obtaining the impact values. In this step, four experts who were executives in the cargo operation were separately asked to determine the impact values of factors before and after the Covid-19 outbreak. They used a 1-to-5-point scale for evaluating the impact scores of factors. Equations (7)–(9) were used for calculating the information entropy. It is presented in the second column of Table 10 before the Covid-19 outbreak and the second column of Table 11 after the Covid-19 outbreak.

Finally, the FIPIA diagrams were illustrated with the X-axis (performance) and the Y-axis (importance) scores. It is presented in Fig. 1 and Fig. 3 before and after the Covid-19 outbreak, respectively. The threshold values of the axes are determined by computing the importance and performance medians of the measurements separately. The threshold values of the axes were determined by computing the medians of the performance and importance for all figures.

Seven service qualities were identified as concentrated before the Covid-19 outbreak. These service qualities are dimensions of flexibility, cost, and tangibles. According to data included in Table 11 and Figs. 1 and 2, the promotion and kindness and politeness of the company staff had the highest values in all service qualities before the Covid-19 outbreak. The service quality 9 (the application of promotion) and the service quality 16 (kindness and politeness of the company staff) had high importance values, but performance and impact were relatively low, indicating a need to concentrate on these three service qualities (Figs. 1 and 2).

When the service qualities are analyzed for after the Covid-19 outbreak, while service quality 9 (the application of promotion) was also considered as concentrated after the Covid-19 outbreak, six different service qualities are also identified as concentrated after the Covid-19 outbreak. According to data included in Table 11 and Figs. 3 and 4, the service quality 6 (Evaluation of customer complaints in a short time) and service quality 12 (Quick delivery) had the highest values in all service quality after the Covid-19 outbreak. Evaluation of customer complaints in a short time and fast delivery had high importance values, but performance and impact were relatively low, indicating a need to concentrate on these three-service qualities (Figs. 3 and 4).

4.2. Service quality priorities according to sectorial differences in cargo services

The sectors the participants used cargo service most frequently
before the Covid-19 were ready-made clothing/shoe (33.4%), cosmetics (12.9%), technological products (12.9%), furniture (8.8%), and food (8.5%), respectively. The sectors the participants used cargo service most frequently during the Covid-19 outbreak were food (22.5%), cleaning products (17.3%), stationery/hobby supplies (13.1%), small household appliances (12.6%), medication (12%), and cosmetics (10.5%), respectively.

When the importance scores before the Covid-19 were compared according to the sectors cargo services were most frequently used (Table 12), it was found that flexibility, empathy, cost, reliability, and tangibles importance scores showed a significant difference according to the sectors cargo services were most frequently used for (p < 0.05). For example, according to Hochberg’s GT2 results, the participants who used cargo services more for the furniture sector were significantly higher than those who used cargo services more for cleaning products, furniture, and food sectors.

When the satisfaction scores before the Covid-19 were compared according to the sectors cargo services were most frequently used (Table 13), it was found that flexibility, empathy, reliability, tangibles, and total satisfaction scores before the Covid-19 showed a significant difference according to the sectors cargo services were most frequently used for (p < 0.05). For example, according to Hochberg’s GT2 results, flexibility satisfaction scores of the participants who used cargo services more for household appliances were significantly higher than those of the participants who used cargo services more for furniture, medication, cosmetics, small household appliances, cleaning products, and stationery/hobby supplies sectors.

When the Covid-19 period importance scores were compared according to the sectors cargo services were most frequently used (Table 14), it was found that Covid-19 period flexibility, empathy, cost, reliability, tangibles, and total importance scores showed a significant difference according to the sectors cargo services were most frequently used for (p < 0.05). For example, according to Hochberg’s GT2 results, the participants who used cargo services more for the furniture sector were significantly higher than those who used cargo services more for household appliances and cleaning products sectors.

When the Covid-19 period satisfaction scores were compared according to the sectors Cargo services were most frequently used (Table 15), it was found that Covid-19 period flexibility, empathy, cost, reliability, tangibles, and total satisfaction scores showed a significant difference according to the sectors cargo services were most frequently used for (p < 0.05). For example, according to Hochberg’s GT2 results, flexibility satisfaction scores of the participants who used cargo services more for household appliances were significantly higher than those of the participants who used cargo services more for technological products.

### 4.3. Updating data during the ongoing Covid-19 outbreak period

The data in this study were collected between December 16, 2019, and May 27, 2020. The Covid-19 outbreak is still continuing to be a problem in Turkey and the world. The dates in which the study was...
Table 7
Triangular fuzzy number (TFN) for importance and defuzzified value after the Covid-19 outbreak.

| Q1  | DefQ1- | Q2  | DefQ2- | Q3  | DefQ3- | Q18 | DefQ18 | Q19 | DefQ19 | Q20 | DefQ20 |
|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| 1   | (2, 3, 4) | 3   | (1, 2, 3) | 2   | (1, 2, 3) | 2   | ...   | (2, 3, 4) | 3   | (2, 3, 4) | 3   | (3, 4, 5) | 4   |
| 2   | (4, 5, 5) | 4.75 | (4, 5, 5) | 4.75 | (3, 4, 5) | 4   | ...   | (1, 1, 2) | 1.25 | (4, 5, 5) | 4.75 | (3, 4, 5) | 4   |
| 3   | (3, 4, 5) | 4   | (3, 4, 5) | 4   | (4, 5, 5) | 4.75 | ...   | (3, 4, 5) | 4   | (4, 5, 5) | 4.75 | (3, 4, 5) | 4   |
| 4   | (3, 4, 5) | 4   | (3, 4, 5) | 4   | (4, 5, 5) | 4.75 | ...   | (3, 4, 5) | 4   | (4, 5, 5) | 4.75 | (3, 4, 5) | 4   |

Table 8
Factor structure of importance scale.

| Items       | Factor Load | Eigen-value | Explained variance (%) | Cronbach Alpha |
|-------------|-------------|-------------|------------------------|----------------|
|             | 1 | 2 | 3 | 4 | 5 |          |              |
| Flexibility | 0.62 |          |               | 4.67 | 23.35 | 0.88    |
| Reliability | 0.80 |          |               | 4.04 | 20.18 | 0.80    |
| Tangibles   | 0.76 |          |               | 0.67 |      | 0.70    |
| Empathy     | 0.61 |          |               | 0.52 |      | 0.47    |
| Cost        | 0.1  |          |               | 0.76 |      | 0.76    |
|             | 0.8  |          |               | 2.17 | 10.86 | 0.82    |
|             | 0.8  |          |               | 6.91 |      | 0.85    |
|             | 0.8  |          |               | 6.36 |      | 0.84    |
|             | 0.8  |          |               | 0.80 |      | 0.74    |
carried out correspond to the early periods in Turkey’s outbreak. For this reason, due to the ongoing outbreak, the study aimed to find out whether there were differences in the most critical service quality priorities of the consumers providing cargo service and in the best resource allocations of businesses providing cargo service. In this direction, a controlled study was conducted approximately 11 months after the study was carried out, and the research was conducted again. 720 consumers participated in the online survey. Yurtiçi Cargo was selected again for evaluation to ensure consistency with the initial study. 280 of the participants stated that they used Yurtiçi Cargo and evaluated the service quality priority of this company and their satisfaction.

Exploratory factor analysis was conducted to analyze the construct validity of importance and performance scales. Before the factor analysis, the adequacy of sample size and suitability of the data was investigated. In this direction, Kaiser-Meyer-Olkin (KMO) coefficient was calculated, and the Bartlett Sphericity test was applied. In the results obtained, it was found that the required assumptions were met in importance scale (KMO = 0.81; Bartlett Sphericity ($\chi^2$(190)) = 3178.79; p < 0.001). Similarly, it was also found that the required assumptions were met in performance scale (KMO = 0.85; Bartlett Sphericity ($\chi^2$(190)) = 30009.90; p < 0.001).

The both scales were grouped under five factors by result of the factor analysis: reliability, empathy, cost, flexibility, and tangibles. The factor loads of the items in these factors for importance scale were found between the ranges of 0.67-0.92; 0.81-0.91; 0.81-0.89; 0.57-0.83 and 0.59-0.69, respectively. It was found that the five-factor structure of the importance scale explained 68.64% of the total variance. The factor loads of the items in these factors for performance scale were found between the ranges of 0.70-0.82; 0.75-0.81; 0.76-0.86; 0.60-0.89 and 0.72-0.80. It was found that the five-factor structure of the performance scale explained 70.07% of the total variance. Alpha coefficients calculated for scale factors were found between 0.74 and 0.92 in the importance scale and between 0.77 and 0.87 in the performance scale. The coefficients obtained showed that the internal consistency reliability of both scales was sufficient. Within the context of the study, Skewness and Kurtosis coefficients calculated for importance and performance scales were found to be within the range of ±1.5.

In line with the results obtained from the data, it was found that the
sectors which the participants most frequently used during the outbreak were food (16.4%), cleaning products (15.4%), small household appliances (11.8%), stationery/hobby supplies (1.7%), drugs (9.6%), cosmetics (9.3%) and technological products (8.9%).

When the importance scores of the participants during the outbreak period were compared according to the sectors cargo service was most frequently used for, it was found that flexibility and tangibles scores did not show a significant difference in terms of the sectors cargo services were most frequently used for ($p > 0.05$). According to Hochberg’s GT2 results, it was found that mean empathy scores of the participants who stated the sector they used cargo service most frequently as other sectors were significantly higher than the mean scores of the participants who used cargo service for technological products and stationery/hobby supplies more. It was found that the mean cost scores of the participants who used cargo services mostly for stationery/hobby supplies and furniture were significantly higher than the mean scores of the participants who used cargo service for drug, technological products, and cosmetics more. It was also found that mean cost scores of the participants who used cargo services mostly for good, ready-made clothing/shoe, cleaning products, and other sectors were significantly higher than the mean scores of the participants who used cargo service for drugs more. Mean reliability scores of the participants who used cargo services mostly for household appliances were significantly higher than the mean scores of the patients who used cargo services for cosmetics, stationery/hobby supplies, and ready-made clothing/shoe sectors more. The mean reliability scores of the participants who used cargo services mostly for furniture and other sectors were significantly higher than the mean scores of the participants who used cargo services for cosmetics and stationery/hobby supplies more. Finally, it was found that the mean importance scores of the participants who used cargo services mostly for

![Fig. 1. FPIA matrix before the Covid-19 outbreak.](image1)

![Fig. 2. Graphics of performance and impact before the Covid-19 outbreak.](image2)
furniture were significantly higher than the mean scores of the patients who used cargo services for drugs more.

When the performance scores of the participants during the outbreak period were compared according to the sectors cargo service was most frequently used for, it was found that flexibility, empathy, cost, tangibles, and total satisfaction scores did not show a significant difference according to the sectors cargo service was most frequently used for (p > 0.05).

Within the context of the study, a study was conducted again with the same four executives to evaluate the effects of resource allocation of businesses in cargo services. These executives who worked in cargo companies evaluated the impact scores of the predetermined service quality features from the least important to the most important. Information entropy was calculated for each feature to determine impact values by using FIPIA (Table 16). These values were used as the impact scores of the features.

The service qualities were also analyzed during the Covid-19 outbreak using new data. Q5 (Showing individual attention (one by one) to customers), Q8 (Quality service at lower prices than competitors), Q9 (Promotions), and Q10 (Convenient payment options) were also considered as concentrated during the Covid-19 outbreak using new data (Table 16). According to the new analyses, it is understood that the four important service qualities to be concentrated on are the same. It means that these service qualities (Q5, Q8, Q9, and Q10) have high importance and low performance. The impacts of these service qualities were relatively low.

4.4. Policy implications

In the pre-Covid-19 period, it was found that dimensions of
relatively low performance and impact scores. This result shows that politeness of the company staff and cargo service executives do not allocate sufficient time and resources to attributes of all service qualities before the Covid-19 outbreak. It was found that the sectors in which cargo service was most frequently used in the Covid-19 period were Cleaning products, Furniture, Stationery/Hobby Supplies, and Other. In the Covid-19 period, it was found that Kindness and crisis intervention strategies to protect their continuity and reliability. As a matter of fact, cargo service companies should have strong quick response to customer complaints in a short time” and “quick delivery” attributes got the highest scores of all service qualities, while they were found to have low performance and impact scores. For this reason, it can be said that executives do not allocate sufficient time and resources for these two attributes. It can be said that cargo service executives can allocate time and resources to these attributes in periods of crisis such as outbreak and that they should generate solutions for the crisis and put these into effect quickly. As a matter of fact, cargo service companies should have strong crisis intervention strategies to protect their continuity and reliability. At the same time, these companies should use limited resources effectively in an increasingly competitive environment.

In the Covid-19 period, a controlled study was carried out to determine whether there were differences in the importance and

| Sectors in which cargo service was most frequently used | Importance Before the Covid-19 |
|--------------------------------------------------------|-----------------------------|
|                                                        | Flexibility | Empathy | Cost | Reliability | Tangibles | Total |
|                                                        | N           | Mean ± Sd | Mean ± Sd | Mean ± Sd | Mean ± Sd | Mean ± Sd |
| Food                                                   | 29          | 2.97 ± 0.67 | 3.77 ± 0.82 | 3.80 ± 0.83 | 4.41 ± 0.39 | 3.47 ± 0.57 | 3.70 ± 0.45 |
| Cosmetics                                              | 44          | 3.47 ± 0.77 | 3.63 ± 0.73 | 3.62 ± 0.94 | 4.09 ± 0.66 | 3.52 ± 0.84 | 3.68 ± 0.50 |
| Small household appliances                             | 13          | 3.50 ± 0.75 | 4.00 ± 0.67 | 3.62 ± 0.78 | 4.38 ± 0.55 | 3.57 ± 0.73 | 3.83 ± 0.44 |
| Ready-made clothing/Shoe                              | 114         | 3.67 ± 0.97 | 3.73 ± 0.94 | 4.07 ± 0.82 | 4.18 ± 0.75 | 3.71 ± 0.89 | 3.88 ± 0.67 |
| Technological products                                 | 44          | 3.40 ± 1.06 | 3.73 ± 1.03 | 3.48 ± 1.00 | 4.13 ± 0.88 | 3.68 ± 0.94 | 3.71 ± 0.86 |
| Household appliances                                   | 3           | 4.17 ± 1.44 | 4.89 ± 0.19 | 5.00 ± 0.00 | 5.00 ± 0.00 | 4.93 ± 0.12 | 4.80 ± 0.35 |
| Furniture                                              | 30          | 2.77 ± 0.99 | 3.34 ± 1.13 | 2.94 ± 1.13 | 3.68 ± 0.64 | 3.89 ± 0.94 | 3.39 ± 0.66 |
| Stationery/Hobby Supplies                              | 15          | 3.77 ± 0.93 | 3.76 ± 0.81 | 3.44 ± 0.71 | 4.20 ± 0.76 | 3.60 ± 0.84 | 3.79 ± 0.61 |
| Cleaning products                                      | 10          | 2.60 ± 0.88 | 2.80 ± 1.03 | 3.17 ± 1.33 | 3.98 ± 0.74 | 3.84 ± 0.95 | 3.37 ± 0.65 |
| Medication                                             | 14          | 3.41 ± 0.48 | 3.79 ± 0.59 | 3.43 ± 0.77 | 4.23 ± 0.49 | 3.79 ± 0.66 | 3.77 ± 0.38 |
| Other                                                  | 25          | 3.41 ± 0.75 | 3.77 ± 0.74 | 3.4 ± 0.99  | 4.26 ± 0.55 | 3.52 ± 0.81 | 3.70 ± 0.53 |

F = 4.24** F = 2.23* F = 5.70** F = 2.60** F = 1.40 F = 2.72**
Table 15
Comparison of the Covid-19 period satisfaction scores among the sectors.

| Sectors in which cargo service was most frequently used | Covid-19 Period Satisfaction |
|--------------------------------------------------------|-------------------------------|
|                                                        | Flexibility | Empathy | Cost | Reliability | Tangibles | Total |
|                                                        | Mean ± Sd    | Mean ± Sd | Mean ± Sd | Mean ± Sd | Mean ± Sd  | Mean ± Sd |
| Food                                                   | 86           | 2.24 ± 1.01 | 2.58 ± 0.71 | 3.53 ± 0.82 | 3.21 ± 0.84 | 2.83 ± 1.00 | 2.88 ± 0.47 |
| Cosmetics                                              | 40           | 2.31 ± 1.03 | 2.58 ± 0.73 | 3.52 ± 0.79 | 3.10 ± 0.86 | 2.50 ± 1.03 | 2.78 ± 0.48 |
| Small household appliances                             | 48           | 2.12 ± 0.97 | 2.33 ± 0.76 | 3.44 ± 0.97 | 3.05 ± 1.04 | 2.61 ± 1.16 | 2.71 ± 0.58 |
| Ready-made clothing/Shoe                              | 12           | 2.50 ± 0.90 | 2.89 ± 0.69 | 3.83 ± 0.67 | 3.27 ± 0.92 | 2.93 ± 1.11 | 3.06 ± 0.55 |
| Technological products                                 | 7            | 1.68 ± 0.55 | 2.52 ± 1.14 | 3.48 ± 1.37 | 3.06 ± 0.91 | 1.97 ± 0.88 | 2.49 ± 0.48 |
| Household appliances                                   | 14           | 2.95 ± 0.94 | 2.74 ± 1.06 | 3.40 ± 0.97 | 2.90 ± 0.66 | 3.03 ± 0.91 | 2.99 ± 0.57 |
| Furniture                                              | 4            | 2.56 ± 1.51 | 2.5 ± 0.88  | 2.92 ± 1.64 | 3.15 ± 1.22 | 1.35 ± 0.34 | 2.45 ± 0.68 |
| Stationery/Hobby Supplies                              | 50           | 2.02 ± 0.92 | 2.79 ± 0.62 | 3.51 ± 0.91 | 3.19 ± 0.93 | 2.76 ± 1.17 | 2.84 ± 0.58 |
| Cleaning products                                      | 66           | 2.49 ± 0.96 | 2.36 ± 0.92 | 3.01 ± 1.14 | 2.94 ± 0.88 | 2.97 ± 1.18 | 2.78 ± 0.61 |
| Medication                                             | 46           | 2.07 ± 0.83 | 2.73 ± 0.7  | 3.43 ± 1.03 | 3.09 ± 0.84 | 2.69 ± 0.90 | 2.78 ± 0.49 |
| Other                                                  | 9            | 2.33 ± 0.81 | 2.22 ± 0.71 | 3.85 ± 0.56 | 3.04 ± 1.17 | 2.20 ± 0.41 | 2.69 ± 0.52 |
| Food                                                   | F = 2.11*    | F = 2.03*   | F = 1.96*   | F = 0.55    | F = 2.10*   | F = 1.24   |

Table 16
Importance, performance, and impact scores during Covid-19 outbreak.

| Importance | Performance | Impact |
|------------|-------------|--------|
| Q1         | 0.8532      | 4.2973 | 0.0500 |
| Q2         | 0.8069      | 4.2455 | 0.0499 |
| Q3         | 0.7919      | 4.2821 | 0.0500 |
| Q4         | 0.8244      | 4.3348 | 0.0501 |
| Q5         | 0.7820      | 4.3214 | 0.0499 |
| Q6         | 0.7441      | 3.6661 | 0.0501 |
| Q7         | 0.7057      | 3.4125 | 0.0499 |
| Q8         | 0.8814      | 3.5732 | 0.0499 |
| Q9         | 0.7947      | 3.4509 | 0.0498 |
| Q10        | 0.7750      | 3.8268 | 0.0500 |
| Q11        | 0.7338      | 4.0438 | 0.0501 |
| Q12        | 0.7643      | 4.1420 | 0.0501 |
| Q13        | 0.7497      | 4.1723 | 0.0501 |
| Q14        | 0.7109      | 4.0589 | 0.0501 |
| Q15        | 0.7142      | 3.9241 | 0.0499 |
| Q16        | 0.6719      | 3.9554 | 0.0499 |
| Q17        | 0.7275      | 4.5196 | 0.0501 |
| Q18        | 0.7448      | 4.1286 | 0.0501 |
| Q19        | 0.7154      | 4.4214 | 0.0501 |
| Q20        | 0.6799      | 4.3330 | 0.0501 |

performance evaluations of the consumers regarding cargo services and the impact scores of the company executives providing cargo service. This control study was carried out at the end of the process. The outbreak had been continuing for approximately a year. It can be said that this period of time is a process in which consumers and executives got more used to living with the outbreak. Therefore, it is thought that the data obtained will be effective in shedding light on the policies developed by companies in improving their services and adapting to this extraordinary process. This study is important since it presents feasible data for these purposes. In the control study carried out, it was found that consumers placed more importance on empathy and cost factors, while companies had low performance and impact scores. In the early outbreak period, consumers placed more importance on the empathy factor when compared with before outbreak. Therefore, companies should adapt to changing conditions, invest more in consumers’ factors, and focus on satisfying consumers in this direction.

During the ongoing outbreak process (approximately for a year), it was found that the sectors consumers shopped in most were food, cleaning, small household appliances, and stationery/hobby supplies, respectively. Considering that social distance and hygiene are important during the outbreak period, it is not surprising that food and cleaning products were prioritized sectors. Therefore, companies should determine policies by considering empathy and cost factors with “fast delivery”.

According to the results of the study, it was found that the factors consumers prioritized according to the sectors they used most frequently in cargo services varied and that this was also true for the pre-Covid-19 and Covid-19 period. For example, in the pre-Covid-19 period, it can be seen that cost factor was important in food, ready-made clothing, and household appliances sectors, while empathy was important in cosmetics, small household appliances, technological products, stationery, and medication/health sectors and tangibles factor was important in the cleaning sector. In the Covid-19 period, it was found that tangibles and flexibility factors were prioritized in all industries. Thus, it is thought that cargo service companies can determine campaigns according to the product content or sector preferences of their customers. For example, promotions can be made for suitable prices for consumers who shop online from the food sector. It can also be seen that the sectors consumers used cargo services frequently also differed in before the Covid-19 and Covid-19 period. These results show that companies should develop themselves to have the equipment and potential to respond to all of the changing consumer needs during periods of crisis.

5. Discussion, implications, and conclusions

In the present study, the FIPIA method was used to find out service quality priorities in cargo services. Accordingly, the aim was to show customer expectations, satisfaction levels from these expectations, resource capacity of these expectations, and their effects on resource allocation to companies providing cargo services. This study is the first study to use this method in the cargo services sector. At the same time, this study aims to show the differences between service quality priorities in pre-Covid-19 and during the Covid-19 period. In addition, it was found in the study which service quality feature participants found important in the sectors they used cargo services the most and which service quality feature they were satisfied with in before the Covid-19 and Covid-19 period. Therefore, the present study is original in terms of its studies, the methods used, and the aims.

In this study, 20 service quality attributes were defined under the factors of “flexibility, reliability, tangibles, empathy, and cost”. In the limited number of studies conducted on cargo transportation, it was found that factors such as performance on time (Spencer et al., 1994), price (Aguzzoul, 2014), reputation and image (Atmaca and Turgent, 2015), quality (Cerna and Bukova, 2016), reliability (Gümrükçü and Onurulus, 2020), time (Özyaydin et al., 2017), delivery (Jharkhari and Shankar, 2007) and technological proficiency (Leahy et al., 1995) were found to have priority.

In this study, a limited number of service quality attributes were used to increase the speed of the research and to increase survey participation. For this reason, increasing the number of attributes in future studies and applying the survey to consumers with different cultures in different countries will enable getting more comprehensive results. At the same time, it is also thought that studies in which there are more
significant numbers of participants should be conducted. It is also thought that examining the relationship between variables such as status consumption, demographic characteristics, lifestyles, or show off consumption habits and the attributes consumers find the most important in cargo services can be effective in analyzing consumer behavior.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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